3 1761 07491202 3

Digitized by the Internet Archive
in 2010 with funding from
University of Toronto

http://www.archive.org/details/cyclopediaofcomm01homa

CYCLOPEDIA OF COMMERCE

AND

COMMERCIAL NAVIGATION.

EDITED BY

J. SMITH HOMANS,

[illegible]
[illegible]

AND BY

J. SMITH HOMANS, JR., [illegible]

[illegible]

With Maps and Engravings.

NEW YORK:
HARPER & BROTHERS, PUBLISHERS,
FRANKLIN SQUARE.
[illegible]

EC
H7635c

A
CYCLOPEDIA OF COMMERCE
AND
COMMERCIAL NAVIGATION.

EDITED BY

J. SMITH HOMANS,
(i.e. Isaac Smith Homans)
CORRESPONDING SECRETARY OF THE CHAMBER OF COMMERCE OF THE STATE OF NEW YORK,
AND EDITOR OF "THE BANKERS' MAGAZINE AND STATISTICAL REGISTER;"

AND BY

J. SMITH HOMANS, JR., B.S.,
(i.e. Isaac Smith Homans, Jr.)
AUTHOR OF "AN HISTORICAL AND STATISTICAL SKETCH OF THE FOREIGN COMMERCE OF THE U. S."

321919
12.3.35

With Maps and Engravings.

NEW YORK:
HARPER & BROTHERS, PUBLISHERS,
FRANKLIN SQUARE.
1858.

Entered, according to Act of Congress, in the year one thousand eight hundred and fifty-eight, by

HARPER & BROTHERS,

In the Clerk's Office of the District Court for the Southern District of New York.

PREFACE.

The want of a comprehensive commercial work has long been felt in the United States—a work exhibiting the condition and resources of the United States and the separate States, as well as of foreign nations. The only attempt hitherto made in this country to supply the want of such a work was the reprint, twenty-five years ago, of M'Culloch's *Dictionary of Commerce and Commercial Navigation*. This work, probably as complete in reference to the commercial statistics of foreign countries as could be made at the time of its compilation, is very deficient in statistics relating to this continent, particularly of the United States. The later editions of Mr. M'Culloch's work contain much matter of an obsolete or local character, in which the American reader feels but little interest; while many subjects of great importance to commercial men in this country are, in the English work, either omitted entirely or mentioned only incidentally.

The extensive and important changes that have taken place within the past ten years in commercial affairs—the establishment of new States, new Territories, new commercial places—the unexampled increase of the commerce of the United States, of the development and the record of the great industrial resources of the United States—all seem to require a new and distinct work, with a view to place before commercial readers a more ample account of the progress of commerce throughout the world. The present volume has been prepared with a view to supply this want; and while we have aimed at presenting a fair exhibit of the finances, the internal and foreign commerce, the staple products of each State, we have at the same time gathered together the latest statistics in reference to the products and the commercial relations of foreign nations; especially of those with whom the United States have the most intimate intercourse.

We have endeavored to present, in a condensed manner and from reliable sources, historical and statistical details in reference to the great staples of the country; of those important products whose export to foreign countries has contributed largely to the prosperity of the States; and the increase of which is calculated to give us in future years a control of the vast markets of the world, and thus add greatly to the material wealth of the Union. Among these we mention the subjects of Wheat, Corn, Cotton, Rice, Hemp, Provisions, Iron, Copper, Gold and Silver, etc.

This is the first attempt in the United States to collect the historical and statistical facts in reference to these important subjects into one single work. In collecting these materials, and condensing them within a moderate compass, we have been aided by the valuable official Reports issued by the Treasury Department and by the Patent Office of the United States, for a series of years; and by the recent and highly valuable Reports of the Department of State upon *The Commercial Relations of the United States.* Much of the varied and important information contained in those official documents is brought together in the present work under its appropriate heads; so that the reader, instead of the labor of consulting some fifty or sixty volumes, may find every subject discussed under its alphabetical order.

A leading feature of the *Cyclopedia of Commerce*, at least to the American reader, is the reproduction, in brief, of views urged by Chancellor Kent, Judge Story, Professor Parsons, and other authors, upon the subjects of the Laws of Shipping, Insurance, Maritime Law, Seamen, etc. The extracts from these writings are only such, however, as will lead the careful reader to refer for further information on these subjects to the several works themselves.

In regard to the commercial relations of foreign countries—their finances, population, internal and foreign trade, staple productions, etc.—the reader will find condensed, from the most reliable authorities, much valuable information of a late date. The commerce and resources of the principal maritime countries are illustrated up to the years 1856–'57, and the relative importance of each in reference to the others, especially to the United States, is fully illustrated. The foreign trade of the United States with each country for the last thirty-six years is also shown, compiled with great care from the Treasury Reports of the United States from 1821 to 1857. These tabular details, valuable as showing the commercial progress of the United States, have not been officially communicated in a compact form to Congress, but are reproduced from "an Historical and Statistical Account of the Foreign Commerce of the United States," by the junior editor of this work.

The editors take pleasure in acknowledging the valuable aid derived from Mr. Poole's *Index to Periodical Literature*, a necessary appendage to the editorial table, and a key to the fugitive writings of the most able authors, English and American, of the present century; also from Mr. Alexander's elaborate and reliable *Dictionary of Weights and Measures;* from Professor Bache's official Reports on the Coast Survey of the United States; from Mr. Browne's able work on the *Trees of America;* and from Mr. Maury's *Physical Geography of the Sea*, etc.

A *Cyclopedia of Commerce* must necessarily be, in a great measure, a compilation, and any attempt to prepare a work of this character without taking advantage, to the fullest extent, of the labors of predecessors, would result in a failure. And though all of the articles have been rewritten or remodeled, to adapt them to this country, and with new information to bring them up to the present time, many of the important ones are entirely original, as far as compilation goes, and are carefully collated with the latest commercial statistics. Full use has been made of those standard works on commercial affairs which could give information pertaining to the subjects discussed. Under this view nothing more is claimed for this work than that it is a well-digested compilation. The plan of the work is based in many respects upon M'Culloch's *Dictionary of Commerce*, and from this work and the eighth edition of the *Encyclopedia Britannica* (now being published) have been principally compiled the articles relating to the commercial law and commercial trade of foreign countries. The statistics of the commerce of this country have been prepared from official sources, through a series of years; and in all instances no pains have been spared to obtain the latest and most reliable tabular details on all subjects, as they are the foundation and principal value of a work of this kind. In all cases where possible, charts of the harbors and sea-ports, by the latest surveys, have been obtained; and in this we are much indebted to the United States Coast Survey Reports for accurate details of the harbors of our own country. We add here a list of those works consulted, from which we have obtained much of the valuable information contained in the present work.

LIST OF AMERICAN AUTHORITIES.

Commercial Relations of the United States. Prepared by the Department of State. 1856–'57.

Reports of the Secretary of the Treasury on the Finances, Commerce, and Navigation of the United States. 1845–'57.

The Encyclopedia Americana. Philadelphia, 14 vols. 8vo.

History of the Foreign Commerce of the United States. By J. Smith Homans, Jun. 1857.

Dictionary of Weights and Measures of the World; adapted to the United States. By John H. Alexander. Baltimore: 8vo. 1856.

Kent's Commentaries on American Law. (Extracts, by permission of Hon. W. Kent.)

Manual for Consuls. Regulations prescribed for Consular Officers of the United States, by the Department of State. 8vo, p. 440. 1857.

The Trees of America, Native and Foreign. By D. J. Browne, of the Patent Office, United States. 8vo, p. 520. New York, 1846.

Condensed Census of the United States, of 1850–'51. 8vo, p. 400. 1855.

Index to Periodical Literature. By W. F. Poole, Librarian of the Boston Atheneum.

American Almanac and Repository of Useful Knowledge. Boston, 1830–'58.

Elements of International Law. By Henry Wheaton, LL.D. Edited by William Beach Lawrence. 8vo, p. 728. Boston, 1855.

The Elements of Mercantile Law. By Theophilus Parsons, LL.D., of Cambridge, Massachusetts. 8vo, p. 617. Boston, 1856.

Digest of the General Laws of the United States. By James Dunlop. 8vo, p. 1650. Philadelphia, 1856.

Hunt's Merchants' Magazine. New York, 1839–'57.

The Physical Geography of the Sea. By Lieutenant M. F. Maury, LL.D. 8vo, p. 360. New York, 1857.

United States Patent Office Reports. 1850–'56.

De Bow's Review of the South and West. Washington, 1846-'56.

De Bow's Industrial Resources of the United States. 3 vols. 8vo. 1854.

Reports on the Coast Survey of the United States. By Professor Bache. 4to. 1854–'57.

The Bankers' Magazine and Statistical Register, from 1846 to 1857.

Progress of Arctic Discovery, to 1856.

Blunt's Coast Pilot. 8vo. New York, 1857.

Harper's Universal Gazetteer.

LIST OF FOREIGN AUTHORITIES.

M'Culloch's Dictionary of Commerce and Commercial Navigation. London, 1856.

The Encyclopedia Britannica, eighth edition, now in course of publication at Edinburgh. 1856–'57.

Commercial Law of the World; or, the Mercantile Law of the United Kingdom compared with the Codes and Laws of Commerce of all Mercantile Countries. By Leone Levi. 2 vols. 4to. London, 1854.

Annals of British Legislation. By Professor Leone Levi. London, 1856–'57.

Manual of Mercantile Law of Great Britain and Ireland. By Leone Levi. 8vo. London, 1854.

The Mercantile and Maritime Guide for Great Britain. By Willmore and Bedell. 8vo, p. 1168. London, 1856.

Haydn's Dictionary of Dates. 8vo, p. 600. London, 1856.

Tuson's British Consul's Manual. 8vo, p. 572. London, 1856.

Bohn's Cyclopedia of Political, Constitutional, Statistical, and Forensic Knowledge. 4 vols. 12mo. London, 1849.

Pope's Yearly Journal of Trade for 1856–'57. 8vo. London.

Brande's Dictionary of Science, Literature, and the Arts. 8vo, p. 1352. New York, 1856.

Ure's Dictionary of Arts, Manufactures, and Mines. 8vo, 2 vols. p. 1118–1000. New York, 1856.

Dictionary of Geography, Descriptive, Physical, Statistical, and Historical. By Alex. Keith Johnston. 8vo, p. 1352. 1856.

Gazetteer of the Territories under the Government of the East India Company, and of the Native States on the Continent of India. By Edward Thornton. 8vo, p. 1016. London, 1857.

The British Almanac and Companion. London, 1829–'57.

Almanach de Gotha, 1857–'58.

Year Book of Facts in Science and Art. By John Timbs, F.S.A. London, 1856–'57.

Dodd's Curiosities of Industry and the applied Sciences. 8vo. London, 1854.

LIST OF MAPS AND ENGRAVINGS.

Artesian Wells.......... Page 62
Atlantic Ocean.......... " 73
Harbor of Bahia.......... " 84
Harbor of Boston.......... " 197
Harbor of Constantinople.......... " 401
Dry Docks.......... " 550
Harbor of Elsineur.......... " 589
Straits of Gibraltar.......... " 816
Gulf Stream.......... " 915
Marine Dynamometer.......... " 935
Heights of Waves.......... " 943
Harbor and City of Havana.......... " 949
Life-boats.......... Page 1212
" .... " 1213
" .... " 1214
" .... " 1216
Light-houses.......... " 1220
" .... " 1221
" .... " 1222
" .... " 1223
" .... " 1225
" .... " 1226
Harbor of Rio de Janeiro.......... " 1637

ABBREVIATIONS USED.

E. B. for Encyclopedia Britannica. *J. R. M.* for John R. M'Culloch. *Com. Rel.* for Commercial Relations.

A

CYCLOPEDIA

OF

COMMERCE

AND

COMMERCIAL NAVIGATION.

AAM, Aum, or **Ahm,** a measure for liquids, used at Amsterdam, Antwerp, Hamburg, Frankfort, etc. At Amsterdam it is nearly equal to 41 English wine gallons, at Antwerp to 36½ gallons, at Hamburg to 38¼ gallons, and at Frankfort to 39 gallons.

Aback (a sea term), the situation of the sails when the surfaces are flatted against the masts by the force of the wind. The sails are said to be *taken aback* when they are brought into this situation either by a sudden change of the wind or by an alteration in the ship's course. They are *laid aback*, to effect an immediate retreat, without turning to the right or left; or in the sea phrase, to give the ship *stern-way*, in order to avoid some danger discovered before her in a narrow channel, or when she has advanced beyond her station in the line of battle, or otherwise. The sails are placed in this position by slackening their lee braces, and hauling in the weather ones; so that the whole effort of the wind is exerted on the fore part of their surface, which readily pushes the ship astern, unless she is restrained by some counteracting force.

Abacus is the name of an ancient instrument for facilitating operations in arithmetic. The exhibition of numbers by counters appears happily fitted for unfolding the principles of calculation. In the schools of ancient Greece, the boys acquired the elements of knowledge by working on a smooth board with a narrow rim—the *abax;* so named, evidently, from the combination of A, B, Γ, the first letters of their alphabet, resembling, except perhaps in size, the tablet likewise called A, B, C, on which the children with us used to begin to learn the art of reading. The pupils, in those distant ages, were instructed to compute by forming progressive rows of counters, which, according to the wealth or fancy of the individual, consisted of small pebbles, of round bits of bone or ivory, or even of silver coins. From ψηφος, the Greek word for a *pebble*, comes the verb ψηφιζειν, to *compute*. But the same board served also for teaching the rudiments of writing and the principles of geometry. The *abax* being strewed with green sand, the *pulvis eruditus* of classic authors, it was easy, with a *radius* or small rod, to trace letters, draw lines, construct triangles, or describe circles. Besides the original word Αβαξ, the Greeks had the diminutive Αβακιον; and it seems very probable that this smaller board was commonly used for calculations, while the larger one was reserved among them for the purpose of tracing geometrical diagrams.

To facilitate the working by counters, the construction of the *abacus* was afterward improved. Instead of the perpendicular lines or bars, the board had its surface divided by sets of parallel grooves, by stretched wires, or even by successive rows of holes. It was easy to move small counters in the grooves, to slide perforated beads along the wires, or to stick large nobs or round-headed nails in the different holes. To diminish the number of marks required, every column was surmounted by a shorter one, wherein each counter had the same value as five of the ordinary kind, being half the index of the Denary Scale.

The civil arts of Rome were communicated to other nations by the tide of victory, and maintained through the vigor and firmness of her imperial sway. But the simpler and more useful improvements survived the wreck of empire, among the various people again restored by fortune to their barbarous independence. In all transactions wherein money was concerned, it was found convenient to follow the procedure of the *abacus*, in representing numbers by counters placed in parallel rows. During the Middle Ages, it became the usual practice over Europe for merchants, auditors of accounts, or judges appointed to decide in matters of revenue, to appear on a covered *bank* or *bench*, so called from an old Saxon or Franconian word signifying a *seat*. Hence those terms were afterward appropriated to offices for receiving pledges, chambers for the accommodation of money-dealers, or courts for the trying of questions respecting property or the claims of the crown. Hence also the word *bankrupt*, which occurs in all the dialects of Europe. The term *scaccarium*, from which was derived the French, and thence the English name for the *Exchequer*, anciently signified merely a *chess-board*, being formed from *scaccum*, denoting one of the movable pieces in that intricate game. The reason of this application of the term is sufficiently obvious. The table for accounts was, to facilitate the calculations, always covered with a cloth, resembling the surface of the *scaccarium* or *abacus*, and distinguished by perpendicular or *chequered* lines. The learned Skene was therefore mistaken in supposing that the Exchequer derived its name from the play of chess, because its suitors appear to fight a keen and dubious battle.*

The Court of Exchequer, which takes cognizance of all questions of revenue, was introduced into England by the Norman Conquest. Richard Fitznigel, in a treatise or dialogue on the subject, written about the middle of the twelfth century, says that the *scaccarium* was a quadrangular table about ten feet long and five feet broad, with a ledge or border about four inches high, to prevent any thing from rolling over, and was surrounded on all sides by seats for the judges, the tellers, and other officers. It was covered every year, after the term of Easter, with fresh black cloth, divided by perpendicular white lines, or distinctures, at intervals of about a foot or a palm, and again parted by similar transverse lines. In reckoning, they proceeded, he says, according to the rules of arithmetic,[*] using small coins for counters. The lowest bar exhibited *pence*, the one above it *shillings*, the next *pounds;* and the higher bars denoted successively *tens, twenties, hundreds, thousands*, and *ten thousands* of pounds; though, in those early times of penury and severe economy, it very seldom happened that so large a sum as the last ever came to be reckoned. The first bar, therefore, advanced by *dozens*, the second and third by *scores*, and the rest of the stock of bars by the multiples of *ten*. The teller sat about the middle of the table; on his right hand *eleven* pennies were heaped on the first bar, and a pile of *nineteen* shillings on the second; while a quantity of pounds was collected opposite to him, on the third bar. For the sake of expedition, he might employ a different mark to represent half the value of any bar, a silver penny for ten shillings, and a gold penny for ten pounds.

---

* "Because mony persons convenis in the Checker to playe their causes, contrare uthers, as gif they were fechtand in an arrayed battell, quilk is the forme and ordour of the said playe." —Skene, ad voc. *Scaccarium.*

In early times, a chequered board, the emblem of calculation, was hung out, to indicate an office for changing money. It was afterward adopted as the sign of an inn or *hostelry*, where victuals were sold, or strangers lodged and entertained. We may perceive traces of that ancient practice existing even at present. It is customary in London, and in some provincial towns, to have a chequer, diced with red and white, painted against the sides of the door of a chop-house.

The Chinese have from the remotest ages used, in all their calculations, an instrument called the *Swan-pan*, or *Computing Table*, similar in its shape and construction to the *abacus* of the Romans, but more complete and uniform. It consists of a small oblong board surrounded by a high ledge, and parted lengthwise near the top by another ledge. It is then divided vertically by ten smooth and slender rods of bamboo, on which are strung two small balls of ivory or bone in the upper compartment, and five such balls in the lower and larger compartment; each of the latter on the several bars denoting unit, and each of the former, for the sake of abbreviation, expressing five.

The system of measures, weights, and coins, which prevails throughout the Chinese empire, being entirely founded on the decimal subdivision, the swan-pan was admirably suited for representing it. The calculator could begin at any particular bar, and reckon with the same facility either upward or downward. This advantage of treating fractions exactly like integers was, in practice, of the utmost consequence. Accordingly, those arithmetical machines, but of very different sizes, are constantly used in all the shops and booths of Canton and other cities, and are said to be handled by the native traders with such rapidity and address as quite astonish the European factors.

Abaft, a sea term signifying the hinder part of a ship, or all those parts both within and without which lie toward the stern, in opposition to *afore*. *Abaft* is also used as a preposition, and signifies *farther aft*, or *nearer the stern;* as, the barricade stands *abaft* the main-mast, *i. e.* behind it, or nearer the stern.

Abandonment, in commerce and navigation, is used to express the abandoning or surrendering of the ship or goods insured to the insurer.

It is held, by the law of England, that the insured has the right to abandon, and to compel the insurers to pay the whole value of the thing insured, in every case "where, by the happening of any of the misfortunes or perils insured against, the voyage is lost, or not worth pursuing, and the projected adventure is frustrated; or where the thing insured is so damaged and spoiled as to be of little or no value to the owner; or where the salvage is very high; or where what is saved is of less value than the freight; or where further expense is necessary, and the insurer will not undertake to pay that expense," etc.—MARSHALL, book i. cap. 13, § 1.

Abandonment very frequently takes place in cases of capture: the loss is then total, and no question can arise in respect to it. In cases, however, in which a ship and cargo are recaptured *within such a time that the object of the voyage is not lost*, the insured is not entitled to abandon. The mere *stranding* of a ship is not deemed of itself such a loss as will justify an abandonment. If by some fortunate accident, by the exertions of the crew, or by any borrowed assistance, the ship be got off and rendered capable of continuing her voyage, it is not a total loss, and the insurers are only liable for the expenses occasioned by the stranding. It is only where the stranding is followed by *shipwreck*, or in any other way renders the ship incapable of prosecuting her voyage, that the insured can abandon.

It has been decided that damage sustained in a voyage to the extent of forty-eight per cent. of the value of the ship did not entitle the insured to abandon. If a cargo be damaged in the course of a voyage, and it appears that what has been saved is less than the amount of freight, it is held to be a total loss.—PARK *on Insurance*, cap. 9.

When by the occurrence of any of the perils insured against the insured has acquired a right to abandon, he is at liberty either to abandon or not, as he thinks proper. He is in no case bound to abandon; but if he make an election, and resolve to abandon, he must abide by his resolution, and has no longer the power to claim for a partial loss. In some foreign countries specific periods are fixed by law within which the insured, after being informed of the loss, must elect either to abandon or not. In England, however, no particular period is fixed for this purpose; but the rule is, that if the insured determine to abandon, he must intimate such determination to the insurers within a *reasonable period* after he has got intelligence of the loss—any unnecessary delay in making this intimation being interpreted to mean that he has decided not to abandon.

No particular form or solemnity is required in giving notice of an abandonment. It may be given either to the underwriter himself, or the agent who subscribed for him.

"The effect of an abandonment is to vest all the rights of the insured in the insurers. The latter become the legal owners of the ship, and as such are liable for all her future outgoings, and entitled to her future earnings. An abandonment, when once made, is irrevocable.

"A total loss within the meaning of the policy may arise either by the total destruction of the thing insured, or, if it specifically remains, by such damage to it as renders it of little or no value. A loss is said to be total if the voyage be entirely lost or defeated, or not worth pursuing, and the projected adventure frustrated. It is a constructive total loss if the thing insured, though existing in fact, is lost for any beneficial purpose to the owner. In such cases the insured may abandon all his interest in the subject insured and all his hopes of recovery to the insurer, and call upon him to pay as for a total loss. The object of the provision is to enable the insured to be promptly reinstated in his capital, and be thereby enabled to engage in some new mercantile adventure. Long interruption to a voyage, and uncertain hopes of recovery, would often be ruinous to the business of the merchant; and therefore, if the object of the voyage be lost, or not worth pursuing by reason of the peril insured against, or if the cargo be so damaged as to be of little or no value, or where the salvage is very high and further expense be necessary, and the insurer will not engage to bear it, or if what is saved be of less value than the freight, or where the damage exceeds one half the value of the goods insured, or where the property is captured, or arrested, or even detained by an indefinite embargo; in these and other cases of a like nature the insured may disentangle himself and abandon the subject to the underwriter, and call upon him to pay a total loss. In such cases the insurer stands in the place of the insured, and takes the subject to himself, with all the chances of recovery and indemnity. A valid abandonment has a retrospective effect, and does of itself, and without any deed of cession, and prior to the actual payment of the loss, transfer the right of property to the insurer to the extent of the insurance; and if after an abandonment, duly made and accepted, the ship should be recovered, and proceed and make a prosperous voyage, the insurer, as owner, would reap the profits.

---

[*] He calls it *Arismetica:* In the *Myrrour of the Worlde*, printed by Caxton in 1481, it is strangely named *Ars Metrike*, a proof of the total ignorance of Greek at that period in England.

"These considerations have introduced the right of abandonment into the insurance law of every country, and yet the text writers have generally condemned the privilege as inconsistent with just notions concerning the nature of the contract of insurance, which is a contract of indemnity. But it has now become an ingredient so interwoven with the whole system of insurance, that it can not be abolished; though the late English cases, says Mr. Benecke, show a stronger inclination in the courts to restrict than to enlarge the right. The laws of Hamburg distinguish themselves from all others, by restricting the right of abandonment to the only case of a missing ship.

"As soon as the insured is informed of the loss, he ought (after being allowed a reasonable time to inspect the cargo, and for no other purpose) to determine promptly whether he will or will not abandon, and he can not lie by and speculate on events. If he elects to abandon, he must do it in a reasonable time, and give notice promptly to the insurer of his determination; otherwise he will be deemed to have waived his right to abandon, and will be entitled to recover only for a partial loss, unless the loss be, in fact, absolutely total. If the thing insured exists in specie, and the insured wishes to go for a total loss, an abandonment is indispensable. The same principle which requires the insured, who abandons, to do it in a reasonable time, also requires the insurer, who rejects an abandonment, to act promptly. The object of the abandonment is to turn that into a total loss which otherwise would not be one; and it is unnecessary, and would be idle, to abandon in the case of an entire destruction of the subject. It is only necessary when the loss is constructively total within the policy, and not an actual total loss. The right of abandonment does not depend upon the certainty, but upon the high probability, of a total loss, either of the property, or voyage, or both. The insured is to act, not upon certainties, but upon probabilities; and if the facts present a case of extreme hazard, and of probable expense, exceeding half the value of the ship, the insured may abandon, though it should happen that she was afterward recovered at a less expense. Though the subject may physically exist, yet there may be a technical total loss to the owner if the things be taken from his free use and possession. Such are the common cases of total losses by embargoes, by captures, and by restraints, and detainments of princes.

"The right to abandon exists when the ship, for all the useful purposes of the voyage, is gone from the control of the owner; as in the cases of submersion, or shipwreck, or capture, and it is uncertain, or the time unreasonably distant, when it will be restored in a state to resume the voyage; or when the risk and expense of restoring the vessel are disproportioned to the expected benefit and objects of the voyage. All these general doctrines concerning abandonment have been entirely incorporated into our American law, and they exist to all essential purposes in the French jurisprudence.

"Upon a valid abandonment, either of the vessel or of the cargo insured, the master becomes the agent of the insurer, and the insured is not bound by his subsequent acts unless he adopts them. The owner or insured, equally with the master, becomes the agent of the insurer on abandonment, and he can not purchase in the property on his own account without the consent of his principals; and if he does, it revokes the abandonment, and turns the total into a partial loss. It is the duty of the master, resulting from his situation, to act with good faith, and care, and diligence, for the protection and recovery of the property, for the benefit of whom it may eventually concern. The master of an insured ship injured by the perils of the sea, and not competent to complete the voyage, may sell her in a case of necessity, as when the ship is in a place in which she can not be repaired; or the expense of repairing her will be extravagant, and exceed her value; or when he has no money in his possession, and is not able to raise any. In cases of capture, he is bound, if a neutral, to remain and assert his claim until condemnation, or the recovery be hopeless. His wages, and those of the crew, are a charge on the owner, and ultimately, in case of recovery, to be borne as a general average by all parties in interest; and if the abandonment be accepted, the underwriter becomes owner for the voyage, and in that character liable for the seamen's wages, and entitled to the freight subsequently earned. If the master purchases in the vessel, or ransoms her, the insurer will be entitled to the benefit of the purchase or composition; and, on the other hand, if the insured affirms the purchase of the master, it will be, at the option of the insurer, a waiver of the abandonment. The insurer can accept of the repurchase of the master, as his constructive agent, and affirm the act, or he may leave it to fall upon the master.

"The assured has the right of abandoning the freight when there has been a constructive total loss of the ship; and he has sustained a total loss of the freight, if he abandons the ship to the underwriters on the ship, when the case justifies it, for after such abandonment, he has no longer the means of earning the freight, or of receiving it if earned, for the freight goes to the underwriters on the ship. But it has been a very controverted question, whether an abandonment of the ship transferred the freight in whole or in part. It was finally settled in the jurisprudence of New York and of Massachusetts, and adopted as the true rule in the Circuit Court of the United States for Massachusetts, that on an accepted abandonment of the ship, the freight earned previous to the disaster was to be retained by the owner or his representative, the insurer on the freight, and apportioned *pro rata itineris;* and that the freight subsequently earned went to the insurer on the ship."—*See* KENT'S *Comm.*, Lect. XLVIII. vol. iii.

Abassi, or **Abassis**, a silver coin current in Persia, equivalent in value to a French livre, or at present tenpence sterling. It took its name from Schah Abbas II., king of Persia, under whom it was struck.

Abatement, or **Rebate**, is the name sometimes given to a discount allowed for prompt payment; it is also sometimes used to express the deduction that is occasionally made at the custom-house from the duties chargeable upon such goods as are damaged, and for loss in warehouses.

Abattoir, the term applied by the French to designate slaughter-houses for cattle. These useful establishments were introduced into Paris and other large cities by Napoleon. Formerly the multitude of animals slaughtered in Paris became a nuisance of great magnitude to the inhabitants, from the exhibition of the barbarities practiced on the poor animals by the butchers, the piteous cries of sheep and cattle pent up, without food or water, in the confined stalls in which they were crowded, and from the offensive exhalations of putrid blood and offal that proceeded from slaughter-houses, often planted in the most populous parts of the city. The same nuisance, till lately, disgraced the British metropolis, and many other English towns. It appears hardly conceivable that London should, till 1852, have tolerated the nuisance of Smithfield market. When this mart was established five centuries ago, it was far beyond the precincts of the city. There, in the midst of a dense population, no fewer than 243,537 head of cattle, and 1,455,249 sheep were sold in 1852, to be afterward slaughtered in the crowded lanes and ill-ventilated courts of the metropolis; while the French, and the people of the United States, do not tolerate such sources of disgust and disease in the interior of their great towns.

The abattoirs of Paris, created by Napoleon's decree of 1810, amounted to five in 1818, when they were all completed, and put under excellent regulation. There are three on the north, and two on the south side of Paris; and all are in the outskirts of the town, about two miles from its centre. The largest to the north is in the Rue Rochechouart, between the Barrieres Poissonnieres and des Martyres; the largest on the south side is just behind the Place Breteuil; the rest are near the banks of the Seine. The cattle-market's are all at the distance of some miles from Paris; and the cattle are driven from them to the abattoirs, round by the external Boulevards, so as to avoid the streets as much as possible.

Each butcher goes to his own abattoir; to which are attached proper places for preserving the meat, provided with an iron rack for the fat, pans for melting the tallow, and stalls for the cattle before they are slaughtered. The stalls are furnished with proper racks and troughs for hay and water, that the animals may suffer as little as possible before they are slaughtered. The abattoirs and the whole establishment are kept very clean by an abundant supply of water, that carries off the blood and all impurities into sewers. Considering the nature of the place, every thing is commendably clean.

An inspector is appointed to each abattoir, whose business it is to prevent the sale of unwholesome meat, and to enforce order and cleanliness. For these accommodations a butcher pays according to the number of animals he slaughters. The sum now paid for each ox is six francs, four for a cow, two for a calf, and one for a sheep or lamb. The money thus raised from all the Parisian abattoirs in 1842 amounted to about £48,000 sterling. It is greatly to be wished that some regulations like those of the French abattoirs were introduced into the principal English towns, especially London, Liverpool, Manchester, Glasgow, etc., as has lately been done at Edinburgh.

In 1851, the corporation of Edinburgh constructed a greatly improved abattoir in that city, from designs prepared by Mr. David Cousin, the city architect. It occupies an area of four acres and a quarter, surrounded by a screen-wall, with entrance gates on each side in the Egyptian style of architecture; behind the screen-wall is a large open area, from which access is given to all the different buildings connected with the establishment. The slaughtering booths consist of a double row of buildings, extending in a straight line to about 376 feet in length, with a centre roadway 25 feet wide. There are three separate blocks of building on each side of the roadway, the extreme blocks being each 100 feet in length, and the central one 140 feet, with cross-roads 18 feet wide between these, giving access to the other portions of the grounds. The different ranges of building contain 42 booths in all; each booth is 18 feet wide, 24 feet in length, and 20 feet in height, having a cattle shed attached, 18 feet by 22 feet, and a small inclosed yard behind, with a separate back entrance, by which all the cattle are driven into the sheds, where they are kept previously to being slaughtered. By a series of large ventilators along the roof, and by other contrivances, these buildings are thoroughly ventilated. The large doors of the booths, instead of being hinged in the usual manner, are hung by balance weights, so as to slide up and down similarly to an ordinary sash-window, so that they never interfere with the operations within, or with the thoroughfare of the road.

Improved mechanical contrivances have been introduced, some of them of a novel application, which have secured great facilities in the dressing and preparation of the meat. Each booth is amply provided with water. In addition to the slaughtering booths, there is large accommodation for triperies, pig-slaughtering houses, tallow-weighing houses, and all the other necessaries of such an establishment.

The whole of the booths have been laid with thick, well-dressed pavement, resting on a stratum of concrete twelve inches thick, and the walls to the height of seven feet are formed of solid ashler, so as to prevent the possibility of rats burrowing in them. With this view also, the whole surface of the roadways has been laid with concrete and causewayed with well-dressed whinstone pavement. The drainage, also, consists entirely of glazed earthen-ware tiles, so that the whole area of the buildings is rendered impervious to these destructive vermin. There are two distinct sets of drains, one for surface water, which is conveyed directly into Lochrin burn; the other for soil from the booths, which is conveyed into large tanks formed for its reception, and sold for agricultural purposes.

Before the erection of these buildings, private slaughter-houses were scattered all over the city, often in the most populous districts, where, through want of drainage and imperfect ventilation, they contaminated the whole neighborhood. Since the opening of the public abattoir, all private slaughter-houses are prohibited.

Aboard, the inside of a ship. Hence any person who enters a ship is said to *go aboard:* but when an enemy enters in the time of battle, he is said to *board;* a phrase which always implies hostility.—To *fall aboard of*, is to strike or *encounter* another ship when one or both are in motion, or to be driven upon a ship by the force of the wind or current.—*Aboard-main-tack*, the order to draw the main-tack, *i. e.* the lower corner of the mainsail, down to the CHESS-TREE.

Abrasion is sometimes used to denote the wear and tear of coins. The deficiency in the weight of the old worn coins, on their being called in to be recoined, falls upon the public. Mr. M'Culloch reckons, that if the currency of the United Kingdom consisted wholly of gold, it would amount to at least sixty millions of sovereigns, and that the loss sustained by abrasion, including what results from shipwreck, fire, and other accidents, would amount to a hundredth part of the sum in circulation, or £600,000 annually.—M'CULLOCH's *Treatises and Essays on Economical Policy*, p. 33.

Acacia, Egyptian Thorn, or **Binding Bean-tree,** in *Botany*, a species of mimosa, according to Linnæus, though other botanists make it a distinct genus. Several species of acacia produce *gum arabic*, especially *A. Ehrenbergii*, *A. tortilis*, *A. arabica*, *A. vera*, *A. Seyal*, *A. Verek.* An inferior sort is produced by *A. Adansonii*, *A. albida*, and *A. Karro.* These are natives of Egypt, Arabia, or Africa. The inspissated gum of the bark of *A. catechu* forms the astringent substance named catechu; which, however, is also produced in India from several other trees. The bark of several species of acacia produces a *tannin;* of which a large quantity is now imported from Van Diemen's Land for the purposes of the tanner, and is chiefly the produce of *A. decurrens* and *A. mollissima.*

A. julibrissin, a native of Persia, has, on account of its elegant foliage and flowers, been long acclimated in England; *A. sophora* is a fragrant species, that has more lately been introduced, and is nearly acclimated in the south of our island. It flowers early in spring, and bears many clusters of rich yellow flowers. The flowers of a species of the acacia are used by the Chinese in making that yellow which we see bears washing in their silks and stuffs, and appears with so much elegance in their painting on paper. The method is this: They gather the flowers before they are fully open; these they put in a clean earthen vessel over a gentle heat, and stir them continually about as they do the tea-leaves, till they become dryish and of a yellow color; then to half a pound of flowers they add three spoonfuls of fair water, and after that a little more, till there is just enough to hold the flowers incorporated together; they boil this for some time, and the juice of the flowers mixing with the water, it becomes thick and yellow; they then take it from the fire, and strain it through a piece of coarse silk. To the liquor they add half an ounce of common alum, and an ounce of calcined oyster-shells reduced to a fine powder. All is then well mixed together; and this is the fine lasting yellow they have so long used.

The dyers of large pieces use the flowers and seeds of the acacia for dyeing three different sorts of yellow. They roast the flowers, as before observed, and then mix the seeds with them, which must be gathered for this purpose when fully ripe; by different admixtures of these they give the different shades of color, only for the deepest of all they add a small quantity of Brazil wood.

Mr. Geoffroy attributes the origin of bezoar to the seeds of this plant; which being browsed by certain animals, and vellicating the stomach by their great great sourness and astringency, cause a condensation of the juices, till at length they become coated over with a stony matter which we call BEZOAR.

Acapulco, a sea-port on the western coast of Mexico, in lat. 16° 50′ 29″ N., long. 99° 46′ W. Pop. 4000 (?). "It is," says Captain Hall, "the very *beau ideal* of a harbor. It is easy of access, very capacious, the water not too deep, the holding ground good, quite free from hidden dangers,* and as secure as the basin in the centre of Portsmouth dock-yard."—*South America*, ii. 172. Previously to the emancipation of Spanish America, a galleon, or large ship, richly laden, was annually sent from Acapulco to Manilla, in the Philippine Islands, and at her return a fair was held, which was much resorted to by strangers. But this sort of intercourse is no longer carried on, the trade to Manilla and all other places being now conducted by private individuals. The exports consist of bullion, cochineal, cocoa, indigo, etc. The imports principally consist of cotton goods, hardware, articles of jewelry, raw and wrought silks, spices, and aromatics. Acapulco, for foreigners, is extremely unhealthy; and though it be one of the principal ports on the west coast of Mexico, its commerce is but inconsiderable. The navigation from Acapulco to Guayaquil and Callao is exceedingly tedious and difficult, so that there is but little intercourse between Mexico and Peru, Panama having of late years become the leading port for foreign imports near this latitude.

Account, or **Accompt**, in a general sense, a computation or reckoning of any thing by numbers. Collectively, it is used to express the books which merchants, traders, bankers, etc., use for recording their transactions in business.

Accountant, or **Accomptant**, in the most general sense, is a person skilled in accounts. In a more restricted sense, it is applied to a person or officer appointed to keep the accounts of a public company or office.

Accountant-General, an officer in the English Court of Chancery, appointed by act of Parliament to receive all moneys lodged in court, instead of the masters, and convey the same to the Bank of England for security. There is also an accountant-general in the Irish Chancery, and one in Scotland, who has charge of the accounts of the Court of Session.

Accounts, Chamber of, in the French polity, a sovereign court of great antiquity, which took cognizance of and registered the accounts of the king's revenue; nearly the same with the English *Court of Exchequer.*

Acids are a class of compounds which are distinguished from all others by the following properties: They are generally possessed of a very sharp and sour taste; redden the infusions of blue vegetable colors; are often highly corrosive, and enter into combination with the alkalies, earths, and metallic oxides; forming compounds in which the characters of the constituents are entirely destroyed, and new ones produced differing in every respect from those previously existing. The quality or strength of an acid is generally ascertained either by its specific gravity, which is found by means of the hydrometer, if the acid be liquid, or by the quantity of pure and dry subcarbonate of potass or soda, or of carbonate of lime (marble), which a given weight of the acid requires for its exact neutralization. This latter process is termed Acidimetry, or the ascertaining the quantity of *real* acid existing in any of the liquid or crystallized acids.

The principal acids at present known are, the Acetic, Benzoic, Boracic, Bromic, Carbonic, Citric, Chloric, Cyanic, Fluoric, Ferroprussic, Gallic, Hydrobromic, Hydriodic, Iodic, Lactic, Malic, Margaric, Meconic, Muriatic or Hydrochloric, Nitrous, Nitric, Oleic, Oxalic, Phosphoric, Prussic or Hydrocyanic, Purpuric, Saccholactic, Suberic, Sulphurous, Sulphuric, Tartaric, Uric, and many others which it would be superfluous to detail. It is the most important only of these, however, that will be here treated of, and more particularly those employed in the arts and manufactures.

Acetic or pyroligneous Acid.—This acid, in its pure and concentrated form, is obtained from the fluid matter which passes over in distillation, when wood is exposed to heat in close iron cylinders. This fluid is a mixture of acetic acid, tar, and a very volatile ether; from these the acid may be separated, after a second distillation, by saturating with chalk, and evaporating to dryness; an acetate of lime is thus procured, which, by mixture with sulphate of soda (Glauber's salt), is decomposed, the resulting compounds being an insoluble sulphate of lime, and a very soluble acetate of soda; these are easily separated from each other by solution in water and filtration; the acetate of soda being obtained in the crystalline form by evaporation. From this, or the acetate of lime, some manufacturers employing the former, others the latter, the acetic acid is obtained by distillation with sulphuric acid (oil of vitriol); as thus procured, it is a colorless, volatile fluid, having a very pungent and refreshing odor, and a strong acid taste. Its strength should be ascertained by the quantity of marble required for its neutralization, as its specific gravity does not give a correct indication. It is employed in the preparation of the acetate of lead (sugar of lead), in many of the pharmaceutical compounds, and also as an antiseptic.

Vinegar is an impure and very dilute acetic acid, obtained by exposing either weak wines or infusions of malt to the air and a slow fermentation: it contains, besides the pure acid, a large quantity of coloring matter, some mucilage, and a little spirit; from these it is readily separated by distillation. The impurities with which this distilled vinegar is sometimes adulterated, or with which it is accidentally contaminated, are oil of vitriol, added to increase the acidity, and oxides of tin or copper, arising from the vinegar having been distilled through tin or copper worms. These may be easily detected; the oil of vitriol by the addition of a little solution of muriate of barytes to the distilled vinegar, which, should the acid be present, will cause a dense white precipitate; and the oxides of tin or copper by the addition of water impregnated with sulphureted hydrogen. Vinegar is employed in many culinary and domestic operations, and also very largely in the manufacture of the carbonate of lead (white-lead).

---

* This is not quite accurate. There is one shoal on which a vessel was lost in 1781; but being laid down in the charts, it is easily avoided.—HUMBOLDT, *Nouvelle Espagne*, iv. 90.

Benzoic Acid exists naturally formed in the gum benzoin, and may be procured either by submitting the benzoin in fine powder to repeated sublimations, or by digesting it with lime and water, straining off the clear solution, and adding muriatic acid, which enters into combination with the lime, and the benzoic acid, being nearly insoluble in water, falls as a white powder; this may be further purified by a sublimation. Benzoic acid is of a beautiful pearly white color when pure, has a very peculiar aromatic odor, and an acrid, acid, and bitter taste; it is used in making pastilles and perfumed incense. This acid also occurs in the balsams of Tolú and Peru, and in the urine of the horse and cow.

Boracic Acid is found in an uncombined state in many of the hot springs of Tuscany, as also at Sesso, in the Florentine territory, from whence it has received the name of Sessolin. In Thibet, Persia, and South America, it occurs in combination with soda, and is imported from the former place into this country in a crystalline form, under the name of Tincal. These crystals are coated with a rancid, fatty substance, and require to be purified by repeated solutions and crystallizations; after which it is sold under the appellation of borax (biborate of soda); from a hot solution of this salt the boracic acid is readily obtained, by the addition of sulphuric acid in slight excess; sulphate of soda is formed, and the boracic acid crystallizes as the solution cools. When pure, these crystals are white, and have an unctuous greasy feel; they are soluble in alcohol, communicating a green tinge to its flame; when fused it forms a transparent glass, and has been found by Mr. Faraday to unite with the oxide of lead, producing a very uniform glass, free from all defects, and well adapted for the purpose of telescopes and other astronomical instruments. Borax is much employed in the arts, particularly in metallurgic operations as a flux; also in enameling and in pharmacy. (*See* BORAX.)

Carbonic Acid.—This acid occurs very abundantly in nature, combined with lime, magnesia, barytes, aerial acid, fixed air, mephitic acid: from any of these it is easily separated by the addition of nearly any of the other acids. In its uncombined form it is a transparent, gaseous fluid, having a density of 1·53, atmospheric air being unity; it is absorbed to a considerable extent by water, and when the water is rendered slightly alkaline by the addition of carbonate of soda, and a large quantity of gas forced into it by pressure, it forms the well-known refreshing beverage soda water. This gas is also formed in very large quantities during combustion, respiration, and fermentation. Carbonic acid gas is destructive of animal life and combustion, and from its great weight accumulates in the bottoms of deep wells, cells, caves, etc., which have been closed for a long period, and numerous fatal accidents arise frequently to persons entering such places incautiously. The precaution should always be taken of introducing a lighted candle prior to the descent or entrance of any one; for, should the candle be extinguished, it would be dangerous to enter until properly ventilated. The combinations of carbonic acid with the alkalies, earths, and metallic oxides are termed carbonates.

Citric Acid exists in a free state in the juice of the lemon, lime, and other fruits, combined, however, with mucilage, and sometimes a little sugar, which renders it, if required to be preserved for a long period, very liable to ferment; on this account the crystallized citric acid is to be preferred. It is prepared by saturating the lemon juice with chalk; the citric acid combines with the lime, forming an insoluble compound, while the carbonic acid is liberated; the insoluble citrate, after being well washed, is to be acted upon by dilute sulphuric acid, which forms sulphate of lime, and the citric acid enters into solution in the water; by filtration and evaporation the citric acid is obtained in colorless transparent crystals. The chief uses to which it is applied are as a preventive of sea scurvy, and in making refreshing acidulous or effervescing drinks; for which latter purposes it is peculiarly fitted from its very pleasant flavor.

Fluoric Acid is found in the well-known mineral fluor spar in combination with lime; from which it is procured in the liquid form by distillation with dilute sulphuric acid in a leaden or silver retort: the receiver should be of the same material as the retort, and kept cool by ice or snow.

This acid is gaseous in its pure form, highly corrosive, and intensely acid; it is rapidly absorbed by water, communicating its properties to that fluid. Its chief use is for etching on glass, which it corrodes with great rapidity. For this purpose a thin coating of wax is to be melted on the surface of the glass, and the sketch drawn by a fine hard-pointed instrument through the wax; the liquid acid is then poured on it, and after a short time, on the removal of the acid and coating, an etching will be found in the substance of the glass. A very excellent application of this property, possessed by fluoric acid, is in the roughing the shades for table lamps. All the metals, except silver, lead, and platina, are acted upon by this acid.

Gallic Acid.—The source from which this acid is generally obtained is the nut-gall, a hard protuberance produced on the oak by the puncture of insects. The most simple method of procuring the acid in its pure form is to submit the galls in fine powder to sublimation in a retort, taking care that the heat be applied slowly and with caution; the other processes require a very long period for their completion. When pure, gallic acid has a white and silky appearance, and a highly astringent and slightly acid taste. The nut-galls, which owe their properties to the gallic acid they contain, are employed very extensively in the arts for dyeing and staining silks, cloths, and woods of a black color; this is owing to its forming with the oxide of iron an intense black precipitate. Writing-ink is made on the same principle; a very excellent receipt of the late Dr. Black's is, to take 3 ounces of the best Aleppo galls in fine powder, 1 ounce sulphate of iron (green vitriol), 1 ounce of logwood finely rasped, 1 ounce of gum arabic, 1 pint of the best vinegar, 1 pint of soft water, and 8 or 10 cloves; in this case the black precipitate is kept suspended by the gum.

Hydriodic Acid is a compound of iodine and hydrogen. In its separate form it is of very little importance in the arts.

Malic Acid exists in the juices of many fruits, particularly the apple, as also in the berries of the service and mountain ash.

Meconic Acid is found in opium, in combination with morphia, forming the meconate of morphia, on which the action of opium principally depends.

Muriatic Acid, or *Spirits of Salts.*—This acid (the hydrochloric of the French chemists) is manufactured from the chloride of sodium (dry sea salt), by the action of sulphuric acid (oil of vitriol). The most economical proportions are 20 pounds of fused salt, and 20 pounds of oil of vitriol previously mixed with an equal weight of water; these are placed in an iron or earthen pot, to which an earthen head and receiver are adapted, and submitted to distillation; the muriatic acid passes over in the vaporous form, and may be easily condensed. The liquid acid thus obtained should have a specific gravity of 117, water being equal to 100; it has a strong acid taste, and a slight yellow color; this is owing to a small quantity of oxide of iron. By redistillation in a glass retort at a low temperature, it may be obtained perfectly pure and colorless. It sometimes contains a little sulphuric acid; this is detected by a solution of muriate of barytes. Muriatic acid, in its uncombined state, is an invisible elastic gas, having a very strong affinity for water; that fluid absorbing, at a temperature of 40° Fahrenheit, 480 times its volume, and the resulting liquid acid has a density of 121. So great is this attraction for water, that when the gas is liberated into the air, it combines with the moisture always present in that medium, forming dense white vapors. Its combinations with the alkalies, etc., are termed muriates; those of the greatest importance are the muriates of tin, ammonia, barytes, and sea salt. The test for the presence of muriatic acid in any liquid is the nitrate of silver (lunar caustic), which causes a curdy white precipitate.

Nitric Acid, or Aquafortis.—This, which is one of the most useful acids with which the chemist is acquainted, is prepared by acting upon saltpetre (nitric or nitrate of potass) with oil of vitriol: the proportions best suited for this purpose are three parts, by weight, of nitre, and two of oil of vitriol; or 100 nitre, and 60 oil of vitriol previously diluted with 20 of water: either of these proportions will produce a very excellent acid. When submitted to distillation, which should be conducted in earthen or glass vessels, the nitric acid passes over in the form of vapor, and a bisulphate of potass (sal mixum) remains in the retort.

Nitric acid of commerce has usually a dark orange-red color, giving off copious fumes, and having a specific gravity of 150, water being 100. It is strongly acid and highly corrosive. It may be obtained perfectly colorless by a second distillation, rejecting the first portion that passes over. It is much employed in the arts for etching on copper plates for engraving; also, for the separation of silver from gold in the process of quartation. In pharmacy and surgery it is extensively used,and is employed for destroying contagious effluvia. Combined with muriatic acid, it forms aqua regia (nitro-muriatic acid), used as a solvent for gold, platina, etc. This acid is frequently contaminated with the muriatic and sulphuric acids; these may be detected by the following methods: A portion of the suspected acid should be diluted with three or four times its volume of distilled water, and divided into two glasses; to one of which nitrate of silver (lunar caustic) in solution is to be added, and to the other nitrate of barytes: if muriatic acid be present, a white curdy precipitate will be thrown down by the former; and if sulphuric, a white granular precipitate by the latter.

Oxalic Acid occurs in combination with potass as binoxalate of potass in the different varieties of sorrel, from whence the binoxalate of potass has been termed salt of sorrel. This acid is usually prepared by the action of nitric acid upon sugar, evaporating the solution, after the action has ceased, to the consistence of a sirup, and redissolving and recrystallizing the crystals which are thus procured.

It is sold in small white acicular crystals, of a strongly acid taste and highly poisonous, and sometimes in its external appearance bears a strong similarity to Epsom salts (sulphate of magnesia), which it has been unfortunately frequently mistaken for. It is instantly distinguished from Epsom salts by placing a small crystal upon the tongue; when its strong acid taste, compared with the nauseous bitter of the sulphate of magnesia, will be quite a sufficient criterion. In cases of poisoning, however, by this acid, lime or chalk, mixed with water to form a cream, should be immediately administered, the combinations of oxalic acid with these substances being perfectly inert. It is employed in removing ink-stains, iron-moulds, etc., from linen and leather; the best proportions for these purposes are 1 ounce of the acid to a pint of water. The most delicate test of the presence of oxalic acid is a salt of lime or lime-water, with either of which it forms a white precipitate, insoluble in water, but soluble in acids. Its combinations are termed oxalates.

Phosphoric Acid is of very little importance in a commercial point of view, except as forming with lime the earth of bones (phosphate of lime). It is prepared by heating bones to whiteness in a furnace; from this phosphoric acid is obtained by the action of sulphuric acid, still combined, however, with a small quantity of lime. The action of nitric acid upon phosphorus, the latter being added gradually and in small pieces, yields this acid in a state of purity: its combinations are termed phosphates.

Prussic Acid, or Hydrocyanic Acid.—This acid, which is the most virulent and poisonous acid known, is contained in peach blossoms, bay leaves, and many other vegetable productions, which owe their peculiar odor to the presence of prussic acid. For the purposes of medicine and chemistry, this acid is prepared either by distilling one part of the cyanuret of mercury, one part of muriatic acid of specific gravity 1·15, and six parts of water, six parts of prussic acid being collected; or, by dissolving a certain weight of cyanuret of mercury, and passing a current of sulphureted hydrogen through the solution, until the whole of the mercury shall be precipitated; if an excess of sulphureted hydrogen should be present, a little carbonate of lead (white lead) will remove it; on filtering, a colorless prussic acid will be obtained. By the first process, which is the one followed at Apothecaries' Hall, the acid has a density of 995, water being equal to 1000; by the latter, it may be procured of any required strength, depending on the quantity of cyanuret of mercury dissolved. The best test for the presence of this acid is, first to add a small quantity of the protosulphate of iron (solution of green vitriol), then a little solution of potassa, and, lastly, diluted sulphuric acid; if prussic acid be present, Prussian blue will be formed. Its combinations are called prussiates or hydrocyanates; when in its concentrated form, it is so rapid in its effects that large animals have been killed in the short space of 80 seconds, or from a minute to a minute and a half.

Sulphurous Acid is formed whenever sulphur is burned in atmospheric air; it is a suffocating and pungent gas, strongly acid, bleaches vegetable colors with great rapidity, and arrests the process of vinous fermentation. For these purposes it is therefore very much employed, especially in bleaching woolen goods and straws. Fermentation may be immediately arrested by burning a small quantity of sulphur in casks, and then racking off the wine while still fermenting into them; this frequently gives the wine a very unpleasant taste of sulphur, which is avoided by the use of sulphate of potass, made by impregnating a solution of potass with sulphurous acid gas.

Sulphuric Acid, or Oil of Vitriol, called oil of vitriol from its having been formerly manufactured from green vitriol (sulphate of iron). In some parts of the Continent this process is still followed. The method generally adopted in this country is to introduce nine parts of sulphur, intimately mixed with one part of nitre, in a state of active combustion, into large leaden chambers, the bottoms of which are covered with a stratum of water. Sulphurous and nitrous acid gases are generated, which, entering into combination, form a white crystalline solid, which falls to the bottom of the chamber; the instant that the water comes in contact with it, this solid is decomposed with a hissing noise and effervescence, sulphuric acid combines with the water, and nitrous gas is liberated, which, combining with oxygen from the air of the chamber, is converted into nitrous acid gas, again combines with sulphurous acid gas, and again falls to the bottom of the chamber: this process continues as long as the combustion of the sulphur is kept up, or as long as atmospheric air remains in the chamber; the nitrous acid merely serving as a means for the transference of oxygen from the atmosphere to the sulphurous acid to convert it into sulphuric acid. The water is removed from the chamber when of a certain strength, and replaced by fresh. These acid waters are then evaporated in leaden boilers, and finally concentrated in glass or platina vessels. As thus manufactured, sulphuric acid is a dense oily fluid, colorless, intensely acid, and highly corrosive, and has a specific gravity of 1846, water being equal to 1000. This acid is the most important with which we are acquainted; it is employed in the manufacture of the nitric, muriatic, acetic, phosphoric, citric, tartaric, and many other acids; also in the preparation of chlorine, for the manufacture of the bleaching powder (oxymuriate of lime, or chloride of lime), for the preparation of sulphate of mercury, in the manufacture of calomel and corrosive sublimate, and in innumerable other chemical manufactures. In the practice of physic it is also very much employed. It usually contains a little oxide of lead, which is readily detected by diluting the acid with about four times its volume of water, and allowing the sulphate of lead to subside. Its combinations are denominated sulphates. The fuming sulphuric acid, as manufactured at Nordhausen, contains only one half the quantity of water in its composition.

Tartaric Acid.—This acid is procured from the cream of tartar (bitartrate of potass), obtained by purifying the crust which separates during the fermentation of wines by solution and crystallization. When this purified bitartrate is dissolved, and lime or carbonate of lime added, an insoluble tartrate of lime falls, which, after washing, should be acted upon by sulphuric acid; sulphate of lime is thus formed, and the tartaric acid enters into solution, and may be obtained by evaporation and crystallization. It is employed very much in the arts, in calico-printing, as also in making effervescing draughts and powders in pharmacy.

Uric Acid is an animal acid of very little importance, except in a scientific point of view: it exists in the excrement of serpents to the amount of 95 per cent., and forms the basis of many of the urinary calculi and gravel.

Acorn, in sea language, a little ornamental piece of wood fashioned like a cone, and fixed on the uppermost point of the spindle, above the vane, on the mast-head. It is used to keep the vane from being blown off from the spindle in a whirlwind, or when the ship leans much to one side under sail.

Acorns (Ger. *Eicheln*, *Eckern*; Fr. *Glands*; It. *Ghiande*; Sp. *Bellotas*; Rus. *Schedudii*; Lat. *Glandes*), the seed or fruit of the oak. Acorns formed a part of the food of man in early ages, and frequent allusion is made in the classics to this circumstance (Virgil, *Georg.* lib. i. lin. 8; Ovid, *Met.* lib. i. lin. 106, etc.). In some countries they are still used, in periods of scarcity, as a substitute for bread. With us they are now rarely used except for fattening hogs and poultry. They are said to make, when toasted, with the addition of a little fresh butter, one of the best substitutes for coffee. Their taste is astringent and bitter.

Acre, a measure of superficies, and the principal denomination of land-measure in use throughout the whole of Great Britain and the United States. The word (formed from the Saxon *acher*, or the German *aker*, a field) did not originally signify a determinate quantity of land, but any open ground, especially a wide campaign; and in this antique sense it seems to be preserved in the names of places; as, Castle-acre, West-acre, etc. The standard acre is formed by raising a square of which the basis is the chain of 66 feet, or 22 yards, or 1-80th of a mile; and ten of these squares form the acre, which thus contains 4840 square yards. This is divided into *roods*, of which there are four in the acre; and into *poles* or *perches*, of which there are 40 in each rood, or 160 in the acre. The rood will thus measure 1210 square yards, and the pole 30¼ square yards, according to the following table, which contains also other denominations useful to be compared with the acre:

Inches.	Links.						
62·726	1	Feet.					
144	2·295	1	Yards.	Poles or Perch.			
1296	20·661	9	1				
39204	625	272¼	30¼	1	Chains.		
627264	10000	4356	484	16	1	Roods.	
1568160	25000	10890	1210	40	2½	1	Acre.
6272640	100000	43560	4840	160	10	4	1

The following table contains the principal foreign land-measures, with their equivalents in acres:

		Acres.	Roods.	Perches.
France,	Are	0	0	3·9538
"	Hectare	2	1	35.38
"	Arpent, great	1	1	1·92
"	Arpent, small	0	3	15.18
Amsterdam,	Morgen	2	0	1·38
Berlin,	Morgen, large	1	1	24·32
"	Morgen, small	0	2	20·95
Dantzic,	Morgen	1	1	19·99
Hamburg,	Morgen	2	1	21·64
"	Scheffel of corn land	1	0	6·
Nuremberg,	Morgen, corn land	1	0	26·90
"	Morgen, meadow	0	2	4·09
Hanover,	Morgen	0	2	22·47
Prussia,	Morgen	0	2	20·92
Rhineland,	Morgen	2	0	16·69
Zurich,	Acre, common	0	3	8·11
"	Acre, wood	0	3	22·35
"	Acre, meadow	0	2	33·88
Saxony,	Acre	1	1	17·85
Spain,	Fanegada, for corn land	1	0	21·81
"	Arranzada, for vineyards	0	3	32·82
Russia,	Dessetina	2	2	31·95
Sweden,	Tuneland	1	0	35·04
Switzerland,	Faux	1	2	19·66
Tuscany,	Quadrato	0	3	14·67
Vienna,	Joch	1	1	27·73
Naples,	Moggia	0	3	12·16
Rome,	Pezza	0	2	24·40
Portugal,	Geira	1	1	30·41

In the United States of America the imperial acre is used. The Roman jugerum was somewhat larger than half an imperial acre, containing 2 roods, 19 perches, 189 square feet. Two jugera formed a heredium, so called from its being the quantity of land originally assigned to each Roman citizen; a hundred heredia formed a centuria, and four centuriæ a saltus. The Greek plethron consisted of 4 aruræ, and was equal to 37 perches, 153 square feet.

Action, in *Commerce*, is a term used abroad for a certain part or share of a public company's capital stock. Thus, if a company has 400,000 livres capital stock, this may be divided into 400 actions, each consisting of 1000 livres.

Actuary, a person skilled in the doctrine of life annuities and insurances, and who is competent to give opinions upon all cases involving annuities, reversions, etc. An actuary sometimes combines with the professional duties of a scientific adviser those of a secretary, in all matters involving calculation, upon which it may be supposed that the members of the board are not generally conversant.

Adarcon, or **Daric**, δραχμή, the most ancient gold coin of which any specimens have been preserved to the present day. It was the earliest coined money known among the Jews; the impression on the coin is a crowned archer, in a garb such as is seen in the sculptures of Persepolis. The specimens weighed by Dr. Bernard were fifteen grains heavier than the English guinea; their intrinsic value may therefore be reckoned at twenty-five shillings sterling.—Eckhel, *Doctrina Nummorum Veterum*; Bernard, *De Mensuris et Ponderibus*.

Adarme, in *Commerce*, a small weight in Spain, which is also used at Buenos Ayres, and in all Spanish America. It is the 16th part of an ounce, which at Paris is called the *demi-gros*. But the Spanish ounce is seven per cent. lighter than that of Paris. Stephens renders it in English by a *drachm*.

Adatais, Adatis, or **Adatys,** in *Commerce*, a muslin or cotton cloth, very fine and clear, of which the piece is ten French ells long, and three quarters broad. It comes from the East Indies, and the finest is made in Bengal.

Adelaide, a city of South Australia, capital of the British colony of that name, about 7 miles S.S.E. from its port, an inlet on the east side of St. Vincent's Gulf, lat. 34° 57′ S., long. 138° 38′ E. Though founded so recently as 1834, and not well situated, this is a well-built, prosperous town. Some of the houses, and most part of the principal buildings, are of brick and stone. Population in 1846, 7143; and in 1853 probably about as great.

The river Torrens, on which Adelaide is built, loses itself in a marsh before reaching the sea, so that the city is about 7 miles distant from its port, an inlet of St. Vincent's Gulf. This inland situation is a serious drawback on the trade of the city; and it would seem that a mistake was committed in not building it on, or much nearer to, the coast. This, we are aware, has been denied, though, as we think, upon very unsatisfactory grounds. There appears, indeed, to be but little doubt that in no very lengthened period most part of the commerce of the town will be transferred to the port, and that it will be preferred as a residence by all commercial people. In the rainy season the Torrens is much flooded, though it seldom overflows its banks, which are steep and lofty; but in the dry season it has no current, its bed being then formed into a series of pools or tanks.

Port Adelaide, 7 miles N.N.W. from the city, in a low and marshy situation, consists of a number of dwelling houses and warehouses, some of which are of stone, with wharves, partly belonging to government, and partly to the South Australian Company. Population in 1848 about 1800. The inlet of the sea, forming the harbor, opposite the entrance to which a light-vessel is moored, stretches from the Gulf, from which it is separated by a narrow neck of land, for about 8 miles southward, surrounding Torrens Island. At its mouth is a sandy bar, with 8 feet water at ebb and 16 feet at flood tide; this depth being considerably increased during south and southwest winds. Ships of 400 or 500 tons may, consequently, pass the bar in safety, and once over, there is depth enough for the largest ships to the head of the harbor.—DUTTON, *South Australia*, p. 112. Large vessels are, however, obliged to lie in mid-channel; but projects were recently on foot for improving the harbor, either by carrying out piers into the deep water, or by establishing a new port about 2 miles nearer to the harbor's mouth, where the water inshore is deeper, and the situation affords greater facilities for the accommodation of shipping. Port Adelaide has a custom-house; but vessels are exempted from all port charges in this and in the other ports of the colony. A railway, planned to unite the city with the port, will most likely be completed at an early date.

The trade of Adelaide is already extensive, and will continue to increase with the increase of the population and trade of the colony, of which it is the grand emporium. The mines of copper, lead, etc., discovered in its vicinity are of the richest description, and the ores furnished by them form at present the principal article of export. In 1852, the imports of copper into England from South Australia, principally from the Burra-Burra mine, amounted to 8582 tons, worth above £600,000! The discovery of the gold fields, by attracting many of the laborers from the copper mines, gave a serious check to the progress of the latter, though it is probable that it will be but temporary. Wool is also an important article; and the imports of it into England, which in 1852 amounted to 3,922,318 pounds, have increased with the same extraordinary rapidity as those from the other parts of Australia. Among the items of import from this colony in 1852 were 1358 pounds quicksilver, and 2267 cwt. bark. We subjoin the following statements with respect to the trade, shipping, etc., of Port Adelaide in the following years:

Years.	Total Imports.	Total Exports.
1844	£118,915 6 11	£95,272 14 6
1845	184,819 15 5	148,459 4 7
1846	329,099 12 9	312,887 16 6
1847	410,825 9 6	350,348 12 2
1848	384,358 19 0	504,068 7 0
1849	599,548 10 6	403,197 0 6

Years.	Exports the Produce of South Australia.	Imports re-exported	Imports consumed in the Colony.
1844	£82,268 13 8	£12,921 15 10	£105,993 15 1
1845	131,800 6 0	16,658 18 7	168,160 19 10
1846	287,058 13 0	25,775 5 0	303,321 7 9
1847	275,115 12 0	75,133 0 2	335,692 9 4
1848	465,878 10 0		
1849	374,155 10 0		

It would be to no purpose to give any later details in regard to the trade of this colony. The discovery of the gold fields in Victoria and New South Wales have had nearly the same influence here as in Van Diemen's Land (*see* GOLD). They occasioned an excessive emigration, and gave a sudden and severe shock to all sorts of industry. And though, no doubt, the colony will in the end recover from the contingency, and will most probably be improved by the circumstances in which it originated, some considerable time will have previously to elapse.

Aden, a sea-port town of Southern Arabia, in the possession of the East India Company, on the Indian Ocean, 118 miles east from the Straits of Babelmandel, lat. 12° 46′ 15″ N., long. 45° 10′ 20″ E. It stands on the east side of a promontory, projecting south into the ocean, called the Peninsula of Aden. This peninsula, which terminates in a lofty mountain, bearing a striking resemblance to the rock of Gibraltar, is connected with the main land by a low isthmus about 400 yards in breadth. On the north and west the town is overhung by steep and craggy rocks, on which are the remains of old fortifications. The east or outward harbor of Aden, formerly (and apparently at a recent period) large and commodious, is now partly filled up with sand. But the harbor on the west side of the town, between the promontory on which it stands and another parallel thereto, is a magnificent basin, capable of accommodating the largest fleets. It has a contracted entrance, which might easily be fortified, so as to make it inaccessible to a hostile squadron. From this harbor the approach to the town is over a low ridge of the mountain, the road being in parts cut through the rock.

The site of this town, the best adapted for trade on the whole coast of Arabia, and the key of the Red Sea, has always made it a point of primary importance in the direct trade between Europe and the East. It became at a very early period a celebrated emporium (the *Arabiæ emporium* of Ptolemy). After the Romans obtained possession of Egypt, and Hippalus (A.D. 50) had discovered the direct route to India, they destroyed Aden, lest it should fall into hostile hands, and interfere with their monopoly of this lucrative traffic.—VINCENT'S *Commerce, etc., of the Indian Ocean*, ii. 327, 328. It is not known when or by whom it was rebuilt; but from the 11th to the 16th century it was the great, or rather the exclusive *entrepôt* of Eastern commerce. The discovery of the passage by the Cape of Good Hope was the first great blow to its importance. Simultaneously with the appearance of the Portuguese in India, the Turks, under Solyman the Magnificent, took possession of various Arabic ports, Aden among the number. They erected the fortifications, the ruins of which excite the admiration of every traveler, and which repelled the attacks of the famous Portuguese general, Albuquerque. From this date, however, Aden rapidly declined; nor did the expulsion of the Turks, which took place about the middle of last century, retard its downfall. Its ruin was more complete than could have been anticipated; for its convenient harbors and plentiful supply of water make it, apart from other considerations, a most desirable port.

When first occupied by the British, it had not more than 100 houses, with a parcel of wretched huts, and from 3000 to 4000 inhabitants. It had, indeed, the ruins of several cisterns and reservoirs cut in the solid rock, and of aqueducts for conveying water from the mountains of the interior, which fully testified its former greatness. But within the last half dozen years a vast change has taken place, and the ancient prosperity of Aden bids fair to be again restored. Hotels for the accommodation of the passengers by the steamers have been erected; and the population of the vicinity, attracted by the security afforded by the English flag, have flocked to the place, which has now (1853) from 25,000 to 30,000 inhabitants! Some defensive works have already been constructed, and others projected, which, if completed, will make it (which it should be) the Gibraltar of the Red Sea. While its commanding position, excellent port, and abundant supply of water, make Aden an important station in the route from India to Europe by the Red Sea, it is no less favorably situated for becoming an *entrepôt* for the contiguous countries of Arabia and Africa. It owed its former consequence mainly to its natural advantages, and these it still retains. And it can hardly fail again to become an important emporium, and to be of the greatest utility to the surrounding continents. The climate, though hot, is not unhealthy. The abundant supply of water, for which Aden is remarkable among Arabic towns, is drawn from the ravines and gullies of the surrounding mountains, and from the land springs, which are abundant on the sea-shore.—(See *Geographical Dictionary*, art. ADEN, and other authorities there quoted.)

Adjustment, in *Commercial Navigation*, the settlement of a loss incurred by the insured. In the case of a total loss, if the policy be an *open* one, the insurer is obliged to pay the goods according to their *prime cost;* that is, the invoice price, and all duties and expenses incurred till they are put on board, including the premium of insurance. Whether they might have arrived at a good or a bad market, is held by the law of England to be immaterial. The insurer is supposed to have insured a constant and not a variable sum; and in the event of a loss occurring, the insured is merely to be put into the same situation in which he stood before the transaction began. If the policy be a *valued* one, the practice is to adopt the valuation fixed in it in case of a total loss, unless the insurers can show that the insured had a colorable interest only, or that the goods were greatly over-valued. In the case of all partial losses, the value of the goods must be proved.

"The nature of the contract between the insured and insurer is," says Mr. Justice Park, "that the goods shall come safe to the port of delivery; or, if they do not, that the insurer will indemnify the owner to the amount of the value of the goods stated in the policy. Wherever, then, the property insured is lessened in value by damage received at sea, justice is done by putting the merchant in the same condition (relation being had to the prime cost or value in the policy) in which he would have been had the goods arrived free from damage; that is, by paying him such proportion of the prime cost or value in the policy as corresponds with the proportion of the diminution in value occasioned by the damage. The question then is, how is the proportion of the damage to be ascertained? It certainly can not be by any measure taken from the prime cost; but it may be done in this way: Where any thing, as a hogshead of sugar, happens to be spoiled, if you can fix whether it be a third, a fourth, or a fifth worse, then the damage is ascertained to a mathematical certainty. How is this to be found out? Not by any price at the port of shipment, but it must be at the port of *delivery*, when the voyage is completed and the whole damage known. Whether the price at the latter be high or low, it is the same thing; for in either case it equally shows whether the damaged goods are a third, a fourth, or a fifth worse than if they had come sound; consequently, whether the injury sustained be a third, fourth, or fifth of the value of the thing. And as the insurer pays the whole prime cost if the thing be wholly lost, so if it be only a third, fourth, or fifth worse, he pays a third, fourth, or fifth, not of the value for which it is sold, *but of the value stated in the policy.* And when no valuation is stated in the policy, the invoice of the cost, with the addition of all charge, and the premium of insurance, shall be the foundation upon which the loss shall be computed."

Admeasurement. *See* TONNAGE.

Administrator, in *English Law*, he to whom the ordinary commits the administration of the goods of a person deceased, in default of an executor. The origin of administrators is derived from the civil law. Their establishment in England is owing to a statute made in the 31st year of Edward III. Till then no office of this kind was known besides that of executor; in default of whom, the ordinary had the disposal of goods of persons intestate, etc.

Admiral, a great officer or magistrate, who has the government of a navy, and the hearing of all maritime causes. There can be little doubt of the Asiatic origin of the name given to this officer, which does not appear to have been known in the languages of Europe before the time of the holy wars. *Amir*, in Arabic, is a chief or commander of forces; it is the same word as the *ameer* of the peninsula of India (as *ameer al omrah*, the chief of lords or princes), and the *emir* of the Turks or Saracens, who had, and still have, their *emir* or *ameer'l dureea*, commander of the sea, *amir'l asker dureea*, commander of the naval armament. The incorporation of the article with the noun appears, we believe, for the first time in the Annals of Eutychius, patriarch of Alexandria, in the tenth century, who calls the Calif Omar *Amirol munumim*, seu, *Imperator fidelium.* Spelman says, "In regno Saracenorum quatuor prætores statuit, qui *admiralli* vocabantur." The *d* is evidently superfluous, and is omitted by the French, who say *Amiral.* The Spanish write *Almirante;* the Portuguese the same. Milton would seem to have been aware of the origin of the word, when he speaks of "the mast of some great Ammiral." It is obvious, then, that the supposed derivations of *αλμυρος* from the Greek, *aumer* from the French, and *aen mereal* from the Saxon, are fanciful and unauthorized etymologies.

Admiral is also an appellation given to the most considerable ship of a fleet of merchantmen, or of the vessels employed in the cod fishery of Newfoundland. This last has the privilege of choosing what place he pleases on the shore to dry his fish; gives proper orders, and appoints the fishing-places to those who come after him; and as long as the fishing season continues, he carries a flag on his main-mast.

Admiralty, High Court of. This is a court of law, in which the authority of the lord high admiral is exercised in his *judicial* capacity. Very little has been left on record of the ancient prerogative of the admirals of England. For some time after the first institution of the office, they judged all matters relating to merchants and mariners, which happened on the main sea, in a summary way, according to the laws of Oleron (so called because promulgated by Richard I. at that place). These laws, which were little more than a transcript of the Rhodian laws, became the universally received customs of the western part of the world. "All the sea-faring nations,' says Sir Leoline Jenkins, "soon after their promulgation, received and entertained these laws from the English, by way of deference to the sovereignty of our kings in the British ocean, and to the judgment of our countrymen in sea affairs."

The vice-admiralty courts in the British colonies are of two descriptions. The one has power to inquire into the causes of detention of enemies or neutral vessels, to try and condemn the same for the benefit of the captors, as well as to take cognizance of all matters relating to the office of the lord high admiral. The other has power only to institute inquiries into misdemeanors committed in merchant vessels, and to determine petty suits, etc., and to guard the privileges of the admiral. The former are usually known by the name of *Prize Courts*, the latter by that of *Instance Courts.*

The following are the colonies and foreign possessions of Great Britain in which *Prize Courts* have been established in the course of the last war: Gibraltar, Malta, Newfoundland, Halifax, Bermuda, Bahama Islands, Barbadoes, Antigua, Tortola, Jamaica, Cape of Good Hope, Ceylon, Bombay, Madras, and Calcutta. The following British colonies had *Instance Courts* only: Dominica, Grenada, St. Vincent, St. Christopher, Trinidad, St. Cervix, Martinique, Berbice, Demerara, and Essequibo; in addition to which is a court established at Sierra Leone for the trial and condemnation of captured slavers only; and since that time, Gibraltar, Malta, St. Helena, Berbice, Demerara, and Essequibo, Sierra Leone (this court has jurisdiction only over ships concerned in the slave-trade), Newfoundland, Halifax, Nova Scotia, Prince Edward's Island, Lower Canada, Barbadoes, Tobago, and St. Lucia, Antigua, Montserrat, and Barbadoes, Tortola, Jamaica, Bahamas, Falkland Islands, Cape of Good Hope, Gambia, Gold Coast, Ceylon, Bombay, Calcutta, Madras, New South Wales, Van Diemen's Land, Western Australia, South Australia, New Zealand, Vancouver's Island, Hong Kong, Lahuan.—E. B.

"The ordinary admiralty and maritime jurisdiction, exclusive of prize cases, embraces all civil and criminal cases of a maritime nature; and though there does not seem to be any difficulty or doubt as to the proper jurisdiction of the prize courts, there is a great deal of unsettled discussion respecting the civil and criminal jurisdiction of the district court as an instance court, and possessing, under the constitution and judiciary act of 1789, admiralty and maritime jurisdiction.

"The act of Congress gives to the district courts, exclusive of the State courts, and concurrently with the circuit courts, cognizance of all crimes and offenses cognizable under the authority of the United States, and committed within their districts, or upon the high seas, where only a moderate corporal punishment, or fine, or imprisonment, is to be inflicted. This is the ground of the criminal jurisdiction of the district courts; and it is given to them as district courts; and as it includes the minor crimes and offenses committed on the high seas, and cognizable in the courts of admiralty under the English law, the district courts may be considered as exercising the criminal jurisdiction of a court of admiralty in those cases. The Constitution of the United States declares that the judicial power of the Union shall extend to all cases of admiralty and maritime jurisdiction; and it has been supposed that the federal courts might, without any statute, and under the general delegation of admiralty powers, have exercised criminal jurisdiction over maritime crimes and offenses. But the courts of the United States have been reluctant to assume the exercise of any criminal jurisdiction which was not specially conferred by an act of Congress."—KENT'S *Comm.* Lect. XVII.

Adulteration, the act of debasing, by mixing with any pure and genuine commodity a spurious article, or an inferior one of the same kind, for pecuniary profit; but it may also occur accidentally, as, for instance, by the action of acids and oils on vessels of copper or lead in culinary and other operations. But few articles of commerce, comparatively, are exempt from fraudulent deterioration; and although the adulteration of excisable commodities and of food are offenses punishable by law, the risk too frequently is outweighed by the temptation of gain. In Paris, malpractices connected with the adulteration of food are investigated by the Conseil de Salubrité, and punished; but English laws are directed chiefly to the protection of such articles as affect the revenue. Adulterations of food, when willful, have been made punishable by the laws of most countries. In Great Britain numerous acts have been passed for the prevention of adulterations: they are usually punished by a fine, determined by a summary process before a magistrate. In Turkey, a culprit baker has his ears nailed to his door. By 5th and 6th Vict. c. 93, § 1, 3, 8, manufacturers of tobacco or snuff are liable to a penalty of £200 for having in their possession any substance or liquid to be used, or capable of being used, as a substitute for tobacco or snuff, or to adulterate or give them weight. The preparer, vender, or disposer of such articles, is liable to the same. For actual adulteration the penalty is £300, and for having such adulterated goods in possession, £200. After a similar manner, beer is protected by still heavier penalties; which laws extend to chemists, druggists, and beer retailers. See 56*th Geo. III.* c. 58, 1*st Will. IV.* c. 51, 64, 4*th and* 5*th Will. IV.* c. 85. Tea, coffee, cocoa, pepper, etc., are protected by law; but the adulterations of these, as of most other articles of food, are almost endless. The mixture of chiccory with coffee, is, however, authorized under certain conditions. A treasury minute of 27th July, 1852, prohibiting the sale of "chiccory or other vegetable substances mixed with coffee," was rescinded by a subsequent minute of 25th February, 1853, which permits dealers in coffee "to keep and sell chiccory prepared and mixed with coffee, provided the packages in which such mixture is delivered to purchasers have printed distinctly thereon, according to directions which will be given by the Board of Inland Revenue, the whole of the following words, 'Mixture of Coffee and Chiccory.'"

The following results were obtained by a recent series of analyses of some articles of common domestic consumption, purchased from different dealers, chiefly in London. In the several kinds of tea were found (partly, perhaps, accidentally present) exhausted tea-leaves, leaves of the beech, elm, horse-chestnut, plane, bastard-plane, fancy-oak, willow, poplar, hawthorn, and sloe; catechu, rose-pink, black-lead, soap-stone, sulphate of iron, logwood, indigo, starch, rice husks, excrement of silkworms, Prussian blue, sulphate of lime, verdegris, etc. Of 18 samples of chiccory procured from manufactories, 5 were adulterated with roasted wheat-flour; and of 16 samples of chiccory, purchased from different grocers, several were colored with Venetian red, or reddle. Of 68 samples of cocoa and chocolate, 39 contained colored earthy substances; in some samples of cocoa, sugar and starch constituted more than half the article. Of 24 samples of bread, all contained more or less alum; and it may be observed that the quartern loaf, as delivered at houses by 13 different bakers, showed deficiency in weight, the maximum being between 3 and 4 ounces. Out of 30 samples of oatmeal, 16 were adulterated with barley-meal; in one instance, apparently, much more than one half. Of 36 samples of arrow-root, 18 were mixed with potato-flour, or potato-starch, sago-powder, or tapioca-starch, etc.; and 5 were almost entirely potato-starch. Of 26 samples of milk, 11 were mixed with water, in proportions varying from 10 to 50 per cent. Of 28 samples purchased as isinglass, 10 consisted entirely of gelatine. It is well known that quack medicines frequently contain ingredients they are guaranteed not to contain; hence the evils resulting from their indiscriminate use. Nor are woolen, linen, and silk goods exempt from inferior admixture; various substances are employed to give body to silk fabrics; as in China a gluey preparation from the *Fucus Tenax* is used to give them weight and gloss. The above facts will give some idea of the extent to which adulteration is practiced in the most common articles of consumption. We may add that all legislative enactments on the subject will prove ineffectual unless the public exercise their own discrimination, and dealers who are discovered to have imposed spurious commodities are made to feel that honesty is the best policy.

Adulteration of Wines.—The various substances used in the manufacture to flavor and to color wines (such as almonds, raisins, orris root, burned sugar, brandy, logwood, whortleberries, elderberries, etc.) must be distinguished from others which are directly deleterious, such as alum, used to impart astringency, and litharge and ceruse, to dulcify "pricked" or sour wines. The following is an excellent test for any of the preparations of lead: mix an aqueous solution of tartaric acid with liquid sulphureted hydrogen; when added to the suspected wine, should any copper or iron be present, they are kept in solution by the tartaric acid, while the lead is thrown down by the sulphureted hydrogen as a dark precipitate. Red wine should be decolorized before using the test, which is conveniently done by mixing the wine with an equal weight of milk, and filtering it. When the tartrate of lead is found in the bottom of the cask, it may easily be detected by calcining a portion of the insoluble matter, and reducing it by the blowpipe on charcoal. A portion of the sediment may be digested with vinegar, which would give, by evaporation, acetate of lead; and it may be tried by sulphureted hydrogen. Alum may be precipitated from white wine by carbonate of soda gradually added until no more falls down; filter; on the filter will be found alumine. The sulphate of potassa remains in the solution; but the quantity present may be found by precipitating the sulphuric acid by muriate of baryta. Iron is sometimes accidentally present in wines; but it is not dangerous, and may be detected by nutgalls. Copper sometimes occurs from the use of copper stop-cocks: it is detected by the addition of ammonia; and, if much, by a plate of polished iron left some time in the wine. Arsenic has occasionally occurred from the sulphuring of the cask. After decoloration by animal charcoal, pass a stream of sulphureted hydrogen through the wine, and a yellow precipitate will fall, which may be reduced to the metallic state by charcoal and soda. The same tests are applicable to all fermented liquors. —E. B. *See* HENDERSON'S *Ancient and Modern Wines.*

Adulteration of Coin.—This has been accounted among all nations, both in ancient and modern times, a very grave offense, and punishable by death in several ways. It was formerly considered as treason in Great Britain, and rigorously punished with death; but in the amelioration of the criminal code by Lord John Russell's act (Will. IV. c. 34, Vict. 1), the punishment has been commuted to transportation for any period not less than seven years, or by imprisonment for not more than four years, at the discretion of the judge. The specific gravity of pure gold=19·30; standard gold=18·88; pure silver=10·51; standard silver=10·34. The proportion of alloy in the gold and silver coin of Britain is one-twelfth copper, which gives durability. A genuine coin, unless it be cracked, is quite sonorous; yet even this quality is not an invariable test for counterfeit money. Much false coin is in circulation, especially in the metropolis, a statement confirmed by its very frequent reception as change. Besides the frauds by clipping, filing, casing, electroplating, etc., the debasement of coin has been effected by boring the edge of a piece, and plugging the cavity with inferior metal: in this manner has platinum been inserted in gold. Another method has been practiced by sawing a gold piece laterally, and skillfully filling the centre with platinum; a fraud which cutting alone could detect.

To ascertain the adulteration of silver and gold coin by excess of copper, the following processes will suffice: dissolve a given weight of the silver in nitric acid, and precipitate by a solution of common salt; dry, and weigh the precipitate, which is the *chloride of silver*, and contains 75·5 per cent. of the metal; or it may be reduced on charcoal before the blowpipe, when a button of pure silver will be obtained, by weighing which, the proportions of silver and of copper will be known. Silver coin is very frequently imitated by some white alloy, generally of tin, antimony, and lead; it may be known by its pliancy and dull appearance, or it may be tested for silver, as described above. German silver, a beautiful imitation of silver by nickel and copper, may be detected by its deficient specific gravity, and its emitting, when briskly rubbed, a faint, coppery odor; or by dissolving it in nitric acid, and adding a solution of common salt, when it will give no precipitate. The amount of alloy in gold may readily be ascertained, for ordinary purposes, by the *streak* on touchstone, and comparing that with the streak of the gold needles made for the purpose; or more nicely by this process: file off a given weight of the gold, and dissolve in *aqua regia*, then precipitate the gold by immersing in the solution a plate of silver or copper; or more quickly, by weak galvanic action; or the gold may be thrown down by addition of an alkaline solution, or by adding the muriate of tin, which throws down the purple powder of Cassius, from which the quantity of gold may be easily ascertained, by oxidating with the blowpipe a given weight of the powder, and so obtaining a button of pure gold.

The purity of copper is ascertained by dissolving a given weight in any of the mineral acids, and obtaining copper of cementation by immersing a plate of iron or zinc in the solution; or by decomposing the salt of copper by charcoal, alkali, and heat, in the usual way. (*See* CHEMISTRY.) It may be noticed as a curious fact that, in England, the copper coinage of William IV. was found to contain gold, from which discovery these coins speedily became scarce.—E. B.

Ad Valorem, a term chiefly used in speaking of the duties or customs paid per cent. on goods. The duties on some articles are paid by the number, weight, measure, tale, etc., and others paid *ad valorem*, that is, according to their value.

Advance implies money paid before goods are delivered, or upon consignment. It is usual with merchants to advance from a half to two-thirds of the value of goods consigned to them, on being required, on their receiving invoice, bill of lading, orders to insure them from sea risk, etc.

Adventurers, Merchant, a celebrated and enterprising company of merchants, was originally formed for the discovery of territories, extension of commerce, and promotion of trade, by John, duke of Brabant, in 1296. This ancient company was afterward translated into England in the reign of Edward III., and Queen Elizabeth formed it into an English corporation in 1564. —ANDERSON.

Advertisement, in its general sense, is any information as to any fact or circumstance that has occurred, or is expected to occur; but, in a commercial sense, it is understood to relate only to intimations with respect to the sale of articles, the formation and dissolution of partnerships, bankruptcies, meetings of creditors, etc. Advertisements in newspapers in England, as now published, were not general until the beginning of the 18th century. A penalty of £50 was inflicted on persons advertising a reward with "No questions to be asked" for the return of things stolen, and on the printer, 25 Geo. II. 1754.—*Statutes.* The advertisement duty was formerly charged according to the number of lines; it was afterward fixed in England at 3*s.* 6*d.*, and in Ireland at 2*s.* 6*d.* each advertisement. The duty was further reduced, in England to 1*s.* 6*d.*, and in Ireland to 1*s.* each, by statute 3 and 4 Will. IV. 1833. The duty was altogether abolished in the United Kingdom, by 16 and 17 Vict. c. 63, Aug. 4, 1853.—HAYDN.

Advice is usually given by one merchant or bank er to another *by letter*, informing him of the bills or drafts drawn on him, with all particulars of date, or sight, the sum, to whom made payable, etc. Where bills appear for acceptance or payment, they are frequently refused to be honored for *want of advice*. It is also necessary to give advice, as it prevents forgeries: if a merchant accept or pay a bill for the honor of any other person, he is bound to advise him thereof, and this should always be done under *an act of honor* by a notary public.

Affreightment. "A charter-party is a contract of affreightment in writing, by which the owner of a ship lets the whole, or a part of her, to a merchant, for the conveyance of goods on a particular voyage, in consideration of the payment of freight. All contracts under seal were anciently called charters, and they used to be divided into two parts, and each party interested took one, and this was the meaning of the *charta partita*. It was a deed or writing divided, consisting of two parts, like an indenture at common law. Lord Mansfield observed, that the charter-party was an old informal instrument, and, by the introduction of different clauses at different times, it was inaccurate and sometimes contradictory. But this defect has been supplied by giving it, as mercantile contracts usually receive, a liberal construction, in furtherance of the real intention and the usage of trade.

"This mercantile lease of a ship describes the parties, the ship and the voyage, and contains, on the part of the owner, a stipulation as to sea-worthiness, and as to the promptitude with which the vessel shall receive the cargo and perform the voyage; and the exception of such perils of the sea for which the master and ship-owners do not mean to be responsible. On the part of the freighter, it contains a stipulation to load and unload within a given time, with an allowance of so many lay, or running days, for loading and unloading the cargo, and the rate and times of payment of the freight, and rate of demurrage beyond the allotted days.

"When the goods of several merchants, unconnected with each other, are laden on board, without any particular contract of affreightment with any individual for the entire ship, the vessel is called a *general* ship, because open to all merchants; but where one or more merchants contract for the ship exclusively, it is said to be a *chartered* ship. The ship may be let in whole or in part, and either for such a quantity of goods by weight, or for so much space in the ship, which is letting the ship by the ton. She may also be hired for a gross sum as freight for the voyage, or for a particular sum by the month, or any other determinate period, or for a certain sum for every ton, cask, or bale of goods put on board; and when the ship is let by the month, the time does not begin to run until the ship breaks ground, unless it be otherwise agreed. The merchant who hires a ship, may either lade it with his own goods, or wholly underlet it upon his own terms; and if no certain freight be stipulated, the owner will be entitled to recover, upon a *quantum meruit*, as much freight as is usual under the like circumstances, at the time and place of shipment. It is the duty of the owner of the ship, not only to see that she is duly equipped, and in a suitable condition to perform the voyage, but he is bound to keep her in that condition throughout the voyage, unless he be prevented by perils of the sea. If, in consequence of a failure in the due equipment of the vessel, the charterer does not use her, he is not bound to pay any freight; but if he actually employs her, he must pay the freight, though he has his remedy on the charter-party for damages sustained, by reason of the deficiency of the vessel in her equipment. The freighter is bound, on his part, not to detain the ship beyond the stipulated or usual time, to load, or deliver the cargo, or to sail. The extra days beyond the lay days (being the days allowed to load and unload the cargo) are called days of *demurrage;* and that term is likewise applied to payment for such delay, and it may become due either by the ship's detention, for the purpose of loading or unloading the cargo, either before, or during, or after the voyage, or waiting for convoy. If the claim for demurrage rest on express contract it is strictly enforced, as where the running days for delivering the cargo under the bill of lading had expired, even though the consignee was prevented from clearing the vessel of the goods by the default of others.

"The old and the new French codes of commerce require the charter-party to be in writing, though Valin holds that the contract, if by parol, would be equally valid and binding. In the English law, the hiring of ships without writing is undoubtedly valid; but it would be a very loose and dangerous practice, at least in respect to foreign voyages. In the river and coasting trade, there is less formality and less necessity for it; and the contract is, no doubt, frequently without the evidence of deed or writing. If either party be not ready by the time appointed for loading the ship, the other party, if he be the charterer, may seek another ship, or, if he be the owner, another cargo. This right arises from the necessity of precision and punctuality in all maritime transactions. By a very short delay, the proper season may be lost, or the object of the voyage defeated. And if the ship be loaded only in part, and she be hired exclusively for the voyage, and to take in a cargo at certain specified rates, the freighter is entitled to the full enjoyment of the ship; for he is answerable to the owner for freight, not only for the cargo actually put on board, but what the vessel could have taken had a full cargo been furnished. The master has no right to complete the lading with the goods of other persons without the consent of the charterer; and if he grants that permission, the master must account to him for the freight. He has no right to complain if the charterer refuses to grant the permission, or to complete the lading, provided he has cargo enough to secure his freight. This was the regulation of the French ordinance, and it has been adopted into the new code. By the contract, the owner is bound to see that the ship be sea-worthy, which means that she must be tight, stanch, and strong, well furnished, manned, victualed, and in all respects equipped in the usual manner for the merchant service in such a trade.

"The ship must be fit and competent for the sort of cargo and for the particular service for which she is engaged. If there should be a latent defect in a vessel, unknown to the owner, and undiscoverable upon examination, yet the better opinion is that the owner must answer for the damage occasioned by the defect. It is an implied warranty in the contract, that the ship be sufficient for the voyage, and the owner, like a common carrier, is an insurer against every thing but the excepted perils. To this head of sea-worthiness may be referred the owner's obligation to see that the ship is furnished with all the requisite papers according to the laws of the country to which she belongs, and according to treaties and the laws of nations. Such documents are necessary to secure the vessel from disturbance at home, on the high seas, and in foreign ports. If the charter-party contains any stipulation on the part of the owner to keep the ship in good order during the voyage, the entire expense of the repairs requisite in the course of the voyage are then to be borne by the owner, and are not, in that case, the subject of general average or contribution. But the owner does not insure the cargo against the perils of the sea. He is answerable for his own fault or negligence, or those of his agents, and for defects in the ship or her equipments; and generally, as a common carrier, he is answerable for all losses other than what arise from the excepted cases of the act of God and public enemies. The responsibility of the owner begins where that of the wharfinger ends, and when the goods are delivered to some accredited person on board the ship. The cargo must be taken on board with care and skill, and be properly stowed, and the contract by the bill of lading imports that the goods are to be safely stowed under deck; and if they are stowed on deck without the consent of the shipper, or without the sanction of custom, they are at the risk of the ship-owner or master, and he and the owners of the vessel would not be protected from liability for their loss by the exception in the bill of lading of the *dangers of the seas.* If the ship has been advertised by the agent of the owner for freight as a general ship, and the notice had stated that she was to sail with convoy, this would amount to an engagement to that effect; and if she sails without convoy and be lost, the owner becomes answerable to the shipper in damages for the breach of that representation."—KENT'S *Comm.*, Lect. XLVII.

Africa. The knowledge of this great continent which ancient writers have transmitted to posterity is of very limited extent, owing principally to its physical construction. The great desert, which in a broad belt stretches quite across the continent, forbade every attempt to pass it until the introduction of the camel by the Arabs. The want of any known great river, except the Nile, that might conduct into the interior, contributed to confine the Greek and Roman colonists to the habitable belt along the northern coast. The Phœnicians are known to have formed establishments on the northern coast of Africa at a very early period of history, probably not less than 3000 years ago; and the conquest of Egypt by Cambyses dates as far back as the year B.C. 525. We may consider, therefore, the coasts of Egypt, of the Red Sea, and of the Mediterranean, to have been settled and well known to the ancient Asiatics, who were constantly passing the narrow isthmus which divided their country from Africa, and led them immediately from parched deserts into a fertile valley, watered by a magnificent river. But whether they were much or little acquainted with the western coast, which bounds the Atlantic, and the eastern coast washed by the Indian Ocean, is a question that has exercised the research and ingenuity of the ablest scholars and geographers, and has not yet been satisfactorily answered.

From the shores of the Mediterranean to about the latitude of 20° north, the population of Africa consists largely of tribes not originally native to the soil, but of Arabs and Turks, planted by conquest, with a considerable number of Jews, the children of dispersion; and the recently introduced French. The Berbers of the Atlas region, the Tuaricks and Tibbus of the Sahara, and the Copts of Egypt, may be viewed as the descendants of the primitive stock, while those to whom the general name of Moors is applied are perhaps of mixed descent, native and foreign. From the latitude stated, to the Cape colony, tribes commonly classed together under the title of the Ethiopic or negro family are found, though many depart very widely from the peculiar physiognomy of the negro, which is most apparent in the natives of the Guinea coast. In the Cape colony, and on its borders, the Hottentots form a distinct variety in the population of Africa, most closely resembling the Mongolian races of Asia.

The British colony of Sierra Leone extends from Rokelle River in the north, to Kater River in the south, and about twenty miles inland. The population, consisting chiefly of liberated slaves, amounted in 1847 to 41,735. Freetown, the capital, has 10,580 inhabitants, and is, after St. Louis, the most considerable European town on the western coast of Africa.

The Malaghetta or Grain Coast extends from Sierra Leone to Cape Palmas. Malaghetta is a species of pepper yielded by a parasitical plant of this region. It is sometimes styled the Windy or Windward Coast, from the frequency of short but furious tornadoes, throughout the year. The Republic of Liberia, a settlement of the American Colonization Society, founded in 1822, for the purpose of removing free people of color from the United States, occupies a considerable extent of the coast, and has for its capital Monrovia, a town named after the president, Mr. Monro. The population amounts to from 10,000 to 15,000 native inhabitants, and 3200 liberated negroes from America.

The Ivory Coast extends from Cape Palmas to Cape Three Points, and obtained its name from the quantity of the article supplied by its numerous elephants. The Gold Coast stretches from Cape Three Points to the River Volta, and has been long frequented for gold dust and other products. The Dutch have several trading ports, of which Elmina, a town of 12,000 inhabitants, is the principal and oldest of the European stations, founded by the Portuguese in 1411. The British possess Cape Coast Castle, a spacious fortress, and James's Fort, near Accra. The Danish settlements of Christiansburg and Friedensburg were ceded to the English in 1849. The Slave Coast extends from the River Volta to the Calabar River, and is, as its name implies, the chief scene of the most disgraceful traffic that blots the history of mankind. Eko, or Lagos, one of the chief towns of the coast, was destroyed in 1852. The kingdoms of Ashanti, Dahomey, Yoruba, and others, occupy the interior country of the Guinea coast. The coast from the Old Calabar River to the Portuguese possessions is inhabited by various tribes. Duke's Town, on the former river, is a large town of 30,000 to 40,000 inhabitants, with considerable trade in palm-oil, ivory, and timber. On the Gabun River, close to the equator, are a French settlement and American missionary stations. At the equator, Southern or Lower Guinea begins, where the only European settlements are those of the Portuguese. Loango is reckoned from the equator to the Zaïre or Congo river. Its chief town is Boally, called Loango by the Europeans. Congo extends south of the Zaïre, comprising a very fertile region, with veins of copper and iron. Banza Congo, or St. Salvador, is the capital. Angola comprises the two districts of Angola proper and Benguela. In these regions the Portuguese settlements extend farther inland than in the two preceding districts, namely, about 200 miles. The population of the settlements is about 400,000, comprising only 1830 Europeans. The capital, St. Paolo de Loando, contains 1600 Europeans and 4000 native inhabitants, and has a fine harbor. St. Felipe de Benguela is situated in a picturesque but very marshy and most unhealthy spot.

The coast from Benguela to the Cape colony may, in a general arrangement like this, be included either within West Africa or South Africa. The whole coast is little visited or known, being of a most barren and desolate description, and possessing few harbors. From Walfich Bay, Mr. Galton recently penetrated nearly 400 miles into the interior toward Lake Ngami, and explored the country inhabited by the Ovaherero, or Damaras, and other tribes.

Under South Africa the Cape colony only is generally comprised. It takes its name from the Cape of Good Hope, and extends from thence to the Orange River in the north, and to the Tugela River in the east. A large proportion of the territory included within these limits, especially in the north, is either unoccupied, or, excepting missionary stations, entirely in the hands of the aborigines.

Natal, or Victoria, a district on the east coast, and separated from the Cape colony by Kaffraria, is a recently formed British settlement, containing an area of about 18,000 square miles. It is highly favored in those respects in which the Cape is most deficient, having abundance of wood and water, with coal and various metallic ores, a fine alluvial soil, and a climate adapted to the cultivation of the products for which the home demand is large and constant—cotton, silk, and indigo. Pietermaritzburg, the capital of the settlement, lies 50 miles from the coast. Port Natal, now D'Urban, seated on a fine lake-like bay, is the only harbor.

To Africa belong a considerable number of islands. The Madeiras, belonging to Portugal, lie off the north-west coast of Africa, at a distance of about 360 miles. Madeira, the chief island, is about 100 miles in circuit, and has long been famed for its picturesque beauty, rich fruits, and fine climate, which renders it a favorite resort of invalids. Wine is the staple produce. Funchal, the chief town, with nearly 30,000 inhabitants, is a regular station for the West India mail steam-packets from Southampton, and the Brazilian sailing-packets from Falmouth. The Canaries, belonging to Spain, the supposed Fortunate Islands of the ancients, are situated about 300 miles south of Madeira. They are 13 in number, all of volcanic origin, Teneriffe being the largest. The latter is remarkable for its peak, which rises as a vast pyramidal mass to the height of 12,172 feet. The Cape Verd Islands, subject to Portugal, are a numerous group about 80 miles from Cape Verd. They obtained their name from the profusion of sea-weed found by the discoverers in the neighboring ocean, giving it the appearance of a green meadow. They are also of volcanic origin. Fernando Po, a very mountainous island, is in the Bight of Biafra. Formerly a British settlement, it was abandoned owing to its unhealthiness, and is now only inhabited by a few negroes and mulattoes. St. Thomas, immediately under the equator, is a Portuguese settlement; as also Prince's Island, 2° north of the line. Annobom, in 2° S. lat., belongs to the Spaniards. Ascension, a small, arid, volcanic islet, was made a British port on the arrival of Napoleon Bonaparte at St. Helena, and since retained as a station, at which ships may touch for stores. Green Hill, the summit of the island, rises to the height of 2840 feet. St. Helena is a huge dark mass of rock, rising abruptly from the ocean to the height of 2692 feet. James' Town is the only town and port, containing 5300 inhabitants. Madagascar, the largest island of Africa, and one of the largest in the world, is separated from the Mozambique coast by a channel of that name, about 250 miles wide. The area exceeds that of France, comprising 225,000 square miles, and the population is estimated at 4,000,000. It has an atmosphere so pestilential, in particular localities, that to breathe it for a short duration is generally, and very quickly, fatal. But other parts are not insalubrious. The lemurs, an interesting tribe of animals, are peculiar to Madagascar and the Comoro Archipelago. The inhabitants are diverse races of Negro, Arab, and Malay origin. The Ovahs, a people of the central provinces, are now dominant. The principal town, Tananarivu, has 8000 inhabitants. The Comoro isles, four in number, are in the north part of the Mozambique Channel, and inhabited by Arab tribes. Bourbon, 400 miles east of Madagascar, is a colony of France, producing for export coffee, sugar, cocoa, spices, and timber. Mauritius, ceded to the British by the French in 1814, is 90 miles northeast of Bourbon. The sugar-cane is chiefly cultivated. Port Louis, the capital, beautifully situated, has 26,000 inhabitants. Within the jurisdiction of the Governor of the Mauritius are the islands of Rodriguez, the Seychelles, and the Amirante islands. Socotra, a large island, east of Cape Jerdaffun, with an Arab population, has been known from early times; it is now a British possession. This island was long celebrated as producing the finest aloetic drug: a few years ago this was denied; but now it is found still to produce a fine kind of aloe, though much of what passed as Socotrine aloes really came from India.—E. B.

African Company, a society of merchants trading to Africa. An association in Exeter, which was formed in 1588, gave rise to this company. A charter was granted to a joint stock company in 1618: a third company was created in 1631; a fourth corporation in 1662; and another formed by letters patent in 1672, and remodeled in 1695. The rights vested in the present company, 23 Geo. II. 1749.—*See* SLAVE TRADE.

Agate (popularly CORNELIAN), Germ. *Achat*; Du. *Achaat*; Fr. *Agate*; It. *Agata*; Rus. *Agat*; Lat. *Achates*. A genus of semi-pellucid gems, so called from the Greek *αχατες*, because originally found on the banks of the river of that name in Italy. It is never wholly opaque like jasper, nor transparent as quartz-crystal; it takes a very high polish, and its opaque parts usually present the appearance of dots, eyes, veins, zones, or bands. Its colors are yellowish, reddish, bluish, milk-white, honey-orange, or ochre-yellow, flesh-blood, or brick-red, reddish brown, violet blue, and brownish green. It is found in irregular rounded nodules, from the size of a pin's head to more than a foot in diameter. The lapidaries distinguish agates according to the color of their ground, the finer semi-transparent kinds being termed Oriental. The most beautiful agates found in Great Britain are commonly known by the name of *Scotch pebbles*, and are met with in different parts of Scotland, principally on the mountain of Cairngorm; whence they are sometimes termed Cairngorms. The German agates are the largest. Some very fine ones have been brought from Siberia and Ceylon. They are found in great plenty at the eastern extremity of the settlement of the Cape of Good Hope, and are still met with in Italy. But the principal mines of agate are situated in the little principality of Rajpepla, in the province of Gujrat, 14 miles distant from the city of Broach, where they are cut into beads, crosses, snuff-boxes, etc. They are exported in considerable quantities to other parts of India, and to this country; and hence, perhaps, the jewelers' term "broach."

Agent. *See* FACTOR.

Agio, a term used in *Commerce* to denote the difference between the real and the nominal value of money. In some states the coinage is so debased, that the real is greatly reduced below the nominal value. Sometimes this is owing to abrasion, and the wear of circulation. Where this reduction amounts, *e. g.*, to 5 per cent., if 100 sovereigns were offered as payment of a debt in England, while such sovereigns were current at their nominal value, they would be received as just payment; but if they were offered as payment of the same amount of debt in a foreign state, they would be received only at their intrinsic value of £95, the additional £5 constituting the *agio*. The same principle is applied to the paper currency of a country, when reduced below the bullion value which it professes to represent. According to the respective demand for gold or paper money for the purposes of commerce, it becomes necessary, in order to procure the one or other, as the case may require, to pay a premium for it, which is called the *agio*.—E. B.

Agrarian Law, *Agraria Lex*. This was an equal division among the Roman people of all the lands which they acquired by conquest, limiting the acres which each person should enjoy, first proposed by Sp. Cassius, to gain the favor of the citizens, 486 B.C. It was enacted under the tribune Tiberius Gracchus, 132 B.C.; but this law at last proved fatal to the freedom of Rome under Julius Cæsar.—LIVY; VOSSIUS.

Ahead, a sea term, signifying farther onward than the ship or at any distance before her, lying immediately on that point of the compass to which her stem is directed. It is used in opposition to *astern*, which expresses the situation of any object behind the ship.

Ahull, in *Naval Language* the situation of a ship when all her sails are furled on account of the violence of the storm, and when, having lashed her helm on the lee-side, she lies nearly with her side to the wind and sea, her head being somewhat inclined to the direction of the wind.

Alabama, one of the Southern United States, is bounded north by Tennessee, east by Georgia, south by Florida and the Gulf of Mexico, and west by Mississippi. It is between 30° 10′ and 35° N. lat., and 85°

and 88° 30′ W. long., and between 8° and 11° 30′ W. long. from Washington. It contains 50,722 square miles, or 32,462,080 acres. Population in 1800 was only 2000; in 1810, 10,000; in 1820, 127,901; in 1830, 308,997; in 1840, 590,756; and in 1850, 771,671. Whites, 426,507; free colored, 2272; slaves 342,892. It contained in 1850 fifty-two counties. The capital is Montgomery, situated on the left bank of the Alabama River, 338 miles above Mobile by the course of the river. Mobile, the metropolis, is the most populous and commercial place in the State. The other principal places are Huntsville, Florence, Wetumpka, Tuscaloosa, Cahaba, Eufala, etc.

Surface, Soil, etc.—The surface of this State exhibits much variety: bordering the Gulf shore, and for some distance interior it is low and level, soil sandy, and the prevailing timber is pine. The central portion exhibits an undulating surface, with a deep, rich, and productive soil, especially along the margins of streams. Approaching the north, it rises into a hilly region, and in the northeast corner of the State it becomes mountainous. This is caused by the southern termination of the Alleghany Ridge, which here, in crossing the State, melts away into a hilly district, and is finally lost in the rolling prairies and gently undulating plains. The Tennessee Valley, from where it enters the State, near the northeast corner, until it leaves it at the northwest corner, presents rich and fertile bottom lands, and the lands bordering thereon are the richest agricultural portion of the State. The climate, varying from the south to the north part of the State, is favorable for the production of its great staples, cotton, rice, sugar, sweet potatoes, and Indian corn, and in the middle and northern part wheat and other cereals. Alabama has great mineral resources; the entire middle region is underlaid with bituminous coal, and deposits of iron ore, and in different localities throughout the State are lead ore, manganese, limestone, marble, etc.; in the northeast gold mines have been wrought with some success.

There were in this State, in 1850, 4,435,614 acres of land improved, and 7,702,067 of unimproved land in farms. Cash value of farms, $64,323,224, and the value of implements and machinery was $5,125,663. *Live Stock*: horses, 128,001; asses and mules, 59,895; milch cows, 227,791; working oxen, 66,961; other cattle, 433,263; sheep, 371,880; swine, 1,904,540; value of live stock, $21,690,112.

Agricultural Products, etc.—Wheat, 294,044 bushels produced; rye, 17,261; Indian corn, 28,754,048; oats, 2,965,696; barley, 3,958; buckwheat, 348; peas and beans, 892,701; potatoes, 246,001; sweet potatoes, 5,475,204; rice, 2,312,252 pounds. Value of products of the orchard, $15,408; produce of market gardens, $84,821; pounds of butter made, 4,008,811; of cheese, 31,412; sugar, hogsheads of, 8242; maple-sugar, 643 pounds; molasses, 83,428 gallons; beeswax and honey, 897,021 pounds; wool, 657,118 pounds produced; cotton, 564,429 bales; flax, 3921 pounds; silk cocoons, 167; hops, 276 pounds; tobacco, 164,990; hay, 32,685 tons; clover seed, 138 bushels; other grass seeds, 547; flax seed, 69 bushels; and there were made 220 gals. of wine. Value of home-made manufactures, $1,934,120; of slaughtered animals, $4,823,485.—*Census*, 1850.

Rivers, etc.—Mobile, the principal river, is formed by the junction of the Alabama and Tombigbee rivers, and enters Mobile Bay by two mouths. The Alabama is navigable for vessels requiring six feet of water 60 miles above its junction, and has four or five feet of water 150 miles to the mouth of the Cahawba, and to the junction of the Coosa and Tallapoosa, of which it is formed; it has in its shallowest places three feet of water. The Tombigbee, the other constituent of Mobile River, is navigable for schooners 120 miles to St. Stephens, and for steamboats to Columbus, Mississippi. The Black Warrior, a large branch of it, is navigable for steamboats to Tuscaloosa. The Chattahoochee for a considerable distance separates this State from Georgia on the east. The Tennessee curves southwardly from the northeast to the northwest corner of the State, and is navigable for steamboats to Florence, at the foot of the Muscle Shoals.

Mobile Bay sets up 30 miles from the Gulf of Mexico, with an average breadth of 12 miles. *See* MOBILE.

Internal Improvements, etc.—Muscle Shoals Canal is designed to overcome an obstruction in the Tennessee River, and extends from Florence 35¾ miles, and cost $571,835, and when completed to Brown's Ferry, at the head of the shoal, is estimated to cost $1,361,057. Huntsville Canal extends 16 miles from Triana, on Tennessee River, to Huntsville. There were in this State, January, 1854, six railroads, four of which were wholly or in part in operation; aggregate miles finished, 221; cost, $3,546,000; and 65 miles chartered or in course of construction. There are three banks in the State, with an aggregate capital of $2,100,000. The State Penitentiary is at Wetumpka. There is also a State insane hospital, and a school for the deaf and dumb at Robinson's Springs.

The railway system is yet in its infancy in this State. There are 236 miles in operation, and 663 miles in construction. Congress has this year (1856) granted land for Alabama railroads, and this grant will doubtless be sufficient to build the roads now in progress. Alabama is one of the States that peculiarly need railroads. Its products are not consumed in the State, but have to be transported to the sea-board, and the absence of large rivers makes railroads indispensable to the prosperity of the State.

Manufactures.—There were in this State in 1850, 13 cotton factories, with a capital invested of $681,900, employing 349 males and 397 females, producing 3,281,000 yards of sheeting, etc., and 790,000 pounds of yarn, valued at $398,585; 3 woolen factories, with a capital of $3600, employing 11 males and 3 females, manufacturing cloth valued at $7470; 1 establishment making pig iron, with a capital of $25,000, employing 40 persons, producing 522 tons of pig iron, valued at $28,896; 10 establishments with a capital of $216,625, employing 212 persons, and making 1915 tons of castings, etc., valued at $271,126; 1 establishment with a capital of $2500, employing 14 persons, manufacturing 100 tons of wrought iron, valued at $7500; 217 flouring and grist mills, 294 saw mills, 149 tanneries, 50 printing-offices, issuing 60 newspapers, etc.

This State was originally included in the territorial limits of Georgia, except the part which belonged to Florida. In 1802 Georgia ceded all her territory west of Chattahoochee River to the Mississippi River, to the United States, and in 1817 it was constituted the Mississippi Territory, and Alabama continued a part of this territory until it was admitted into the Union, and became an independent State in 1820.

Alabaster (Germ. *Alabaster*; It. *Alabastro*; Fr. *Albâtre*; Russ. *Alabastr*; Lat. *Alabastrites*). A kind of stone resembling marble, but softer. Under this name are confounded two minerals, the *gypseous* and *calcareous* alabasters; they are wholly distinct from each other when pure, but in some of the varieties are occasionally mixed together. The former, when of a white, or yellowish, or greenish color, semi-transparent, and capable of receiving a polish, is employed by statuaries. It is very easily worked, but is not susceptible of a polish equal to marble. Calcareous alabaster is heavier than the former; it is not so hard as marble, but is notwithstanding susceptible of a good polish, and is more used in statuary. The statuaries distinguish alabaster into two sorts, the common and Oriental. Spain and Italy yield the best alabaster. That produced at Montania, in the Papal States, is in the highest esteem for its beautiful whiteness. Inferior sorts are found in France and Germany. Alabaster is wrought into tables, vases, statues, chimney-pieces, etc.

Alcohol (ARDENT SPIRIT), (Fr. *Esprit de Vin;* Germ. *Weingeist;* It. *Spirito ardente*, *Spirito di Vino*, *Acquarzente*), the name given to the *pure spirit* obtainable by distillation, and subsequent rectification, from all liquors that have undergone the vinous fermentation, and from none but such as are susceptible of it. It is light, transparent, colorless; of a sharp, penetrating, agreeable smell; and a warm, stimulating taste. It is quite the same, whether obtained from brandy, wine, whisky, or any other fluid which has been fermented. The specific gravity of alcohol when perfectly pure is from ·792 to ·800, that of water being 1·000; but the strongest spirit afforded by mere distillation is about ·820; alcohol of the shops is about ·835 or ·840. Alcohol can not be frozen by any known degree of cold. It boils at 174°. It is the only dissolvent of many resinous substances, and is extensively used in medicine and the arts.—*Drs.* A. T. THOMSON, URE, *etc.*

Alder, the *Betula alnus* of botanists, a forest tree abundant in England and most parts of Europe. It thrives best in marshy grounds and on the banks of rivers. It rarely attains to a very great size; its wood is extremely durable in water or in wet ground; and hence it is much used for piles, planking, pumps, pipes, sluices, and generally for all purposes where it is kept constantly wet. It soon rots when exposed to the weather or to damp; and, when dry, it is much subject to worms. The color of the wood is reddish yellow, of different shades, and nearly uniform. Texture very uniform, with large septa of the same color as the wood. It is soft, and works easily.—TREDGOLD'S *Principles of Carpentry.*

Ale and **Beer**, well known and extensively used fermented liquors, the principle of which is extracted from several sorts of grain, but most commonly from barley, after it has undergone the process termed malting.

1. *Historical Notice of Ale and Beer.*—The manufacture of ale or beer is of very high antiquity. Herodotus tells us that, owing to the want of wine, the Egyptians drank a liquor fermented from barley (lib. ii. cap. 77). The use of it was also very anciently introduced into Greece and Italy, though it does not appear to have ever been very extensively used in these countries. Mead, or metheglin, was probably the earliest intoxicating liquor known in the north of Europe. Ale or beer was, however, in common use in Germany in the time of Tacitus (*Morib. Germ.* cap. 23). "All the nations," says Pliny, "who inhabit the west of Europe have a liquor with which they intoxicate themselves, made of corn and water (*fruge madida*). The manner of making the liquor is somewhat different in Gaul, Spain, and other countries, and it is called by many various names; but its nature and properties are every where the same. The people of Spain, in particular, brew this liquor so well that it will keep good for a long time. So exquisite is the ingenuity of mankind in gratifying their vicious appetites, that they have thus invented a method to make water itself intoxicate."—*Hist. Nat.* lib. xiv. cap. 22. The Saxons and Danes were passionately fond of beer; and the drinking of it was supposed to form one of the principal enjoyments of the heroes admitted to the hall of Odin.—MALLET'S *Northern Antiquities*, cap. 6, etc. The manufacture of ale was early introduced into England. It is mentioned in the laws of Ina, king of Wessex; and is particularly specified among the liquors provided for a royal banquet in the reign of Edward the Confessor. It was customary in the reigns of the Norman princes to regulate the price of ale; and it was enacted by a statute passed in 1272, that a brewer should be allowed to sell two gallons of ale for a penny in cities, and three or four gallons for the same price in the country.

The use of hops in the manufacture of ale and beer seems to have been a German invention. They were used in the breweries of the Netherlands in the beginning of the 14th century; but they do not seem to have been introduced into England till 200 years afterward, or till the beginning of the 16th century. In 1530, Henry VIII. enjoined brewers not to put hops into their ale. It would, however, appear that but little attention was paid to this order; for in 1552 hop plantations had begun to be formed.—BECKMANN'S *Hist. Invent.* vol. iv. p. 336–341, Engl. edition. The addition of hops renders ale more palatable, by giving it an agreeable bitter taste, while, at the same time, it fits it for being kept much longer without injury. Generally speaking, the English brewers employ a much larger quantity of hops than the Scotch.

Years.	MALT IN GREAT BRITAIN				
	Bushels charged with duty.	Duty paid.	Rates of Duty per bushel.		
			England.	Scotland.	Ireland.
		£	s. d.	s. d.	s. d.
1801	19,742,741	1,317,776	1 4¼	0 8¼	1 6¼
1802	34,760,441	2,988,682	2 5	1 8¼	....
1803	34,710,084	3,977,369	4 5¼	....	1 9¼
1804	24,753,023	6,240,035	....	3 9¼	2 9¼
1805	25,568,183	5,365,300	....	....	2 3¼
1806	30,710,947	6,514,463	....	....	2 6¼
1807	27,791,064	5,936,563	....	....	....
1808	25,373,119	5,375,042	....	....	....
1809	25,852,359	5,409,614	....	....	....
1810	26,889,183	5,741,992	....	....	....
		1·58 bshls.*			
1811	29,676,827	6,332,857	....	....	....
1812	21,283,623	4,493,704	....	....	....
1813	25,354,203	5,401,954	....	....	....
1814	29,743,642	6,411,817	....	....	3 3¾
1815	30,209,038	6,707,446	....	....	3 3¼
1816	24,200,093	4,741,812	2 5	1 8¼	4 5
1817	23,334,730	2,769,188	....	....	2 4½
1818	26,204,089	3,296,229	....	....	....
1819	25,815,254	4,075,436	3 7¼	3 7¼	....
1820	26,860,121	4,843,421	....	....	3 6¾
		1·88 bshls.*			
1821	29,393,411	4,297,581	....	....	....
1822	29,848,080	4,082,888	2 7	2 7	2 7
1823	28,164,497	3,609,501	....	3 7¼	....
1824	31,511,743	4,172,453	....	....	....
1825	36,205,450	4,631,324	....	....	....
1826	32,468,779	4,177,278	....	....	....
1827	29,615,501	3,809,988	....	....	....
1828	36,854,206	4,731,585	....	....	....
1829	29,152,777	3,743,616	....	....	....
1830	32,964,454	4,231,997	....	....	....
		1·39 bshls.*			
1831	39,252,269	5,036,669	....	....	....
1832	37,390,635	4,799,053	....	....	....
1833	40,072,895	5,140,759	....	....	....
1834	41,145,591	5,275,403	....	....	....
1835	42,892,056	5,499,883	....	....	....
1836	44,387,780	5,699,879	....	....	....
1837	40,550,748	5,216,864	....	....	....
1838	40,555,566	5,171,838	....	....	....
1839	39,928,329	4,139,804	....	2 7	....
1840	42,406,862	5,592,477	....	....	....
		1·60 bshls.*			
1841	36,164,235	4,889,243	2 7	2 7	2 7
1842	35,871,394	4,848,581	and 5	and 5	and 5
1843	35,693,890	4,827,950	per cent.	percent.	per cent.
1844	37,187,186	5,027,071	....	....	....
1845	36,545,990	5,538,033	....	....	....
1846	42,097,085	5,691,273	....	....	....
1847	35,307,815	4,775,691	....	....	....
1848	37,545,912	5,076,238	....	....	....
1849	38,935,460	5,266,779	....	....	....
1850	40,744,750	5,511,440	....	....	....
		·72 bshls.*			
1851	40,337,412	5,030,369	....	....	....
1852	41,071,636	5,323,935	....	....	....

* Decennial average annual consumption per head.

2. *Distinction between Ale and Beer, or Porter.*—This distinction has been well elucidated by Dr. Thomas Thomson, in his article on Brewing, in the *Encyclopædia Britannica:* "Both ale and beer are in Great Britain obtained by fermentation from the malt of barley; but they differ from each other in several particulars. Ale is light-colored, brisk, and sweetish, or at least free from bitter; while beer is dark-colored, bitter, and much less brisk. What is called *porter* in England is a species of beer; and the term 'porter' at present signifies what was formerly called *strong beer*. The original difference between ale and beer was owing to the malt from which they were prepared. Ale malt

was dried at a very low heat, and consequently was of a pale color; while beer, or porter malt, was dried at a higher temperature, and had of consequence acquired a brown color. This incipient charring had developed a peculiar and agreeable bitter taste, which was communicated to the beer along with the dark color. This bitter taste rendered beer more agreeable to the palate, and less injurious to the constitution than ale. It was consequently manufactured in greater quantities, and soon became the common drink of the lower ranks in England. When malt became high-priced, in consequence of the heavy taxes laid upon it, and the great increase in the price of barley which took place during the war of the French Revolution, the brewers discovered that a greater quantity of wort of a given strength could be prepared from pale malt than from brown malt. The consequence was that pale malt was substituted for brown malt in the brewing of porter and beer. We do not mean that the whole malt employed was pale, but a considerable proportion of it. The wort, of course, was much paler than before; and it wanted that agreeable bitter flavor which characterized porter, and made it so much relished by most palates. The porter brewers endeavored to remedy these defects by several artificial additions. At the same time, various substitutes were tried to supply the place of the agreeable bitter communicated to porter by the use of brown malt. Quassia, cocculus indicus, and we believe even opium, were employed in succession; but none of them was found to answer the purpose sufficiently. Whether the use of these substances be still persevered in we do not know; but we rather believe that they are not, at least by the London porter brewers."

Ale and Wine are said to have been invented by Bacchus; the former where the soil, owing to its quality, would not grow grapes.—TOOKE's *Pantheon*. Ale was known as a beverage at least 404 B.C. Herodotus ascribes the first discovery of the art of brewing barley-wine to Isis, the wife of Osiris. The Romans and Germans very early learned the process of preparing a liquor from corn by means of fermentation, from the Egyptians.—TACITUS. Ale-houses are made mention of in the laws of Ina, king of Wessex. Booths were set up in England A.D. 728, when laws were passed for their regulation. Ale-houses were licensed 1621; and excise duty on ale and beer was imposed on a system nearly similar to the present, 13 Charles II. 1660.—HAYDN.

Alexandria, so called from its illustrious founder, Alexander the Great, the principal sea-port of Egypt, on the coast of the Mediterranean, about 14 miles W.S.W. of the Canopic mouth of the Nile; the light-house being in lat. 31° 11′ 31″ N., long. 29° 51′ 28″ E. The situation of this famous city was admirably chosen. Until the discovery of the route to India by the Cape of Good Hope, Egypt formed the centre of the commerce between the Eastern and Western Worlds; and Alexandria was placed in the most favorable position in Egypt for an emporium, being the only port on its northern coast, where there is at once deep water and security for shipping throughout the year. The ports of Rosetta and Damietta, the former on the west, and the latter on the eastern arm of the Nile, are both difficult of entrance, each having a bar, upon which there is always a dangerous surf. Ships bound for Alexandria avoid this serious inconvenience; and by means of an artificial navigation, stretching from the city to the western branch of the Nile, it has almost the same facilities for internal navigation that are enjoyed by the cities referred to.

It may be proper, however, to mention that this artificial communication with the Nile has not always been open. It existed in antiquity, but fell into decay during the barbarism of more modern times. After being shut up for some centuries, it has been reopened by Mehemet Ali, who dug the Mahmoudie canal from Alexandria to Atfeh, on the Nile, about 27 miles above Rosetta. This important work is 44 miles in length, 90 feet in breadth, and from 15 to 18 feet deep. It was opened in 1819; but owing partly to the nature of the ground, partly to some defects in its construction, and partly to the mud deposited by the water of the Nile, it is difficult to keep in repair; and can only be navigated by boats that draw little water, and are not suitable for the navigation of the Nile. But, with all its defects, the construction of this canal has been of the greatest advantage, not to Alexandria only, but to Egypt and even Europe.

Ports, etc.—The ancient city was situated a little more inland than the modern one, opposite to the small island of Pharos, on which was erected the light-house, so celebrated in antiquity.—CÆSAR, *De Bello Civili*, lib. iii. cap. 112. This island was, partly by artificial means, and partly by natural causes, gradually joined to the land by a mound, and on this the more modern town is principally built. The isthmus and island have now the form of a T, its head being northeast and southwest. A square castle, or tower, built on a small islet or rock, at the extremity of a mole projecting from the northeast angle of the city, is still called the Pharos, and may perhaps occupy the site of the ancient light-house: a light was exhibited on it down to 1842, when it ceased. On each side of the city there is a port. That on the western, or African side, called the Old Port, the *Eunostos* of the ancients, is by far the largest and best. It stretches from the town westward to Marabout, about 6 miles, and is about 1½ miles in width. It is bounded on the north, partly by the western tongue or angle of the island on which the city is partially built, at the extremity of which is the new light-house, and partly by rocks and sand banks. It has three entrances. The first, or that nearest the city, having 17 feet water, is nearly 1¾ miles southwest from the light-house; but it is too narrow and difficult to be attempted by any one not thoroughly acquainted with the port. The *eastern* side of the second or middle entrance is marked by buoys which lie about 2½ miles southwest from the light-house; it is about a quarter of a mile wide, and has, where shallowest, 27 feet water. The third or western entrance has its *western* boundary within about three-eighths of a mile from the east end of Marabout island: it is about half a mile wide, and has from 25 to 27 feet water in its shallowest places. This last is the best entrance. Ships, when in, may anchor close to the town in from 22 to 40 feet water, and there is good anchorage in deep water all along the shore. Foreigners were formerly excluded from this port; but this prohibition no longer exists, and it is now principally resorted to by the shipping frequenting the port.

What is called the New (though it be really the oldest) or Asiatic harbor is on the eastern side of the town. A rock called the Diamond lies a little to the east of the Pharos tower; and ships entering the port ought to have this rock about a cable's length on the right. If they get much farther to the left, they will come in contact with a shoal which stretches westward from the Pharillon, or little tower, on the east side of the port. The water immediately within the port southwest from the Pharos is from 30 to 40 feet deep; but the space for anchorage is very limited, and is exposed to the northerly gales; and the ground being foul and rocky, hempen cables are very apt to chafe, and several accidents have happened in consequence to ships unprovided with iron cables. Ordinary tides rise 2 feet; but during the overflow of the Nile the rise is 4 feet. Variation 13° west.

Trade of Alexandria.—The imports principally consist of cotton stuffs, timber, woolen and silk stuffs, iron and hardware, including copper and tin plates, jewelry, machinery, ammunition, paper and stationery, cutlery, etc., etc. The exports consist principally of raw cotton, rice, wheat and barley, beans, linseed, senna, and other drugs and gums brought from the interior;

indigo, opium, ostrich feathers, dates, soda, linen cloth, coffee from Arabia, etc. The exports of wheat, barley, and pulse for a while declined in consequence of the superior encouragement given to the growth of cotton; but they have again increased, and in 1849 we brought from Alexandria 129,954 qrs. wheat, 247,594 qrs. beans, and 13,151 qrs. Indian corn. The culture of flax has declined: formerly from 50,000 to 60,000 quarters of linseed have been exported from Alexandria in a single season, but the exports are now much less. Sugar has been long cultivated in Egypt, but not to any great extent, though the soil and climate of Upper Egypt are said to be especially favorable to its growth. Indigo and madder are among the articles of culture introduced by the late Pacha.

Cotton has been grown in Egypt from a very remote period; previously, however, to the ascendency of Mehemet Ali it was but little cultivated, and that little was of inferior quality, short-stapled, and closely resembling "Surats," under which name the small quantities exported from the country were usually sold. But in 1820 a Frenchman of the name of Jumel accidentally observed a very valuable variety of long-stapled cotton, raised from seeds brought from Dongola and Senaar, growing in the garden of Mahè Bey, at Cairo. Jumel having represented its superiority to the Pacha, its cultivation was undertaken on a large scale on account of the latter; and has succeeded so well, that Mahè or Makko cotton has been for a lengthened period by far the principal article of export from Egypt. At a later period seeds of the Sea-Island cotton were introduced, and for a while it also answered remarkably well; its produce, which in Egypt was called Senaar, and in England "Egyptian Sea-Island," ranking next in the estimation of the manufacturers to genuine "Sea-island." Unfortunately, however, this variety was found to degenerate, and its culture, which was never very extensive, as well as that of the old short-stapled variety, has, we believe, been wholly abandoned.

Constantinople and the islands of the Archipelago are the great markets for the wheat and other grain exported from Egypt. The supplies are, however, extremely uncertain. Every thing in Egypt depends on the Nile; and when it does not rise to the usual height, the crops are very much below an average. Beans are extensively cultivated, and have sometimes been brought to England, but rarely, if ever, with advantage to the importers. They are inferior to English beans, and are peculiarly subject to the worm. No oats are raised in Egypt, the horses being entirely fed upon barley. Silk is grown to some extent. The date-palm thrives in every part of Egypt, and the fruit is largely exported. It is singular that, notwithstanding the luxuriance of many of its vegetable productions, Egypt should be entirely destitute of timber.

Money.—Accounts are kept at Alexandria, as at Cairo, in *current piastres*, each piastre being equal to 40 paras, or medini, and each medino to 30 aspers. The medino is also divided into 8 borbi, or 6 forli. A purse contains 25,000 medini. At the close of 1842 the exchange with England was 93·08 current piastres per £1; but in general calculations 100 piastres are supposed to equal £1. Payments, in transactions of any importance, are generally made in Spanish dollars.

Duties.—With the exception of the arbitrary principles on which the Pacha fixes the prices of commodities, there is nothing objectionable in his policy as to commerce. The duties on imports are only 3 per cent. We believe, however, that a small increase of the customs' duty would compensate the Pacha for the abolition of other oppressive charges, and there can be little doubt that his subjects would be materially benefited by the change.

Letters written last summer (1855) at Alexandria, Egypt, state that Said Pasha, the viceroy, has given the necessary orders for the construction of a railway across the desert between Cairo and Suez, a distance of 84 miles. The rails are to be brought out from England, and the Pasha's own engineers, who are Frenchmen, are to carry out the works. In about three years from this time it may be hoped that a railroad will run quite across the country, and the transit of passengers, which now occupies more than two days of uncomfortable traveling, will be reduced to ten or twelve hours of easy conveyance. For the extension of trade and communication with India, it will be very desirable if the Pasha should consent to carry coal to Suez at a moderate charge, as the high price of coal at Suez is at present the principal obstacle to other steamers regularly coming up the Red Sea besides those of the Peninsular and Oriental Steam Navigation Company. According to letters from Egypt dated December, 1855, the railway between Alexandria and Cairo has been nearly completed, and, according to the last advices, is about to be opened for passengers and goods. The importance of this communication, in superseding both the canal and the Nile passage, and shortening the transit between the two cities to about eight hours, will be readily appreciated by every person who has traveled across Egypt. The construction of the portion of the railway from Cairo to near Suez, which is to complete the communication between the Mediterranean and the Red Sea, is in active progress. The directors are endeavoring to induce his highness, the viceroy, to construct at the termini of these railways at Cairo and the Red Sea commodious hotels, adapted to the convenience of travelers from the East. The spirit of improvement in the East is further shown by the recent establishment of an electric telegraph across Egypt. This has been determined upon by his highness the viceroy, and will form an important improvement in the overland communication with India, China, etc. The directors sometime since submitted, at the request of the viceroy, a proposal to establish a monthly postal communication with Australia as soon as the release of the vessels now engaged in the war service should enable them to do so. No definite arrangement has, however, been yet made to that effect.

Ancient Trade of Alexandria.—Alexandria was for a long series of years—first under the Greek successors of Alexander, and subsequently under the Romans—the principal *entrepôt* of the ancient world. Most part of the traffic between Asia and Europe, that had at a more early period centred at Tyre, was gradually diverted to this new emporium. An intercourse between the ports on the eastern coast of Egypt and those on the opposite coast of Arabia had subsisted from a very early period. That between Egypt and India was more recent. It was at first carried on by ships, which having sailed down the Red Sea from Myos Hormos and Berenice, coasted along the Arabian shores till they reached Cape Rasselgate, whence a short course brought them to India, near the mouth of the River Indus. This was the course followed during the dynasty of the Ptolemies; but about eighty years after Egypt had been annexed to the Roman empire, Hippalus, the commander of an Egyptian ship trading to India, having observed the regular shifting of the trade-winds, ventured to sail with the western monsoon from the Straits of Babelmandeb right across the Arabian Ocean; and was fortunate enough, after a prosperous voyage, to arrive at Musiris, in that part of India now known by the name of the Malabar coast. Having taken on board a cargo of Indian products, Hippalus returned in safety with the eastern monsoon to Egypt. This discovery was deemed of so much importance, that the name of the discoverer was given to the wind which had carried him across the ocean to India: and how trifling soever this voyage may now appear, those who consider that Hippalus had no compass by which to direct his course, and that owing to this circumstance, and the otherwise imperfect state of the art of navigation, the ancients seldom ventured out of sight of land, even in seas with which they were well acquainted, will be forward to admit that his enterprise and daring were nowise inferior to his success; and that he was well entitled to the gratitude of his contemporaries, and the respect of posterity.

From the epoch of this discovery, fleets traded periodically from Egypt to Musiris, conveying the products of Europe to India, and conversely. The Indian goods having been landed at Myos Hormos and Berenice were thence conveyed by caravans to Coptos (the modern Kenné), on the Nile, where they were put on board lighters and sent to Alexandria, whence they were distributed all over the Western World. The goods sent to India were conveyed to Myos Hormos and Berenice by the same route. Myos Hormos was situated on the shore of the Arabian Gulf, about a degree to the north of the modern port of Cosseir. The distance from it to Coptos, in a straight line, is about 70 English miles. Berenice was situated a good way farther south, being nearly under the tropic. It was built by Ptolemy Philadelphus. Its distance from Coptos is stated by Pliny at 258 Roman miles; the different resting-places on the road were determined by the wells, and the journey occupied about 12 days. Ptolemy seems to have preferred this station to Myos Hormos, though the land-carriage to Coptos was so much farther, from its greater proximity to the Straits of Babelmandeb, and its lessening the voyage up the Red Sea. Pliny says that the cost of the Indian commodities brought to Rome through Alexandria was increased a hundredfold (*centuplicato veneant*) by the expense of carriage, etc. We suspect, however, that this is a rhetorical exaggeration, meaning merely that their price was very materially enhanced. If the increase was any thing like that mentioned, it must have been owing to the imposition of oppressive tolls and duties, for it could not possibly have been occasioned by the mere expenses of conveyance. In the 16th century, the cost of Indian commodities, brought to Western Europe by way of Alexandria and Aleppo, was about *three* times the cost of those brought by the Cape of Good Hope.—See *post*, EAST INDIA COMPANY, *History of*. But Egypt was then occupied by the Mamelukes and Turks, who threw every sort of obstacle in the way of commerce, and loaded it with the most oppressive exactions.—PLIN. *Hist. Nat.* lib. vi. cap. 23; AMEILHON, *Commerce des Egyptiens*, p. 161–176, etc.; ROBERTSON'S *Ancient India*, note 20, etc.

Besides this important traffic, which supplied Rome and the Western World with the silks, spices, precious stones, and other products of Arabia and India, a great trade in corn was carried on from Alexandria to Rome. Egypt, for a lengthened period, constituted the granary from which Rome, and afterward Constantinople, drew the principal part of their supplies; and its possession was, on that account, reckoned of the utmost consequence. Augustus employed merchantmen of a larger size than any that had previously traded in the Mediterranean to convey the corn of Egypt to Ostia. They were escorted by ships of war. The fleet received the names of *sacra* and *felix embole*, and enjoyed several peculiar privileges. The ships belonging to it were the only ones authorized to hoist the small sail called *supparum*, when they drew near the coasts of Italy. Some of the fast-sailing vessels attached to the fleet were sent on before, to give notice of its approach; and a deputation of senators went down to Ostia to receive the ships, which anchored amidst the acclamations of an immense number of spectators. The captains were obliged to make oath that the corn on board their ships was that which had been delivered to them in Egypt, and that the cargoes were entire as shipped. —HUET, *Commerce et Navigation des Anciens*, cap. xlviii.; *Senecæ Epist.* lxxvii., etc.

Intercourse with India through Alexandria.—These few details will, perhaps, serve to give a faint idea of the importance of Alexandria in the commerce of antiquity. It is impossible, indeed, for any one to glance at a map of the world, or of the ancient hemisphere, and not to perceive that Egypt is the natural *entrepôt* of the commerce between Europe and all the vast countries stretching east from Arabia to China. The discovery of the route to India by the Cape of Good Hope, in 1498, must, no doubt, have, under any circumstances, diverted a considerable portion of the trade with the western States of Europe, and in the heavier and bulkier class of articles, into a new channel. It is, however, abundantly certain that, had the same facilities for conducting the trade with the East existed in Egypt in the 16th and 17th centuries that existed in it in antiquity, she would have continued to be the centre of the trade for all the lighter and more valuable products, and the route of the greater number of the individuals passing between Europe and Asia. But the lawless and arbitrary dominion of the Mamelukes, who loaded all individuals passing through the country with oppressive exactions, at the same time that they treated all foreigners, and especially Christians, with insolence and contempt, put an entire stop to the intercourse so long carried on by this shortest, most direct, and most convenient route. Happily, however, a new era has begun, and Egypt has once more become the grand thoroughfare of the Eastern and Western Worlds. After good order and a regular government had been introduced into Egypt by Mehemet Ali, it was seen that it might be again made the channel of communication with India; and the importance of facilitating the intercourse with that continent forcibly attracted the attention of the British government and the East India Company. We believe, however, that the public are principally indebted to the exertions of Mr. Waghorn for the early and successful opening of what has been called the "over-land route" to India. At all events, the establishment of a steam communication between Europe and Southern Asia, by way of Alexandria and Suez, is one of the most striking and important events in recent times. It has shortened the journey to India from England more than a half, and rendered it comparatively safe and expeditious. Steamers ascend the Nile as far as Cairo; and the passengers and mails are thence conveyed across the desert to Suez, and conversely, with comfort and expedition! We subjoin the following details:

OVERLAND MAILS.—OUTWARD.

Dispatched from London.		Arrive at Alexandria about	Leave Suez about	Arrive in Bombay about
Via Southampton.	Via Marseilles.			
4th and	8th of every month.	18th of every month.	21st or 22d of every month.	9th of every month.
				Arrive at *Calcutta* about
20th of every month by contract steamers.	24th of every month.	4th or 5th of every month.	6th or 7th of every month.	1st and 15th of every month.

The steamers that take the Southampton mails call at Gibraltar, and arrive at Malta about the 14th and 30th. The mails from Marseilles leave that port by one of her Majesty's steamers about the 11th and 27th of each month, and arrive at Malta the 15th and 31st. At Malta the mails are transhipped, and conveyed by steamers to Alexandria.

OVERLAND MAILS.—HOMEWARD. FROM BOMBAY TO LONDON.

Dispatched from Bombay about	Arrive at Suez about	Leave Alexandria about	Arrive in London about	
			Via Marseilles.	Via Southampton.
1st of each month.	18th of each month.	21st of each month.	1st of each month.	
Dispatched from Calcutta				
7th of each month. Dispatched from Bombay about 20th of each month	8th of each month.	10th of each month.	21st of each month.	26th of each month.

The contract steamer with the outward mail waits at Alexandria for the homeward mail, and arrives at Malta about the 13th and 24th of every month, where the Marseilles portion is transferred to one of her Majesty's steamers, which carries it to Marseilles, whence it is sent by land to Paris, and via Dover to London; the remaining portion is landed at Southampton, and is thence sent by railway to London. Average time to or from Bombay, via Marseilles, 31 days; and to or from Calcutta, via Marseilles, about 42 or 48 days; and via Southampton, from 47 to 53 days. By ship round the Cape, 4 months. The newspaper proprietors run expresses from Marseilles on the arrival of each mail, and thus are enabled to publish the news some two days before the letters arrive in London.

ROUTES FOR PASSENGERS.—FIRST, *via* SOUTHAMPTON.

Time of Starting.	Fare to Alexandria.	Alexandria to Suez.	Suez to Bombay.	From Suez to Ceylon, Madras, or Calcutta.
	1st Cabin. £ *s.* *d.*	1st Cabin. £ *s.* *d.*	1st Cabin. £ *s.* *d.*	1st Cabin.
Steamers leave Southampton the 4th and 20th of every month, and call at Gibraltar and Malta, arriving at Alexandria about the 18th, 4th, or 5th of every month.	30 0 0	12 0 0	50 0 0	60*l.* to 70*l.*

SECOND ROUTE, *via* MARSEILLES.—By steamer to Boulogne; railway to Paris and Chalons-sur-Saone; thence to Lyons, Avignon, and to Marseilles. Time occupied, three days. French government steamers leave Marseilles the 9th, 19th, and 29th of every month, calling at Leghorn, Civita Vecchia, Naples, Malta, and Messina. French government steamers also leave Marseilles on the 6th and 23d of every month for Alexandria and Beyroot direct, calling at Malta on the way.

The Peninsular and Oriental Steam Navigation Company have published the following statements:

	First Class.	Second Class.	Servants.
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
Rates of passage between England and Malta	20 0 0	12 0 0	10 0 0
" " " Alexandria	30 0 0	19 0 0	15 0 0

RATES OF PASSAGE, INCLUSIVE OF EXPENSES OF TRANSIT THROUGH EGYPT, BETWEEN ENGLAND AND

	Aden.	Ceylon.	Madras.	Calcutta.	Penang.	Singapore.	Batavia.	Hong Kong.	Adelaide.	Port Phillip. Sydney
Gentlemen occupying a berth in a cabin, with 2 or 3 others, on the lower deck. Ladies, if booked early, a berth in a cabin, with two or three others, on the upper deck	£75	£95	£100	£105	£105	£110	£120	£130	£150	£160
Married couples, occupying a reserved cabin on the main deck	200	240	250	270	270	290	310	335	360	380
Children with the parent, 3 years and under 10	35	48	50	53	53	55	60	65	75	80
A child under 3 years (no berth provided)	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.	Free.
Servants, European	30	43	46	50	50	52	55	60	75	80
" native	18	26	28	30	30	31	33	36		
For large families an allowance will be made in the foregoing rates to Ceylon, Madras, and Calcutta.										

The expenses of transit through Egypt are charged at the Company's offices, at the time of securing the passage, for the Egyptian government. We subjoin an extract from the

TRANSIT ADMINISTRATION TARIFF.

	Between Alexandria and Suez.	
A lady	In vans across the Desert.	£12
A gentleman		12
A child above ten years		12
A child of five years and under ten		8
A child of two years and under five		6

	Between Alexandria and Suez.	
A child under two years	In vans across the Desert.	Free.
A European female servant		£10
A European man servant or mechanic		8
A native female servant		8
A native man servant on a dromedary or donkey		4

N.B.—These charges are now included in the fares to Aden and Ceylon, etc.

Canal between the Nile and the Red Sea.—We are assured that, were it not for the hostilities in which the Pacha has been almost always engaged, he would have attempted to reopen the famous canal that formerly connected the Red Sea and the Nile. According to Herodotus, this canal was commenced by Nechos, king of Egypt, and finished by Darius (lib. iii. § 158, iv. 39). Under the Ptolemies, by whom, according to some authorities, it was completed, this canal became an important channel of communication. It joined the east, or Pelusiac branch of the Nile at Bubastis, the ruins of which still remain; it thence proceeded east to the bitter or natron lakes of Temrah and Cheik-Aneded, whence it followed a nearly south direction to its junction with the Red Sea at Arsinoe, either at or near where Suez now stands. It is said by Strabo (lib. xvii. p. 805) to have been 1000 stadia (122 miles) in length; but if we measure it on the best modern maps, it could hardly have exceeded from 85 to 95 miles. Herodotus says that it was wide enough to admit two triremes sailing abreast. This great work having fallen into decay after the downfall of the Ptolemaic dynasty, was renovated either by Trajan or Adrian; and it was finally renewed by Amrou, the general of the calif Omar, the conqueror of Egypt, anno 639. The French engineers traced the remains of this great work for a considerable distance, and it would be of singular advantage to Egypt and the commerce of the world were it reopened.

Marshal Marmont states that the ground has been carefully examined by M. Lepère, an able engineer, and that it presents no sort of difficulty that may not easily be overcome. This, indeed, might have been inferred from the fact of its former construction; for the ancients, being unacquainted with the use of locks, had to encounter difficulties in the construction and working of canals which are now obviated with the utmost facility. According to M. Lepère, the cost of constructing a navigable canal from the Nile to the Red Sea would not exceed 17,000,000 francs, or less than £700,000 (MARMONT, iv. 161). The completion of this work need not, therefore, be despaired of. The opening of the Mahmoudieh Canal from Alexandria to Atféh shows what the present government is able to achieve; and an enterprise like that now under consideration, though more difficult, would be of still greater importance to Egypt, as well as to Europe and Asia.

Algebra is a general method of resolving mathematical problems by means of equations, or it is a method of performing the calculations of all sorts of quantities by means of general signs or characters. The modern writers on the subject are Lambert, D'Alambert, Lagrange, Ozanam, Saunderson, Clairaut, Cousin, Templehof, Kastner, Bezout, Gauss, etc. Where algebra was first used, and by whom, is not precisely known. Diophantus first wrote upon it probably about A.D. 170; he is said to be the inventor. Brought into Spain by the Saracens, about 900; and into Italy by Leonardo, of Pisa, in 1202. The first writer who used algebraical signs was Stifelius, of Nuremberg, in 1544. The introduction of symbols for quantities was by Francis Vieta, in 1590, when algebra came into general use.—MORERI. The binomial theorem of Newton, the basis of the doctrine of fluxions, and the new analysis, 1668.—HAYDN.

Alicante, a sea-port town of Spain, in the new province of Alicante, lat. 38° 20′ 41″ N., long. 0° 30′ W. Population of the city about 20,000, and of the province 363,000. The port is an open and spacious bay, between Cape de la Huerta on the northeast, and Isla Plana on the south, distant from each other southwest and northeast about ten miles. Ships may enter on any course between these points, steering direct for the castle, which stands on an eminence about 400 feet high. Those of considerable burden moor north and south, distant from ½ to 1 mile from shore, in from 4 to 8 fathoms water; they are exposed to all winds, from E.N.E. to S. by W.; but the holding ground is good, and there is no instance during the last twenty years of a ship having been driven from her moorings. Small craft lie alongside the mole, which is already 320 yards in length, and is continuing to be projected still farther into the sea. The mole has a fixed light, 95 feet high, visible 15 miles. The trade of Alicante, though still considerable, has declined much within the last few years; a consequence partly of the emancipation of America from the Spanish yoke, but more of the oppressive duties laid on the importation of most articles of foreign produce into Spain (*see* CADIZ), and the extensive smuggling carried on from Gibraltar, Algiers, etc.

Raisins form the principal article of export; and their produce, which amounts to nearly 200,000 cwt., has increased rapidly of late years. They are principally taken off by England, the shipments thither, in 1842, having been 146,496 cwt. But with this single exception all the other articles of export have declined. The principal are silk, wool, barilla, almonds, wine, salt, oil, lead, mats, saffron, brandy, anise, etc. The exportation of barilla, which formerly amounted to from 50,000 to 100,000 cwt., has declined, partly from its having been largely adulterated, but principally from its being to a great extent superseded by *soude factice* (artificial soda), to little more than 20,000 cwt. The imports consist principally of sugar, coffee, cocoa, and other colonial products; cotton, and linen stuffs, and other manufactured goods, from England and France; salted fish, tobacco, iron and hardware, deals and tar, etc.; but it is impossible to form any estimate of the imports from official or other returns, as by far the largest portion are supplied clandestinely. Indeed, the whole population of this part of Spain are clothed in prohibited articles, which are sold as openly in the towns as if they were of Spanish manufacture!—*Consul's Report for* 1841. An *Associacion Britanica* has recently been formed in this port for smelting and refining the rich argentiferous lead ores of Almagrera and other parts of the province of Murcia. The manufacture of woolens is carried on pretty extensively at Alcoy, 23 miles north from Alicante; but they are coarse, and of inferior quality.

Aliens. "An alien, according to the laws of the United States, is a person born out of the jurisdiction and allegiance of the United States. This varies from the rule adopted by the ancient English law, as in the case of the children of public ministers abroad (provided their wives be English women), for they owe not even a local allegiance to any foreign power. So, also, it is said that in every case the children born abroad of English parents were capable, at common law, of inheriting as natives, if the father went and continued abroad in the character of an Englishman, with the approbation of the sovereign.

"The Act of Congress of the 14th April, 1802, establishing a uniform rule of naturalization, affects the issue of two classes of persons. By the 4th section it was declared that 'the children of persons duly naturalized under any of the laws of the United States, or who, previous to the passing of any law on that subject by the Government of the United States, may have become citizens of any one of the States under the laws thereof, being under the age of twenty-one years at the time of their parents being so naturalized, or admitted to the rights of citizenship, shall, if dwelling in the United States, be considered as citizens of the United States.' This provision appears only to apply to the children of persons naturalized, or specially admitted to citizenship; and there is color for the construction, that it may have been intended to be prospective, and to apply as well to the case of persons *thereafter* to be naturalized as to those who had previously been naturalized. It applies to all the children of 'persons duly naturalized'—under the restrictions of residence and minority—at the time of the naturalization of the parent. The act applies to the children *of persons* duly naturalized, but does not explicitly state whether it was intended to apply only to the case where both parents were duly naturalized, or whether it would be sufficient for one of them only to be naturalized, in order to confer, as of course, the rights of citizens upon the resident children being under age. Perhaps it would be sufficient for the father only to be naturalized; for in the supplementary act of the 26th of March, 1804, it was declared, that if any alien who should have complied with the preliminary steps made requisite by the act of 1082 dies before he is actually naturalized, his *widow* and *children* shall be considered as citizens. This provision shows that the naturalization of the father was to have the efficient force of conferring the right on his children; and it is worthy of notice that this last act speaks of children at large, without any allusion to residence or minority; and yet, as the two acts are intimately connected, and make but one system, the last act is to be construed with reference to the prior one, according to the doctrine of the case of *Ex parte Overington.* By a subsequent part of the same 4th section, it is declared that 'the children of persons who now are, or have been citizens of the United States, shall, though born out of the limits and jurisdiction of the United States, be considered as citizens of the United States; provided that the right of citizenship shall not descend to persons whose fathers have never resided within the United States.' This clause is certainly not prospective in its operation, whatever may be the just construction of the one preceding it. It applied only to the children of persons who then *were* or *had been* citizens; and, consequently, the benefit of this provision narrows rapidly by the lapse of time, and the period will soon arrive when there will be no statutory regulation for the benefit of children born abroad, of American parents, and they will be obliged to resort for aid to the dormant and doubtful principles of the English common law. The proviso annexed to this last provision seems to remove the doubt arising from the generality of the preceding sentence, and which was whether the act intended by the words 'children of persons' both the father and mother, in imitation of the statute of 25 Edw. III., or the father only, according to the more liberal declaration of the statute of 4 Geo. II.; the provision also differs from the preceding in being without any restriction as to the age or residence of the child, and it appears to have been intended for the children of natural born citizens, or of citizens who were original actors in our Revolution, and therefore it was more comprehensive and more liberal in their favor; but the whole statute provision is remarkably loose and vague in its terms, and it is lamentably defective in being confined to the case of children or parents who were citizens in 1802, or had been so previously. The former act of 29th January, 1795, was not so; for it declared generally, that 'the children of citizens of the United States, born out of the limits and jurisdiction of the United States, shall be considered as citizens of the United States.' And when we consider the universal propensity to travel, the liberal intercourse between nations, the extent of commercial enterprise, and the genius and spirit of our municipal institutions, it is quite surprising that the rights of the children of American citizens born abroad should, by the existing act of 1802, be left so precarious, and so far inferior in the security which has been given, under like circumstances, by the English statutes."—KENT'S *Comm.*, Lect. XXV.

In England, aliens were grievously coerced up to A.D. 1377. When they were to be tried criminally, the juries were to be half foreigners, if they so desired, 1430. They were restrained from exercising any trade or handicraft by retail, 1483. The celebrated Alien Bill passed, January, 1793. Act to register Aliens, 1795. Bill to abolish their naturalization by the holding of stock in the banks of Scotland, June, 1820. New Registration act, 7 Geo. IV., 1826. This last act was repealed and another statute passed, 6 Will. IV., 1836. The celebrated Baron Geramb, a conspicuous and fashionable foreigner, known at court, was ordered out of England, April 6, 1812.—HAYDN.

Influence of the Residence of Aliens.—There can be no doubt that, generally speaking, the resort of foreigners to a country, and their residence in it, are highly conducive to its interests. Those who emigrate in order to practice their calling in an old settled country are pretty uniformly distinguished for activity, enterprise, and good conduct. The native inhabitants have so many advantages on their side, that it would be absurd to suppose that foreigners should ever come into any thing like successful competition with them, unless they were acquainted with some branch of trade or manufacture of which the others were ignorant, or possessed superior skill, industry, or economy. But whether aliens practice new acts, or introduce more perfect processes into the old, or display superior economy, etc., their influx can not fail to be of the greatest advantage. They practically instruct those among whom they reside in what it most concerns them to know—that is, in those departments of art and science in which they are inferior to others; and enable them to avail themselves of whatever foreign sagacity, skill, or practice has produced that is most perfect. It is not easy, indeed, to overrate the benefits conferred on most countries by the resort of aliens. Previously to the invention of printing, there was hardly any other way of becoming acquainted with foreign inventions and discoveries; and even now it is far easier to learn any new art, method, or process, from the example and instruction of those familiar with its details, than from the best possible descriptions. The experience, indeed, of every age and country shows that the progress of nations in the career of arts and civilization depends more on the freedom of commerce, and on the liberality with which they have treated foreigners, than almost any thing else.

Alkalies. The distinguishing characters of these bodies are, a strong acrid and powerfully caustic taste: a corrosive action upon all animal matter, destroying its texture with considerable rapidity; exposed to the atmosphere, when in their caustic state, they absorb carbonic acid with great rapidity, and become carbonated (or mild). Their action upon vegetable colors also affords us means by which the presence of an uncombined or carbonated alkali may be detected: the yellow color of turmeric is changed to a red brown tint when immersed into solutions containing them: the blue color of the litmus, after being reddened by an acid, is again restored: the infusions of the red cabbage, the violet, and many other purple vegetable colors, are converted to green. Litmus paper reddened by carbonic acid is, however, the most delicate test of the presence of an alkali. With the various acids they also combine, forming the very important and extensive class of compounds generally called salts—a salt being any compound formed by the union of an acid with an alkali or metallic oxide.

Alkalimetry.—The method by which the value of the alkalies, or carbonated alkalies, is determined, being of considerable importance in a commercial point of view, we shall here treat it somewhat in detail. It is an established fact that 49 parts, by weight, of oil of vitriol of the specific gravity of 1·8485 are exactly equivalent to the neutralization of 70 parts, by weight, of pure carbonate of potash, or 48 of pure potass, or 54 of carbonate of soda, or 32 of soda, and that 70 parts of oil of vitriol will therefore be necessary to neutralize 100 parts of carbonate of potass. Hence, by employing a glass tube of about two ounces' capacity, and accurately divided into 100 equal parts, taking 70 grains of oil of vitriol, and diluting it with water, to make the 100 measures complete, every measure of this dilute acid must be equal to a grain of pure carbonate of potass. The percentage of real carbonate of potass existing in any sample of pearlash may be at once ascertained by taking 100 grains of the sample, dissolving it in hot water, straining, and adding by degrees 100 measures of the test acid above mentioned: the point of neutralization (when it ceases to affect litmus paper or reddened litmus) being accurately ascertained, the residual acid will give the percentage of impurities; for instance, say that 75 measures of the dilute acid have been employed to render 100 grains of a sample of pearlash perfectly neutral, then we have ascertained that it contains 25 per cent. impurities. The same process, of course, must be followed in examining samples of barilla or kelp, except that the alkali contained in them being carbonate of soda, 90·75 of oil of vitriol must be employed instead of 70. The process recommended by Mr. Faraday, and in which he uses only one test acid, is as follows: Into a tube about three quarters of an inch in diameter, and nine and a half long, and as cylindrical as possible throughout its whole length, 1000 grains of water are to be weighed, and the space occupied marked on the tube by a fine file; this space is then divided from above downward into 100 equal parts. At 23·44, or 76·56 parts from the bottom, an extra line should be made, and soda marked opposite to it; at 48·96 potass should be marked in the same way; at 54·63 carbonate of soda; and at 65 carbonate of potass. A diluted acid is now to be prepared, which shall have a specific gravity 1·127, and this is made by mixing intimately together 19 parts, by weight, of oil of vitriol and 81 of water. The method to be followed in the employment of this acid is as follows: The dilute acid is to be measured in the tube up to the line opposite to which the alkali sought for is marked; if barilla, which contains carbonate of soda, 54·63 measures are to be taken. The 100 measures are then made up by the addition of water, and is then ready for use, following the method before stated.

The alkalies are four in number; namely, ammonia (or volatile alkali), potass (or vegetable alkali), soda (or mineral alkali), and lithia; which last is of so little importance that we shall not treat of it here. The combination of these alkalies with the various acids, whenever they form compounds of any importance, will be noticed.

Ammonia, or Spirits of Hartshorn, or Volatile Alkali, in its uncombined form, is an elastic gaseous body, having a very pungent and suffocating odor, destroys animal life, converts the yellow of turmeric paper to a brown, which, from the volatility of the alkali, is again restored by a gentle heat to its original color. This gas is rapidly absorbed by water, which takes into solution about 780 times its volume, forming the liquid ammonia, or what is commonly called hartshorn. Ammonia is liberated whenever any of the compounds of this alkali are acted upon by potass, soda, lime, and many other alkaline earths. Lime, from its being the most economical, is generally employed; the best proportions for its preparation are equal weights of sal ammoniac (muriate of ammonia) and fresh slaked lime. When these are introduced into a retort, and heat applied, ammonia is liberated in the gaseous form, and is conducted by a Wetter's safety-tube into a vessel of water, by which the gas is instantly absorbed. Muriate of lime remains in the retort; sometimes water is added to the mixture, and then distilled. As thus obtained, it has a specific gravity of ·930 or ·940, water being equal to 1·000. The most concentrated solution of ammonia has the specific gravity of ·875.

Carbonate of Ammonia, or Volatile Salt, or Subcarbonate of Ammonia.—This salt, which is very much employed in various processes of the arts, was formerly obtained by the action of chalk (carbonate of lime) upon muriate of ammonia; a double decomposition takes place. Carbonic acid and ammonia are sublimed in vapor, and muriate of lime remains in the vessel. A much less expensive process is, however, now followed, namely, from the waste gas liquors obtained in the purification of coal gas; these are evaporated, and the black, impure sulphuric acid added. By this means a sulphate of ammonia is formed, and the carbonate procured from it by the action of powdered chalk, as in the former process. Its uses are principally in forming other compounds of ammonia, as smelling salts; and it is likewise employed rather extensively by pastry-cooks for making light pastry, which is caused by the volatile carbonate of ammonia escaping and raising up the pastry by the heat of the oven. It is entirely dissipated during the baking, so that no ill effect can arise from its use. Both this compound and the preceding act as violent stimulants on the animal system.

Muriate of Ammonia, or Sal Ammoniac, was formerly brought to Europe from Egypt, where it was procured by submitting the soot of camels' dung (there employed for fuel) to sublimation in closed vessels; it is, however, at present manufactured in very large quantities in England in a variety of ways. The most economical processes are either submitting sulphate of ammonia mixed intimately with muriate of soda (sea salt) to sublimation, or by substituting the bittern of sea-water, which consists chiefly of muriate of magnesia, for the sea salt. In the first process a sulphate of soda is formed, and the muriate of ammonia, which, being volatile, rises in the vaporous form, and is condensed in the cool parts of the apparatus; in the latter process a sulphate of magnesia (Epsom salts) results. It is generally from this salt (muriate of ammonia) that the liquid ammonia is manufactured; it is also employed in tinning and soldering, to preserve the metals from oxidation. It is a semi-transparent, tough salt, having an acrid and cool taste, and is usually met with in the form of hemispherical masses. Sal ammoniac is made at Calcutta, and is thence exported to Great Britain, the United States, and the Arabian and Persian Gulfs. In 1824–25 the exports amounted to 114 tons.

Sulphate of Ammonia.—The preparation of the sulphate has been already given under the head of ammonia; it is employed in the manufacture both of the carbonate and muriate.

Acetate of Ammonia.—The spirit of Mindererus is obtained by acting upon the carbonate of ammonia by acetic acid; the carbonic acid escapes with effervescence, and an acetate of ammonia is formed; it is employed in medicine as a febrifuge. All these salts of ammonia have the following properties: they are volatile at a low red heat; the fixed alkalies decompose them, combining with their acid, and the ammonia is liberated. When combined with a fixed acid, such as the boracic or phosphoric, they are decomposed, the ammonia alone being volatilized, and the acid remaining pure. *This process was described for obtaining pure phosphoric acid.*

Potass, or Vegetable Alkali.—The original source of this alkali is in the vegetable kingdom, whence is derived its name of vegetable alkali. When wood is burned, and the ashes lixiviated with water, boiled, strained, and evaporated to dryness, an intensely alkaline mass is obtained, which is known by the name of potash, from this process being conducted in iron pots. It is then removed to a reverberatory furnace, and submitted to heat, and a current of air. This burns out extractive matter and other impurities, and the salt assumes a pearly white color, and is hence called pearlashes. Care should be taken during this process that the potashes do not enter into fusion, as this would destroy the full effect of the operation.

Pearlashes.—Pearlashes generally contain about from 60 to 83 or 84 per cent. of pure carbonate of potass. Its uses in manufactures are numerous and important. It is employed in making flint-glass, of which it constitutes about one sixth of the materials employed; in soap-making, especially for the softer kinds of soap; for this purpose, however, it is first rendered caustic by means of lime. In the rectification of spirits large quantities are employed to combine with the water previously in union with the spirit.

Subcarbonate of Potass, or Salt of Tartar, is used in preparing the subcarbonate of potass of the Pharmacopœia (carbonate of potass of the chemical nomenclature), and likewise in rendering hard spring waters soft, and in cleansing substances from grease: it is sometimes called salt of wormwood. When made by the deflagration of two parts of tartar of argol and one of nitre, it is called black flux, and is used extensively in metallurgic operations. From the subcarbonate of potash the pure and uncombined potass is obtained, by adding an equal weight of fresh burned lime, previously slaked, and boiling them with half their weight of water. By this process the lime combines with the carbonic acid, and the potass remains in solution in its caustic state; by boiling the clear solution rapidly in iron vessels, and submitting it to fusion, we obtain the fused potass. If it be required perfectly pure for chemical purposes, it is necessary to evaporate in silver vessels, and dissolve in strong alcohol. This takes up the pure potass, and leaves any portion of the subcarbonate that may not have been acted upon by the lime; then the alcohol is to be distilled off, and the potass fused at a red heat, and poured out in its liquid state on a cold slab. As thus procured, it is a white, brittle mass, highly deliquescent, absorbing moisture and carbonic acid rapidly from the atmosphere. When evaporated in iron vessels it has a dirty color, and lets fall a quantity of oxide of iron when dissolved in water, from its having acted upon the iron boilers. Potass acts with great rapidity upon animal substances, destroying their texture, and is on this account employed as a caustic, and was formerly called *lapis infernalis.*

Carbonate (or, in the chemical nomenclature, *Bicarbonate*) *of Potass,* is prepared by passing carbonic acid gas through a solution of the subcarbonate; and evaporating at a temperature below 212°, and crystallizing. It is used in making effervescing draughts. It loses one proportion of its carbonic acid when heated, and is converted into the subcarbonate.

Sulphate of Potass, or Sal Polychrest, or Vitriolated Tartar, is obtained by submitting the salt which remains after the manufacture of nitric acid from nitre and sulphuric acid to a red heat, or by neutralizing the excess of acid contained in that salt by subcarbonate of potass.

Bisulphate of Potass, or Sal Enixum.—This is the salt mentioned above, as the residue from the process for obtaining nitric acid. It is employed in very large quantities in the manufacture of alum; also in tinning iron, for pickling, as it is termed; it is sometimes also used as a flux.

Nitrate of Potash, Nitre, or Saltpetre.—This salt, which is of so much importance in every branch of the arts, is found native in many parts of the world, especially in the East Indies. It is obtained from soils composed of decomposing granite, the feldspar of which gives rise, as is supposed, to the potass. The nitric acid is not so easily accounted for, except it is by a union of the nitrogen and oxygen gases in the atmosphere taking place in those hot climates; for, from authenticated accounts, no decaying animal or vegetable matter exists in the nitre districts of India. By lixiviation with water the nitre is dissolved from the soil, which is again thrown out into the air, to be washed the following year; so that it is formed continually. These lixiviations are then evaporated; and when of a certain strength, a quantity of common salt separates, which is removed as it falls; and the nitre is then crystallized and imported to England, always containing a certain quantity of impurities, which are deducted in the purchase of large quantities of the article, being termed its refraction. It is generally used for the manufacture of gunpowder and pure nitric acid, refined or recrystallized. Nitre may be also made artificially, in beds of decaying vegetable or animal substances, mixed with old mortar, or other refuse calcareous earth; these are watered occasionally, too much moisture being hurtful; after a certain period, depending on the rapidity with which the process has gone on, the whole is submitted to lixiviation together with wood-ashes, which contain subcarbonate of potass, and which decomposes any nitrate of lime formed, of which there is generally a considerable quantity. After the lixiviation is complete, which takes some time, the solution is separated and boiled down; the salt separates as in the other process, and the nitre is then crystallized. It was from this source that the whole of the nitre, nearly, employed by the French during the long-protracted war with the continental powers was obtained. Nitre has a cold, penetrating, and nauseous taste; enters into igneous fusion at a gentle heat, and is then moulded into round cakes, called sal prunella. It is employed in the manufacture of nitric acid; of gunpowder, which is composed of 75 parts by weight of nitre, 16 of charcoal, and 9 of sulphur (the nitre for this purpose should be of great purity); and in the manufacture of oil of vitriol: as a flux it is one of the most powerful we possess; it is also used for the preservation of animal food, and in making frigorific mixtures: 1 ounce of nitre dissolved in 5 ounces of water lowers its temperature 15 degrees of Fahrenheit's thermometer.—*See* SALTPETRE.

Oxalate and Binoxalate of Potass.—The binoxalate of potass, or salt of lemon, or sorrel, by both which last names it is very commonly known, is procured from the juice of the common sorrel (*Rumex Acetosa*), or the wood sorrel (*Oxalis Acetosella*), by crystallization, after the feculent matter has been separated by standing a few days. Its chief uses are, in removing ink spots or iron moulds; and also as a refreshing beverage when mixed with sugar and water. The neutral oxalate is obtained from this salt by combining the excess of acid which it contains with a solution of subcarbonate of potass. Is very much used in chemistry, as the best test of the presence of lime.

Tartrate and Bitartrate of Potass.—Bitartrate of potass, or cream of tartar, is, when in its crude and impure state, called argol, and is deposited in the interior of wine-casks during fermentation, and from this source the whole of the cream of tartar is obtained. It is generally of a very dark brown color, but may be purified and rendered perfectly white by solution and crystallization. It is employed very extensively in dyeing, hat-making, and in the preparation of tartaric acid, and many of the compounds of tartaric acid, as tartar emetic, soluble tartar (tartrate of potass): when heated to redness, it is converted into carbonate of potass and charcoal; mixed with half its weight of nitre and thrown into a red-hot crucible, it forms the black flux, and with its own weight of nitre the white flux, both of which are very much employed in metallurgic operations. The tartrate is made by the addition of subcarbonate of potass to a solution of the bitartrate until perfectly neutral: it is used in medicine as a mild purgative.

Ferro-cyanate, or Prussiate of Potass.—This salt is obtained by the action of subcarbonate of potass, at a low red heat, upon refuse animal matter, such as hoofs, horns, skin, etc., in the proportion of two of subcarbonate to four or five of the animal matter. But the process recommended by M. Gautier is preferable; he finds that when animal matter is heated with nitre, it yields a much larger quantity of the ferro-Prussiate than when either potass or subcarbonate of potass are employed; the proportions he finds most economical are, 1 part by weight of nitre, 3 parts of dry blood, and iron scales or filings equal to a fiftieth of the blood employed. The coagulum of blood is mixed intimately with the nitre and iron filings, and dried by exposure to the air; they are then submitted to a very low red heat, in deep iron cylinders, as long as vapors continue to be liberated; when cold, the contents are dissolved in 12 or 15 times their weight and strained. On evaporation till of the specific gravity 1·284, and allowing it to cool, a large quantity of bicarbonate of potass crystallizes; and by further evaporation till of the specific gravity 1·306, the ferro-Prussiate of potass crystallizes on cooling. This is to be recrystallized. It is a beautiful yellow salt, very tough, having a tenacity similar to spermaceti, and is decomposed at a red heat. It is employed very extensively in dyeing blues, and in calico printing; also in the manufacture of Prussian blue, which is a compound of the ferro-Prussic acid and oxide of iron, prepared by adding 1 part of the ferro-Prussiate of potass dissolved in water, to 1 part of copperas, and 4 parts of alum in solution.

Chromate of Potass.—This salt is obtained from the native chromate of iron by the action of nitre at a full red heat in equal proportions. By solution, filtration, and evaporation, a beautiful lemon-yellow colored salt results. It is very much employed in dyeing, calico printing, and calico making, from its producing bright yellow precipitates with solutions of lead.

Bichromate of Potass is prepared from the above-mentioned salt, by the addition of nitric acid to the yellow solution obtained from the heated mass by the action of water; on evaporating this, a dark red colored salt crystallizes, which is the bichromate. This is also very largely employed by the calico printers, and when mixed in solution with nitric acid, possesses the property of destroying vegetable colors: on this account it is of great importance, as it at the same time removes a vegetable color, and forms a base for a yellow dye.

Chlorate or Hyperoxymuriate of Potass.—The preparation of this salt is attended with some little difficulty, and requires a great deal of nicety. It is obtained by passing a current of chlorine gas through a solution of caustic potass: then boiling and evaporating; the first salt that separates is the chlorate of potass; and by further evaporation, muriate of potass is obtained. It is used in making matches for instantaneous light boxes, which are prepared by first dipping the wood in melted sulphur, and then into a thin paste, formed of 3 parts chlorate of potass, 2 parts starch, and a little vermilion; with sulphur it forms a very explosive compound, generally employed for filling the percussion-caps of fowling-pieces.

Soda, or Mineral Alkali.—The sources of this alkali in nature are various. It is obtained in combination with carbonic acid, when plants which grow by the sea-side are burned. The ashes thus obtained are called barilla and kelp; and also in some countries it is found as an efflorescence upon the surface of the earth, and is called nitrum or natron; this occurs particularly in Egypt and South America. Trona is also another native carbonate of soda, and is exported from Tripoli. In combination with muriatic acid it is also found in immense abundance, forming the rock salt, and sea salt or muriate of soda. It is obtained from the carbonate exactly in the same way as potass is obtained from its carbonate, namely, by boiling it with fresh-burned lime previously slaked, decanting the clear solution, and evaporating and fusing. It is a white brittle substance, and by exposure to the air becomes converted into a dry carbonate. Its uses in the arts and manufactures are of considerable importance. In soap-making it is employed in very large quantities, and for this purpose is generally procured from barilla or kelp, by mixing them with lime, and by the infusion of water procuring a caustic soda ley; this is mixed with oil and fatty matters in various proportions, and boiled; the saponification of the fatty matter takes place, and the soap formed rises to the surface; the ley is then drawn from beneath, and fresh leys added, until the soap is completely free from oil; it is then allowed to dry. Soda is also employed in the manufacture of plate, crown, and bottle glass, though for this purpose it is generally in the form of carbonate or sulphate.

Subcarbonate of Soda. (In the chemical nomenclature it is called *carbonate.*)—This is generally prepared from barilla, which contains about from 16 to 24 per cent. Barilla is procured by incinerating the *salsola soda*, and other sea-side plants; it is made in large quantities on the coast of Spain. Kelp is another impure carbonate of soda, but does not contain more than 4 or 5 per cent.; it is the ashes obtained from sea-weeds by incineration, and is made on the northern shores of Scotland. From these, the crystallized carbonate (or subcarbonate, as it is more frequently called) is made by the addition of a small quantity of water, boiling, straining, evaporating, and skimming off the common salt as it forms on the surface; on cooling, the subcarbonate of soda crystallizes. Another method is by heating the sulphate of soda with carbonate of lime and charcoal, and then dissolving out the soluble carbonate; also, by the action of carbonate of potass (pearlash) upon solutions of sea salt.—*See* BARILLA *and* KELP.

Bicarbonate of Soda is procured by driving a current of carbonic acid gas through solutions of the carbonate, and then evaporating at a temperature below 212° Fahrenheit; it is chiefly employed in making soda-water powders. This is the carbonate of soda of the Pharmacopœia. By the application of a red heat it loses carbonic acid, and is converted into the subcarbonate.

Sulphate of Soda, or Glauber Salts.—This salt, which has received the name of Glauber, from its discoverer, is the residue of a great many chemical processes; for instance, when muriate of soda is acted upon by oil of vitriol, muriatic acid and sulphate of soda result; in making chlorine gas for the manufacture of the chloride of lime, or bleaching powder, sulphate of soda and sulphate of manganese result—the materials employed being sea salt, sulphuric acid (oil of vitriol), and black oxide of manganese: also, in the preparation of acetic acid from the acetate of soda, and in the preparation of muriate of ammonia from sea salt and sulphate of ammonia. Sulphate of soda is a colorless, transparent salt, effloresces readily when exposed to the air, and becomes converted into a dry powder; it has a cold, bitter taste. It is used for the preparation of carbonate of soda, and as a medicine. It is found native in some countries, particularly in Persia and South America—frequently as an efflorescence upon new walls.

Nitrate of Soda.—This salt is found native in some parts of the East Indies, and is called, from its square form, cubic nitre; it is, however, very little used.

Muriate of Soda, or Sea Salt.—This compound is found in immense quantities in the earth, and is called from this circumstance rock salt, or sal gem. The mines of Cheshire and Droitwich, in England, and those in Poland, Hungary, and Spain, and many others, afford immense quantities of this compound. It is also obtained by the evaporation of sea-water, both spontaneously in pits formed for the purpose, and in large iron boilers; the uncrystallizable fluid is called the bittern; basket salt is made by placing the salt, after evaporation, in conical baskets, and passing through it a saturated solution of salt, which dissolves and carries off the muriate of magnesia or lime. Pure salt should not become moist by exposure to the air; it decrepitates when heated: it is employed for the preparation of muriatic acid, carbonate of soda, muriate of ammonia, and many other operations; also in glazing stone-ware, pottery, etc.; and from its great antiseptic properties, is used largely for the preservation of animal food; as a flux also in metallurgy.

Borate of Soda, or Borax.—This salt is found in Thibet and Persia, deposited from saline lakes; it is called tincal, and is imported into this country, where it is purified by solution—the fatty matter with which the tincal is always coated being removed, and the solution evaporated and crystallized: its principal uses are as a flux, from its acting very powerfully upon earthy substances.

Alkanet, or **Anchusa** (Ger. *Orkanet;* Du. *Ossetong;* Fr. *Orcanette;* It. *Ancusa;* Sp. *Arcaneta*), a species of bugloss (*Anchusa tinctoria*, Linn.). It has been cultivated in England; but is found of the finest quality in Siberia, Spain, and more particularly in the south of France, in the vicinity of Montpellier. The roots of the plant are the only parts that are made use of. When in perfection, they are about the thickness of the finger, having a thick bark of a deep purplish red color. This, when separated from the whitish woody pith, imparts a fine deep red to alcohol, oils, wax, and all unctuous substances. To water it gives only a dull brownish hue. It is principally employed to tint wax, pomatum, and unguents, oils employed in the dressing of mahogany, rose-wood, etc. The alkanet brought from Constantinople yields a more beautiful but less permanent dye than that of France.—LEWIS'S *Mat. Med.;* MAGNIEM, *Dictionnaire des Productions.*

Alligation, the name of a method of solving all questions that relate to the mixture of one ingredient with another. Though writers on arithmetic generally make alligation a branch of that science, yet as it is plainly nothing more than an application of the common properties of numbers, in order to solve a few questions that occur in particular branches of business, we choose rather to keep it distinct from the science of arithmetic. Alligation is generally divided into *medial* and *alternate*.

Alligation Medial, from the rates and quantities of the simples given, discovers the rate of the mixture.

Rule. As the total quantity of the simples,
To their price or value;
So any quantity of the mixture,
To the rate.

Example. A grocer mixes 30 pounds of currants, at

4*d.* per pound, with 10 pounds of other currants, at 6*d.* per pound: What is the value of 1 pound of the mixture? *Ans.* 4½*d.*

$$\begin{array}{rllr} \textit{lb.} & \textit{d.} & & \textit{d.} \\ 30 & \text{at } 4 & \text{amounts to} & 120 \\ 10 & \text{at } 6 & \text{"} & 60 \\ \hline 40 & & & 180 \end{array}$$

$$\begin{array}{cccccccc} & \textit{lb.} & & \textit{d.} & & \textit{lb.} & & \textit{d.} \\ \text{If} & 40 & : & 180 & :: & 1 & : & 4\tfrac{1}{2}. \end{array}$$

Alligation Alternate, being the converse of alligation medial, from the rates of the simples, and rate of the mixture given, finds the quantities of the simples.

Rules. I. Place the rate of the mixture on the left side of a brace, as the root; and on the right side of the brace set the rates of the several simples, under one another, as the branches. II. Link or alligate the branches, so as one greater and another less than the root may be linked or yoked together. III. Set the difference between the root and the several branches right against their respective yoke-fellows. These alternate differences are the quantities required. *Note* 1. If any branch happen to have two or more yoke-fellows, the difference between the root and these yoke-fellows must be placed right against the said branch, one after another, and added into one sum. 2. In some questions the branches may be alligated more ways than one; and a question will always admit of so many answers as there are different ways of linking the branches.

Alligation alternate admits of three varieties; viz., 1. The question may be unlimited, with respect both to the quantity of the simples and that of the mixture. 2. The question may be limited to a certain quantity of one or more of the simples. 3. The question may be limited to a certain quantity of the mixture.

Variety I. When the question is unlimited, with respect both to the quantity of the simples and that of the mixture, this is called *Alligation Simple.*

Example. A grocer would mix sugars at 5*d.*, 7*d.*, and 10*d.* per pound, so as to sell the mixture or compound at 8*d.* per pound: What quantity of each must he take?

$$8\left\{\begin{array}{r} 5 \\ 7 \\ 10 \end{array}\right.\quad \begin{array}{r} 2 \\ 2 \\ 3,1 \end{array}\;\left|\;\begin{array}{l} \textit{lb.} \\ 2 \\ 2 \\ 4. \end{array}\right.$$

Here the rate of the mixture 8 is placed on the left side of the brace as the root; and on the right side of the same brace are set the rates of the several simples, viz., 5, 7, 10, under one another, as the branches; according to Rule I. The branch 10 being greater than the root, is alligated or linked with 7 and 5, both these being less than the root, as directed in Rule II. The difference between the root 8 and the branch 5, viz., 3, is set right against this branch's yoke-fellow 10; the difference between 8 and 7 is likewise set right against the yoke-fellow 10; and the difference between 8 and 10, viz., 2, is set right against the two yoke-fellows 7 and 5, as prescribed by Rule III. As the branch 10 has two differences on the right, viz., 3 and 1, they are added; and the answer to the question is, that 2 pounds at 5*d.*, 2 pounds at 7*d.*, and 4 pounds at 10*d.*, will make the mixture required. The truth and reason of the rules will appear by considering that whatever is lost upon any one branch is gained upon its yoke-fellow. Thus, in the above example, by selling 4 pounds of 10*d.* sugar at 8*d.* per pound, there is 8*d.* lost: but the like sum is gained upon its two yoke-fellows, for by selling 2 pounds of 5*d.* sugar at 8*d.* per pound, there is 6*d.* gained; and by selling 2 pounds of 7*d.* sugar at 8*d.* there is 2*d.* gained; and 6*d.* and 2*d.* make 8*d.* Hence it follows that the rate of the mixture must always be mean or middle with respect to the rates of the simples; that is, it must be less than the greatest, and greater than the least; otherwise a solution would be impossible. And the price of the total quantity mixed, computed at the rate of the mixture, will always be equal to the sum of the prices of the several quantities cast up at the respective rates of the simples.

Variety II. When the question is limited to a certain quantity of one or more of the simples, this is called *Alligation Partial.*

If the quantity of one of the simples only be limited, alligate the branches, and take their differences, as if there had been no such limitation; and then work by the following proportion:

As the difference right against the rate of the simple whose quantity is given,
To the other differences respectively;
So the quantity given,
To the several quantities sought.

Example. A distiller would, with 40 gallons of brandy at 12*s.* per gallon, mix rum at 7*s.* per gallon, and gin at 4*s.* per gallon: How much of the rum and gin must he take to sell the mixture at 8*s.* per gallon?

$$8\left\{\begin{array}{r} 12 \\ 7 \\ 4 \end{array}\right.\quad \begin{array}{r} 1,4 \\ 4 \\ 4 \end{array}\;\left|\;\begin{array}{r} 5 \\ 4 \\ 4 \end{array}\;\right|\;\left.\begin{array}{l} \text{Gallons.} \\ \text{40 of brandy,} \\ \text{32 of rum,} \\ \text{32 of gin.} \end{array}\right\}\textit{Ans.}$$

The operation gives for answer, 5 gallons of brandy, 4 of rum, and 4 of gin. But the question limits the quantity of brandy to 40 gallons; therefore say,

If 5 : 4 : : 40 : 32.

The quantity of gin, by the operation, being also 4, the proportion needs not be repeated.

Variety III. When the question is limited to a certain quantity of the mixture, this is called *Alligation Total.*

After linking the branches, and taking the differences, work by the proportion following:

As the sum of the differences,
To each particular difference;
So the given total of the mixture,
To the respective quantities required.

Example. A vintner has wine at 3*s.* per gallon, and would mix it with water, so as to make a composition of 144 gallons, worth 2*s.* 6*d.* per gallon: How much wine, and how much water, must he take?

$$30\left\{\begin{array}{r} 36 \\ 0 \end{array}\right.\quad \begin{array}{r} 30 \\ 6 \\ \hline 36 \end{array}\;\left|\;\begin{array}{l} \text{Gallons.} \\ \text{120 of wine.} \\ \text{24 of water.} \\ \hline \text{144 total.} \end{array}\right. \;\textit{Ans.}$$

$$\begin{array}{r} 120\times 36 = 4320 \\ 24\times 0 = \quad 0 \end{array}$$

$$\begin{array}{c} \text{Proof } 144)4320(30 \\ \text{As } 36 : 30 :: 144 : 120 \\ \text{As } 36 : \;\;6 :: 144 : \;\;24. \end{array}$$

There being here only two simples, and the total of the mixture limited, the question admits but of one answer.—E. B.

Allocation denotes the admitting or allowing of an article of an account, especially in the exchequer. Hence *Allocatione Facienda* is a writ directed to the Lord Treasurer, or Barons of the Exchequer, commanding them to allow an accountant such sums as he has lawfully expended in the execution of his office.—E. B.

Allowances, Tares, etc. In selling goods, or in paying duties upon them, certain deductions are made from their weights, depending on the nature of the packages in which they are inclosed, and which are regulated in most instances by the custom of merchants, and the rules laid down by public offices. These allowances, as they are termed, are distinguished by the epithets *Draft*, *Tare*, *Tret*, and *Cloff.*

Draft is a deduction from the original or gross weight of goods, and is substracted before the tare is taken off. *Tare* is an allowance for the weight of the bag, box, cask, or other package, in which goods are weighed. *Real* or *open tare* is the actual weight of the package. *Customary tare* is, as its name implies, an established allowance for the weight of the package. *Computed tare* is an estimated allowance agreed upon at the time. *Average tare* is when a few packages only among several are weighed, their mean or average taken, and the rest tared accordingly. *Super-tare* is an additional allowance, or tare, where the commodity or package exceeds a certain weight. When tare is allowed, the remainder is called the net weight; but if tret be allowed, it is called the *suttle weight*. *Tret* is a deduction of 4 pounds from every 104 pounds of suttle weight. This allowance, which is said to be for dust or sand, or for the waste or wear of the commodity, was formerly made on most foreign articles sold by the pound avoirdupois; but it is now nearly discontinued by merchants, or else allowed in the price. It is wholly abolished at the East India warehouses in London; and neither tret nor draft is allowed at the custom-house. *Cloff*, or *Clough*, is another allowance that is nearly obsolete. It is stated in arithmetical books to be a deduction of 2 pounds from every 3 cwt. of the *second suttle;* that is, the remainder after tret is subtracted; but merchants at present know cloff only as a small deduction, like draft, from the original weight, and this only from two or three articles.—*See* KELLY's *Cambist*, art. LONDON.

Alloy, or **Allay**, properly signifies a proportion of a baser metal mixed with a finer one. The alloy of gold is estimated by carats, that of silver by pennyweights. In different nations different proportions of alloy are used; whence their moneys are said to be of different degrees of fineness or baseness, and are valued accordingly in foreign exchanges. The chief reasons alleged for the alloying of coin are, 1, the mixture of the metals, which, when smelted from the mine, are not perfectly pure; 2, the saving of the expense it must otherwise cost if they were to be refined; 3, the necessity of rendering them harder, by mixing some parts of other metals with them, to prevent the diminution of weight by wearing in passing from hand to hand; 4, the melting of foreign gold or coin which is alloyed; 5, the charges of coinage, which must be made good by the profit arising from the money coined; 6, and lastly, the duty belonging to the sovereign, on account of the power he has to cause money to be coined in his dominions.—E. B.

Almadie, a kind of canoe or small vessel, about four fathoms long, commonly made of bark, and used by the negroes of Africa. At Calicut the same name is applied to a kind of long boats, 80 feet in length and six or seven in breadth. They are exceedingly swift, and are otherwise called *cathuri*.—E. B.

Almanac, a book or table, containing a calendar of days and months, the rising and setting of the sun, the age of the moon, the eclipses of both luminaries, etc. Authors are divided with regard to the etymology of the word; some deriving it from the Arabic particle *al*, and *manach*, to count; some from *almanach*, New-year's gifts, because the Arabian astrologers used at the beginning of the year to make presents of their ephemerides; and others from the Teutonic *almaen achte*, observations on all the months. Dr. Johnson derives it from the Arabic particle *al*, and the Greek *μην*, a month. But the most simple etymology appears from the common spelling; the word being composed of two Arabic ones, *Al Manack*, which signify *the Diary*. All classes of the Arabs are commonly much given to the study of astronomy and astrology; to both of which they are inclined by their belief in fate, and by their pastoral life, which affords time and opportunity to cultivate them. They neither sow, reap, plant, nor undertake any expedition or business, without previously consulting the stars, or, in other words, their almanacs, or some of the makers of them. From these people, by their vicinity to Europe, this art, no less useful in one sense than trifling and ridiculous in another, has passed over to us; and those astronomical compositions have still every where not only retained their old Arabic name, but were, like theirs, for a long while, and still are among many European nations, interspersed with a great number of astrological rules for planting, sowing, bleeding, purging, etc., down to the cutting of the hair and paring of the nails. Regiomontanus appears to have been the first in Europe, however, who reduced almanacs into their present form and method, gave the characters of each year and month, foretold the eclipses and other phases, calculated the motions of the planets, etc. His first almanac was published in 1474. The essential part of an almanac is the calendar of months and days, with the risings and settings of the sun, age of the moon, etc. To these are added lists of posts, offices, dignities, public institutions, with many other articles, political as well as local, and differing in different countries.

Almanac, Nautical. This, which in some respects is a national almanac, is published under the sanction of the Board of Longitude, and is designed chiefly to facilitate the use of Mayer's Lunar Tables, by superseding the necessity of making calculations to determine the longitude at sea. It commenced with the year 1767, and has ever since been continued annually, but two or three years in advance. The late Dr. Maskelyne was the originator of this very valuable publication. It is now published under the immediate superintendence of the secretary to the board. Similar to this almanac is the French publication entitled *Connoissance des Tems*, directed by the *Bureau de Longitude*, and which commenced so early as the year 1698. At Berlin, the celebrated Bode for about 50 years conducted the excellent astronomical almanac, *Astronomisches Jahrbuch*, which is still continued.—E. B.

The American Ephemeris and Nautical Almanac is a valuable work for navigators. The act establishing this work was passed by Congress in 1849, and the preparation of the first volume was commenced in the fall of the same year. The work was put under the superintendence of Commander C. H. Davis, of the navy, with Professor Benjamin Peirce as consulting astronomer. Owing to the smallness of the first appropriations, and the great amount of preliminary labor, the first volume, for 1855, was not published until 1852; since which time a volume has been issued each year. The volume for 1859 is now in a forward state of preparation, and will be ready about January, 1857. The primary object of the work is to promote the interests of commerce; and for this reason great pains have been taken with those problems upon which the science of navigation depends. Especially is this the case with the Lunar Ephemeris; and all the tests which have been applied show that this labor has been rewarded with great success. Professor Peirce's Tables are used in preparing this ephemeris. The ephemeris of the sun is prepared from Hansen's Tables. The nautical part of the work, besides the foregoing, contains the ephemerides of those planets most commonly used with the moon in determining a ship's place at sea; also the apparent places of about one hundred fixed stars. All this part of the work is referred to the meridian of Greenwich; and to prevent confusion in its use, the arrangement of the British Almanac is adopted. The astronomical part is referred to the meridian of Washington, and such changes in the ordinary forms of the ephemerides have been adopted as would render them most practical in the daily routine of the observatory. The ephemerides of the planets are being based upon new theories, as fast as can be done consistently with the demands which the regular issues of the almanac make upon the annual appropriations made by Congress for its support.

The Egyptians computed time by instruments. Log calendars were anciently in use. Almon-aght is of Saxon origin. In the British Museum and universities are curious specimens of early almanacs. Michael Nostrodamus, the celebrated astrologer, wrote an almanac in the style of Merlin, 1566.—DUFRESNOY. The most noted early almanacs were:

John Somer's Calendar, Oxford	1380
One in Lambeth palace, written in	1460
First printed one, published at Buda	1472
First printed in England, by Richard Pynson	1497
Tybault's Prognostications	1533
Lilly's Ephemeris	1644
Poor Robin's Almanac	1652
Lady's Diary	1705
Moore's Almanac	1713
Season on the Seasons	1735
Gentleman's Diary	1741
Nautical Almanac (materially improved in 1834)	1767
Poor Richard's Almanac (Franklin's, Philadelphia)	1733
British Imperial Calendar	1809
British Almanac and Companion	1828
American Almanac, Boston	1829
Nautical Almanac, United States	1855

Of Moore's, at one period, upward of 500,000 copies were annually sold. The Stationers' company claimed the exclusive right of publishing, until 1790, in virtue of letters patent from James I., granting the privilege to this company, and the two universities. The stamp duty on almanacs was abolished in England, 1834.

Almonds (Ger. *Mandeln;* Du. *Amandelen;* Fr. *Amandes;* It. *Mandorli;* Sp. *Almendra;* Port. *Amendo;* Russ. *Mindal;* Lat. *Amygdalæ amaræ, dulces*), a kind of medicinal fruit, contained in a hard shell, that is inclosed in a tough sort of cotton skin. The tree (*Amygdalus communis*) which produces this fruit nearly resembles the peach both in leaves and blossoms; it grows spontaneously only in warm countries, as Spain, and particularly Barbary. It flowers early in the spring, and produces fruit in August. Almonds are of two sorts, sweet and bitter. They are not distinguishable from each other but by the taste of the kernel or fruit. "The Valentia almond is sweet, large, and flat-pointed at one extremity, and compressed in the middle. The Italian almonds are not so sweet, smaller, and less depressed in the middle. The Jordan almonds come from Malaga, and are the best sweet almonds brought to England. They are longer, flatter, less pointed at one end and less round at the other, and have a paler cuticle than those we have described. The sweet almonds are imported in mats, casks, and boxes; the bitter, which come chiefly from Mogadore, arrive in boxes."—THOMSON'S *Dispensatory.*

Aloes (Du. *Aloe;* Fr. *Aloés;* Ger. and Lat. *Aloe;* Russ. *Sabir;* Sp. *Aloè;* Arab. *Mucibar*), a bitter, gummy, resinous, inspissated juice, obtained from the leaves of the plant of the same name. There are four sorts of aloes met with in commerce; viz., *Socotrine, Hepatic, Caballine,* and *Cape.*

1. *Socotrine*—so called from the island of Socotra, in the Indian Ocean, not very distant from Cape Guardafui, where the plant (*Aloe spicata*), of which this species is the produce, grows abundantly. It is in pieces of a reddish-brown color, glossy as if varnished, and in some degree pellucid. When reduced to powder, it is of a bright golden color. Its taste is extremely bitter, and it has a peculiar aromatic odor, not unlike that of the russet apple decaying. It softens in the hand, and is adhesive, yet is sufficiently pulverulent. It is imported by way of Smyrna and Alexandria, in chests and casks, but is very scarce in England.

2. *Hepatic.*—The real hepatic aloes, so called from its liver color, is believed to be the produce of the *Aloe perfoliata,* which grows in Yemen, in Arabia, from which it is exported to Bombay, whence it finds its way to Europe. It is duller in the color, bitterer, and has a less pleasant aroma than the Socotrine aloes, for which, however, it is sometimes substituted. Barbadoes aloes, which is often passed off for the hepatic, is the produce of the *Aloe vulgaris.* It is brought home in calabashes, or large gourd shells, containing from 60 to 70 pounds. It is duskier in its hue than the Bombay, or real hepatic aloes, and the taste is more nauseous, and intensely bitter. The color of the powder is a dull olive yellow.

3. *Caballine,* or *Horse Aloes,* seems to be merely the coarsest species or refuse of the Barbadoes aloes. It is used only in veterinary medicine; and is easily distinguished by its rank, fetid smell.

4. *Cape Aloes* is the produce of the *Aloe spicata,* which is found in great abundance in the interior of the Cape colony, and in Melinda. The latter furnishes the greater part of the extract sold in Europe under the name of Socotrine aloes. The odor of the Cape aloes is stronger and more disagreeable than that of the Socotrine; they have also a yellower hue on the outside, are less glossy, softer, and more pliable; the color of the powder is more like that of gamboge than that of the true Socotrine aloes.—AINSLIE'S *Materia Indica;* THOMSON'S *Dispensatory* and *Materia Medica.*

Aloes-wood (Ger. *Aloeholz;* Du. *Aloëhout, Paradyshout;* Fr. *Bois d'Aloés;* It. *Legno di Aloe;* Sp. *Aloè chino;* Lat. *Lignum Aloes;* Sans. *Aguru;* Malay, *Agila;* Siam. *Kisna*), the produce of a large forest tree, to be found in most of the countries between China and India, from the 24th degree of north latitude to the equator. It seems to be the result of a diseased action confined to a small part of a few trees, of which the rest of the wood is wholly valueless. It appears to be more or less frequent according to soil and climate, and from the same causes to differ materially in quality. It is produced both in the greatest quantity and perfection in the countries and islands on the east coast of the Gulf of Siam. This article is in high repute for fumigations, and as incense, in all Hindoo, Mohammedan, and Catholic countries. It formerly brought a very high price, being at one time reckoned nearly as valuable as gold. It is now comparatively cheap, though the finest specimens are still very dear. The accounts of this article in most books, even of good authority, are singularly contradictory and inaccurate. This is more surprising, as La Loubère has distinctly stated that it consisted only of "*certains endroits corrumpus dans des arbres d'une certaine espèce. Toute arbre de cette espèce n'en a pas; et ceux qui en ont, ne les ont pas tous en même endroit.*"—*Royaume de Siam,* t. i. p. 45, 12mo ed. The difficulty of finding the trees which happen to be diseased, and of getting at the diseased portion, has given rise to the fables that have been current as to its origin. The late Dr. Roxburgh introduced the tree which yields this production into the Botanical Garden at Calcutta, from the hills to the eastward of Sylhet, and described it under the name of *Aquillaria Agalocha.*

Alpaca, a species of the South American family of quadrupeds called *Llama,* the soft hairy wool of which is now largely employed in the fabrication of cloths of different sorts. There would appear to be three species of this family, the *Guanaco,* or wild Llama; the *Alpaca,* which was domesticated as a beast of burden by the ancient Peruvians, and hence considered as the camel of the New World; and the *Vicuña,* a small species, chiefly valued for the softness of its fine wool. Some consider the *Paco* a fourth species; but the descriptions of travelers are too indefinite to enable us to decide this point. The fleece of the alpaca is fine, long, and shaggy; and the animal exceeds much in size the other two.

Alum (Ger. *Alaun;* Du. *Aluin;* Fr. *Alun;* It. *Allume;* Sp. *Allumbre;* Russ. *Kwassz;* Lat. *Alumen;* Arab. *Sheb*), a salt of great importance in the arts, consisting of a ternary compound of *aluminum,* or pure argillaceous earth, potass, and sulphuric acid. Alum is sometimes found native; but by far the greater part of that which is met with in commerce is artificially prepared. The best alum is the Roman, or that which is manufactured near Civita Vecchia, in the Papal territory. It is in irregular, octahedral, crystalline masses, about the size of a walnut, and is opaque, being covered on the surface with a farinaceous efflorescence. The Levant, or Roch alum, is in fragments, about the size of the former, but in which the crystalline form is more obscure; it is externally of a dirty rose-color, and internally exhibits the same tinge, but clearer. It is usually shipped for Europe from Smyrna; but it was anciently made at Roccha, or Edessa, in Syria; and hence its name, Roch alum. English alum is in large, irregular, semi-transparent, colorless masses, having a glassy fracture; not efflorescent, and considerably harder than the others. It is very inferior to either the Roman or Roch alum. The principal use of alum is in the art of dyeing, as a mordant for fixing and giving permanency to colors which otherwise would not adhere at all, or but for a very short time; but it is also used for a great variety of other purposes. Beckmann has shown (*History of Inventions*, vol. i. *article* ALUM) that the ancients were unacquainted with alum, and that the substance which they designated as such was merely vitriolic earth. It was first discovered by the Orientals, who established alum works in Syria in the thirteenth or fourteenth century. The oldest alum works in Europe were erected about the middle of the fifteenth century. Toward the conclusion of the reign of Queen Elizabeth, Sir Thomas Chaloner established the first alum work in England, in the vicinity of Whitby, in Yorkshire, where the principal works of the sort in that country are still carried on: the shipments of alum from Whitby in 1841 amounted to 3237 tons. There is also a large alum work at Hurlett, near Paisley, the produce of which may be estimated at about 1200 tons a year. Alum is largely manufactured in China, and is thence exported to all the western Asiatic countries. In 1837, 35,642 piculs (2120 tons) were exported from Canton.

Amalgamation, the operation of making an amalgam, or mixing mercury with any metal. For the combination of one metal with another, it is generally sufficient that one of them be in a state of fluidity. Mercury being always fluid, is therefore capable of amalgamation with other metals without heat, iron excepted; nevertheless, heat considerably facilitates the operation. To amalgamate without heat requires nothing more than rubbing the two metals together in a mortar; but the metal to be united with the mercury should be previously divided into very thin plates or grains. When heat is used (which is always most effectual, and with some metals indispensably necessary), the mercury should be heated till it begin to smoke, and the grains of metal made red hot before they are thrown into it. If it be gold or silver, it is sufficient to stir the fluid with an iron rod for a little while, and then to throw it into a vessel filled with water. This amalgam is used for gilding or silvering on copper, which is afterward exposed to a degree of heat sufficient to evaporate the mercury. Amalgamation with lead or tin is effected by pouring an equal weight of mercury into either of these metals in a state of fusion, and stirring with an iron rod. Copper amalgamates with great difficulty, and iron not at all.—E. B.

Amazon, Maranon, Orellana, or **Solimoes,** the chief river of South America, and the largest in the world, whether regarded as to its volume, or the extent of its basin. It is formed by the union of the Maranon and Ucayale; the former rising in Lake Lauricocha (Peru), in lat. 10° 30′ S., long. 76° 10′ W.; and the head stream of the latter, the Apurimac, originating about lat. 16° S., long. 72° W. Both rivers have a general course at first northward; the Maranon, for the first 500 miles of its course, flows N.N.W., and at about lat. 6° S. bends eastward, and at lat. 4° 40′ takes an almost due east course, and after receiving the Huallaga from the south (where it is about 500 yards broad), it pursues a course of 46½ leagues, and joins the Ucayale at lat. 4° 35′ S., long. 74° W. Here the stream has depth sufficient to float the largest class of ships. Thenceforth the Amazon flows generally east to the Atlantic, which it enters nearly under the equator, and between long. 48° and 50° W., its estuary widening until it is 180 miles across. Taking the Apurimac as its source, its direct length is estimated at 1769 miles, and including its windings, nearly 4000 miles; for great part of which (viz., from the ocean to Pongo de Manseriche, long. 76° 50′ W.) it is navigable and uninterrupted by any rapid or cataract. At least twenty noble rivers, navigable to near their sources, pour their waters into it, besides numerous other less important streams. Chief tributaries, the Napo, Putumayo, Yapura, and Rio Negro, from the north; the Yavari, Jutay, Jurua, Coary, Purus, Madeira, Tapajos, and Xinga, from the south. By the Casiquiaire, a branch of the Rio Negro, the Amazon has a direct and remarkable connection with the Orinoco. The Amazon and its tributaries afford an immense inland navigation, estimated at 50,000 miles; and the extent of its basin has been computed at about two millions of square miles, or about two fifths of the whole continent of South America. The depth of the river is great; in mid-current no bottom is found with 20 fathoms. The velocity of the current is pretty uniform, at the rate of 3½ miles an hour. Tides ascend this river for 400 miles from the Atlantic—as far as Obidos, where the Amazon is still more than a mile in width—and near the full moon the rise of the tide occasions a formidable rush of water into the channel, sometimes bringing in several waves from 10 to 15 feet in height. This phenomenon, called the *bore*, is witnessed on a smaller scale in the Ganges, and in some European rivers. The upper part of the river, as far as the mouth of the Yavari, which forms the boundary line between Brazil and Peru, is called Maranon; thence to the mouth of the Rio Negro it is called Solimoes or Solimas; and from the Negro to its mouth, Amazon. The tropical rains swell the river annually to 40 and 50 feet above its ordinary level. The Maranon attains its greatest height in January, the Solimoes in February, the Amazon in the middle of March. In the lower part of its course, the Amazon abounds with islands, and in its estuary are Marajo and Caviana, of considerable extent. Santiago (Ecuador), S. Borja, S. Joaquim, Tabatinga, Olivenza, Matura, Serpa, Santarem, Montalegre, Para, Arayates, and Gurupa, are towns on its banks; but, with trifling exceptions, the whole country which it traverses is still in a state of nature. In 1848, a steamboat made a passage from Para, up the river as far as the Negro. The estuary of the Amazon was discovered by Pinçon in 1500; in 1539, Francis d'Orellana sailed down it from the Napo, and it obtained its name of Amazon from his having reported that he had seen armed women on its shores.—HARPERS' *Gazetteer*.

Its capacities for trade and commerce are inconceivably great. Its industrial future is the most dazzling; and to the touch of steam, settlement, and cultivation, this rolling stream and its magnificent water-shed would start up into a display of industrial results that would indicate the Valley of the Amazon as one of the most enchanting regions on the face of the earth. From its mountains you may dig silver, iron, coal, copper, quicksilver, zinc, and tin; from the sands of its tributaries you may wash gold, diamonds, and precious stones; from its forests you may gather drugs of virtues the most rare, spices of aroma the most exquisite, gums and resins of the most varied and useful properties, dyes of hues the most brilliant, with cabinet and building woods of the finest polish and most enduring texture. Its climate is an everlasting summer, and its harvest perennial. I translate from a book of travels in these countries, by Count Castelnau (received since my return to the United States), an account of the capacities of some of the southern portions of this vast water-shed:

"The productions of the country are exceedingly various. The sugar-cane, of which the crop is gathered at the end of eight months from the time of planting, forms the chief source of wealth of the province of Cercado.

"Coffee is cultivated also with success in this province, and in that of Chiquitos yields its fruit two years after having been planted, and requires scarcely any attention. Cocoa, recently introduced into these two provinces, gives its fruit at the end of three or four years at most. The tamarind, which thrives in the same localities, produces its harvest in five years. Cotton gives annual crops; there are two varieties—the one white, the other yellow. Tobacco grows, so to speak, without cultivation, in the province of Valle Grande, where it forms the principal article of commerce. Indigo, of which there are three cultivated kinds and one wild, is equally abundant. Maize yields at the end of three months all the year round; it is also cultivated in the province of Cercado. The cassave produces in eight months after planting; there are two kinds of it—one sweet, and the other bitter; the first can replace the potato, and even bread; the second is only good for starch. There is an enormous amount of kinds or varieties of bananas, which produce in the year from seed; they are specially cultivated in the province of Cercado. Two kinds of rice—one white, the other colored—are cultivated in the two provinces of Cercado and Chiquitos. They produce every five or six months; they say it is found wild in the region of Chiquitos.

"The grape, which grows well every where, and especially in the province of Cordilleras, where it was cultivated in the Missions up to the time of the Independence, is nevertheless made no article of profit. It will some day, perhaps, form one of the principal sources of wealth of this country. Wheat, barley, and the potato might be cultivated with advantage in the provinces of Chiquitos and Cordilleras; but till now results have been obtained only in that of Valle Grande. The cultivation of cocoa has commenced in the province of Cercado, and it is also found in a wild state, as well as the Peruvian bark, on the mountains of Samaripata. As we have already said, fruits abound in this region. They cultivate there principally oranges, lemons, citrons, figs, papaws, pomegranates, melons, water-melons, chirimoyas (which the Brazilians call *fruto de conde*), pine-apples, etc. The last of these fruits grow wild, and in great abundance, in the woods of Chiquitos. We met it, particularly the evening of our arrival, at Santa Ana. Its taste is excellent; but it leaves in the mouth such a burning sensation that I bitterly repented having tasted it. They cultivate in sufficient abundance, in the province, jalap, Peruvian bark, sarsaparilla, vanilla, rocou, copahu, ipecacuanha, caoutchouc, copal, etc. Woods for dyeing, cabinet-making, and building, abound; and the people of the country collect carefully a multitude of gums, roots, and barks, to which they attribute medicinal virtues the most varied. In many points in the departments, and especially in the provinces of Valle Grande and Cordilleras, iron is found, and traces of quicksilver. Gold is found in the province of Cercado, near the village of San Xavier. The Jesuits wrought mines of silver in the mountains of Colchis. Don Sebastian Rancas, while Governor of Chiquitos, announced to the government that diamonds, of very fine water, had been found in the streams in the environs of Santo Corazon."

The citizens of the United States are, of all foreign people, most interested in the free navigation of the Amazon. We, as in comparison with other foreigners, would reap the lion's share of the advantages to be derived from it. We would fear no competition. Our geographical position, the winds of heaven, and the currents of the ocean, are our potential auxiliaries. Thanks to Maury's investigations of the winds and currents, we know that a chip flung into the sea at the mouth of the Amazon will float close by Cape Hatteras. We know that ships sailing from the mouth of the Amazon, for whatever port of the world, are forced to our very doors by the southeast and northeast trade-winds; that New York is the half-way house between Pará and Europe.

The present limited commerce of the Amazon may be judged of by a statement of the exports and imports of Pará, the port of entry, and situated most advantageously at the mouth of an estuary of the Amazon.

COMMERCE OF PARA FOR 1851.

	No. of Vessels.	Tonnage.	Men.	Value of Imports.	Value of Exports.
American....	30	4.574	226	$425.484	$476.210
English	14	2.732	139	275.000	355.000
French	10	536	99	122.830	188.699
Portuguese ..	19	3.666	312	231.457	215.142
Hamburg....	2	510	18	27.500	131.000
Belgian......	2	320	20	5.250	16.250
Danish	2	480	22	4.750	14.000
Swedish	2	420	22	....	28.500
	81	14.238	858	$1.092.271	$1.424.801

The city of Santa Maria de Belem de Graō Pará, founded by Francisco Caldeira do Castello Branco, in the year 1616, is situated on a low elbow of land at the junction of the River Guamá with the River Pará, and at a distance of about eighty miles from the sea. A ship generally requires three tides, which run with a velocity of about four miles to the hour, to reach the sea from the city. The harbor is a very fine one; it is made by the long island of Onças in front, and at two miles distant, with some smaller ones farther down the river. There is an abundance of water, and ships of any size may lie within one hundred and fifty yards of the shore. There is a good landing-place for boats and lighters at the custom-house wharf; and at half-tide at the stone wharf, some five hundred yards above.

Owing to the miserable policy of the Brazilian government, the free commerce of the Amazon will be retarded until Brazil is forced to do justice to herself and others.

The Bolivian government are pursuing a more liberal policy, and have issued the following decree, dated *La Paz, 27th January* 1853:

"Whereas, 1st, the eastern and western parts of the republic, inclosing vast territories of extraordinary fertility, intersected by navigable rivers flowing to the Amazon and to the La Plata, offers the most natural channels for the commerce, population, and civilization of these districts;

"Whereas, 2d, the navigation of these rivers is the most efficacious and certain means of developing the riches of this territory, by placing it in communication with the exterior, and applying to its waters the fruitful principle of free navigation, as useful to the interests of the republic as to those of the world;

"Whereas, 3d, by the law of nature and of nations, confirmed by the conventions of modern Europe, and applied in the New World to the navigation of the Mississippi, Bolivia, as owner of the Pilcomayo, of the tributaries and the greater part of the Madeira, of the left shore of the Itenes from its junction with the Saravé to its emptying into the Mamoré, of the western bank of the Paraguay to the Marco del I——, as far as 26° 54′ of south latitude, and of the greater part and the left shore of the Bermejo, has the right to navigate these rivers from the point in her territory in which they may be susceptible of it to the sea, without any power being able to arrogate to itself the exclusive sovereignty over the Amazon and La Plata:

"Whereas, 4th, this navigation can not be effected without the necessary ports are afforded for trade;

"Therefore, be it decreed:

"ART. 1. The Bolivian government declares free to the commerce and mercantile navigation of all the nations of the globe the waters of the navigable rivers which, flowing through the territory of this nation, empty into the Amazon and Paraguay.

"ART. 2. The following are declared free ports, open to the traffic and navigation of all vessels of commerce, whatever may be their flag, destination, or tonnage:

"In the River Mamoré—Exaltacion, Trinidad, and Loreto.

"In the Beni—Renenavaque, Muchanis, and Magdalena.

"In the Piray—Cuatro, Ojos.

"In the Chaparé—Coni and Chimoré, tributaries of the Mamoré, the points of Asunta, Coni, and Chimoré.

"In the rivers Mapiri and Coroico, tributaries of the Beni, the points of Guanay and Coroico.

"In the Pilcomayo—the port of Magriños, on the east coast of the Paraguay, La Bahia Negra, and the point of Borbon.

"In the Bermejo—the point situated in 21° 30′ south latitude, at which embarked, in 1846, the national engineers Ondarza and Mujia.

"ART. 3. The vessels of war of friendly nations will also be permitted to visit these ports.

"ART. 4. The government of Bolivia, availing itself of the unquestionable rights which the nation has to navigate these rivers as far as the Atlantic, invites all the nations of the earth to navigate them, and promises—

"1st. To donate in the Bolivian territory, for the purposes which the law allows, tracts of land, from one league to twelve leagues square, to the individuals or companies who, sailing from the Atlantic, shall arrive at any one of the points declared to be ports of entry, and may wish to found near them agricultural or industrial establishments.

"2d. To guarantee the reward of ten thousand dollars ($10,000) to the first steamer which, through the La Plata or Amazon, may arrive at either of the above-mentioned points.

"3d. To decree free the river exportation of the products of the earth, and of the national industry.

"4th. In due time there will be established and regulated at the above-mentioned points, where it may be necessary, custom-houses for the loading and unloading of merchandise, the government seeing that the charges for the use of these custom-houses may be as moderate as possible.

"5th. This decree will be submitted for the examination and approval of Congress on their next meeting.

"6th. The Minister of State, in the office of foreign relations, is charged with its fulfillment, by circulating it and communicating it to all whom it may concern.

"Given in the Palace of the Supreme Government, in the place of Ayacucho, 27th of January, 1853, 44th of independence, and 4th of liberty.

"MANUEL ISIDORO BELZU.
"RAFAEL BUSTILLO,
"*Minister of Foreign Relations.*

"A certified copy: AMARO ALVAREZ,
"*El Official Mayor.*"

—*See* HERNDON'S *Valley of the Amazon.*

Amber (Ger. *Bernstein;* Du. *Barnsteen;* Da. *Bernsteen, Rav.;* Fr. *Ambre jaune;* It. *Ambra gialla;* Sp. *Ambar;* Russ. *Jantar;* Pol. *Bursztyn;* Lat. *Succinum, Electrum*), a brittle, light, hard substance, usually nearly transparent, sometimes nearly colorless, but commonly yellow, or even deep brown. It has considerable lustre. Specific gravity 1·065. It is found in nodules or rounded masses, varying from the size of coarse sand to that of a man's hand. It is tasteless, without smell, except when pounded or heated, when it emits a fragrant odor. It is highly electric. Most authors assert that amber is bituminous; but Dr. Thomson states, that "it is undoubtedly of a vegetable origin; and though it differs from resins in some of its properties, yet it agrees with them in so many others, that it may without impropriety be referred to them." —*Chemistry*, vol. iv. p. 147, 5th ed. Pieces of amber occasionally inclose parts of toads and insects in their substance, which are beautifully preserved. It is principally found on the shores of Pomerania and Polish Prussia; but it is sometimes dug out of the earth in Ducal Prussia. It is also to be met with on the banks of the River Giaretta, in Sicily. Sometimes it is found on the east coast of Britain, and in gravel pits round London. The largest mass of amber ever found was got near the surface of the ground in Lithuania. It weighs 18 pounds, and is preserved in the royal cabinet at Berlin. Most of the amber imported into this country comes from the Baltic, but a small quantity comes from Sicily. Amber was in very high estimation among the ancients, but is now comparatively neglected.

Ambergris, or **Ambergrease** (Ger. *Amber;* Du. *Amber;* Fr. *Ambergris;* It. *Ambragrigia;* Sp. *Ambargris;* Lat. *Ambra, Ambra grisea*), a solid, opaque, generally ash-colored, fatty, inflammable substance, variegated like marble, remarkably light, rugged and uneven in its surface, and has a fragrant odor when heated; it does not effervesce with acids, melts freely over the fire into a kind of yellow resin, and is hardly soluble in spirit of wine. It is found on the seacoast, or floating on the sea, near the coasts of India, Africa, and Brazil, usually in small pieces, but sometimes in masses of 50 or 100 pounds weight. "Various opinions have been entertained respecting its origin. Some affirmed that it was the concrete juice of a tree, others thought it a bitumen; but it is now considered as pretty well established that it is a concretion formed in the stomach or intestines of the *Physeter macrocephalus*, or spermaceti whale."—THOMSON'S *Chemistry.* Ambergris ought to be chosen in large pieces, of an agreeable odor, entirely gray on the outside, and gray with little black spots within. The purchaser should be very cautious, as this article is easily counterfeited with gums and other drugs.

America. Our object in this article is to take a comprehensive survey of the American continent in its physical, moral, and general relations. In attempting this, we do not intend to go much into detail upon those subjects which will be more fully and appropriately discussed in the distinct articles assigned in this work to the several States included in the Western World; but we shall dwell at some length upon those features, peculiarities, and classes of facts which either belong to it as a whole, or can be most advantageously considered or described when all its parts are viewed in connection with one another. Such are the climate and physical structure of the country, the geographical distribution of its cultivated plants, its indigenous population, its animal tribes, its commercial and political capabilities, and its means of progressive improvement. The new continent may be styled emphatically "a land of promise." The *present* there sinks into nothing in itself, and derives all its importance from the germs it contains of a mighty future. The change must not only be great, but rapid, beyond all which the past history of mankind would lead us to expect. Even after we have familiarized our minds with the principles upon which its progress depends, we find it difficult to reconcile ourselves to the consequences that inevitably result from them. But time will do its work; and the great-grandsons of those now in existence may live to see the New World contain a greater mass of civilized men than the Old. It is this greatness in prospect which lends an interest to the Western Continent similar to that which the Eastern derives from its historical recollections. The same circumstance requires that we should dwell at some length on the physical structure of America, and on those indigenous tribes which, in the course of three centuries, will only live in poetry and tradition. The future history of the New World must be read by us in the configuration of its surface, the distribution of its mountains and rivers, the productions of its soil, its natural and political capabilities, and in the character rather than the numbers of its civilized inhabitants.

The continental part of America extends from the 54th degree of south to the 71st of north latitude, its extreme length, from the Straits of Magellan to those of Behring, being 10,500 English miles. The islands of Tierra del Fuego reach one degree beyond its southern extremity into the Antarctic Ocean; and Greenland, which is connected by geographers with America, has been traced to the 78th degree of north latitude, and probably is prolonged much farther into the polar circle. The late discoveries of Captains Parry, Ross, and Franklin have given us much more exact ideas than we formerly possessed of the northern regions of America. The coast of the main land has been traced almost completely from Behring's Straits to Fox's Channel on Hudson's Bay, and is found to run in a direction east and west, in an uneven line near the parallel of 70°. The bounds of continental America may therefore be considered as nearly determined on every side. The additional lights furnished by Captain Parry's and other recent voyages render it extremely probable that a great archipelago of islands occupies all the space between the northern coast of the continent and the 80th parallel; and there is even some reason for believing that the country known by the name of Greenland is traversed from east to west by arms of the sea, like the regions on the west side of Baffin's Bay.

The new continent, when compared with the old, enjoys three important advantages. First, it is free from such vast deserts as cover a large part of the surface of Asia and Africa, and which not only withdraw a great proportion of the soil from the use of man, but are obstacles to communication between the settled districts, and generate that excessive heat which is often injurious to health, and always destructive to industry. Secondly, no part of its soil is so far from the ocean as the central regions of Asia and Africa. Thirdly, the interior of America is penetrated by majestic rivers, the Mississippi, Amazon, and Plata, greatly surpassing those of the old continent in magnitude, and still more in the facilities they present for enabling the remotest inland districts to communicate with the sea.

According to the geographical system adopted in the Old World, America ought to be considered as two distinct continents, connected by the isthmus of Darien. Its two great divisions have evidently more of a defined and separate character than Africa and Asia, or than Asia and Europe; but though this arrangement may be very properly adopted for the purpose of description, it is too late now to think of assigning separate names to regions which have so long been known by a common appellation. In the physical arrangement of the parts of South and North America there is a remarkable resemblance. Both are very broad in the north, and gradually contract as they proceed southward, till they end, the one in a narrow isthmus, and the other in a narrow promontory. Each has a lofty chain of mountains near its western coast, abounding in volcanoes, with a lower ridge on the opposite side, destitute of any trace of internal fire; and each has one great central plain declining to the south and the north, and watered by two gigantic streams, the Mississippi corresponding to the Plata, and the St. Lawrence to the Amazon. In their climate, vegetable productions, and animal tribes, the two regions are very dissimilar.

The extent of the American continent and the islands connected with it is as follows:

	Square Eng. Miles.
North America	7,400,000
South America	6,500,000
Islands	150,000
Greenland, and the islands connected with it, lying north of Hudson's Straits, may be estimated at	900,000
	14,950,000

The American Continent, therefore, with its dependent islands, is fully four times as large as Europe, about one third larger than Africa, and almost one half less than Asia, if we include with the latter Australia and Polynesia. It constitutes about three-tenths of the dry land on the surface of the globe. Of the continental part of North America, a considerable portion is condemned to perpetual sterility by the rigor of the climate, as we shall explain more fully by-and-by. At present it is sufficient to state, that if we draw a line from the head of Cook's Inlet, in latitude 61°, on the west side, to the Straits of Bellisle on the east, so as to pass through Fort Churchill, on Hudson's Bay, we shall cut off a space rather exceeding one million and a half of square miles, which may be considered as incapable of cultivation. At the south extremity of America, a small tract, extending 200 miles north of the Straits of Magellan, though far within the limits of the temperate zone, is nearly in the same condition. These and the summits of the Andes are the only parts of the American continent which are rendered incapable of cultivation by the severity of the climate.

The vast chain of the Andes is distinguished by several peculiar features from all other mountains in the world. It has its principal direction nearly north and south, while all the great ridges of the old continent run from east to west; it is unparalleled in its prodigious length, in the richness of its mineral treasures, and in the number and magnitude of its volcanoes. The Andes, if we connect with them the Mexican Cordillera and the Rocky Mountains, extend from the Straits of Magellan in a line which may be considered as unbroken, to Point Brownlow on the shores of the Arctic Ocean, in the latitude of 70°, over a space equal to 10,000 miles in length, or two-fifths of the circumference of the globe. Their height, which attains its maximum within the tropics, declines toward both poles, but in such a manner that, with a few exceptions, its higher summits ascend to the line of perpetual snow from one extremity to the other. It may thus be said to carry the temperature of the pole over the whole length of the American continent. The chain of the Andes is common to the two parts of America, and is in fact the link which connects them and makes them one continent. As we propose, however, to describe North and South America separately, we shall reserve the details for another part of this article.

South America is a peninsula of a triangular form. Its greatest length from north to south is 4550 miles; its greatest breadth 3200; and it covers an area, as already mentioned, of 6,500,000 square English miles, about three-fourths of which lie between the tropics, and the other fourth in the temperate zone. From the configuration of its surface, the peninsula may be divided into five distinct physical regions: 1. The low country skirting the shores of the Pacific Ocean, from 50 to 150 miles in breadth, and 4000 in length. The two extremities of this territory are fertile, the middle a sandy desert. 2. The basin of the Orinoco, a country consisting of extensive plains or *steppes*, called Llanos, either destitute of wood or merely dotted with trees, but covered with a very high herbage during a part of the year. During the dry season the heat is intense here, and the parched soil opens into long fissures, in which lizards and serpents lie in a state of torpor. 3. The basin of the Amazon, a vast plain, embracing a surface of more than two millions of square miles, possessing a rich soil and a humid climate. It is covered almost every where with dense forests, which harbor innumerable tribes of wild animals, and are thinly inhabited by savages, who live by hunting and fishing. 4. The great southern plain, watered by the Plata and the numerous streams descending from the eastern summits of the Cordilleras. Open *steppes*, which are here called Pampas, occupy the greater proportion of this region, which is dry, and in some parts barren, but in general is covered with a strong growth of weeds and tall grass, which feeds prodigious herds of horses and cattle, and affords shelter to a few wild animals. 5. The country of Brazil, eastward of the Parana and Araguay, presenting alternate ridges and valleys, thickly covered with wood on the side next the Atlantic, and opening into steppes or pastures in the interior.

Nine-tenths of North America lying under the temperate zone, the climate follows a different law from what is observed in the southern peninsula, and presents more striking contrasts with that of the best known parts of the Old World. The long narrow region now denominated Central America, which connects the two great divisions of the continent, stretching from Panama to Tehuantepec, has in general a very humid atmosphere; but, for a tropical country, it must be only moderately hot, as every part of it is within a small distance of the sea. At Vera Paz the rains fall during nine months of the year. Mexico is hot, moist, and unhealthy on the low coasts; but two-thirds of its area, comprising all the populous districts, consist of table-land, from 5000 to 9000 feet in height. In consequence of this singular configuration of its surface, Mexico, though chiefly within the torrid zone, enjoys a temperate and equable climate. The mean heat at the capital, which is 7400 feet above the sea, is 62½°, and the difference between the warmest and coldest months, which exceeds 30° at London, is here only about 12°; but the atmosphere is deficient in moisture, and the country suffers from drought. Beyond the parallel of 24° the western shores are hot and arid.

In the extensive region lying between the parallels of 30° and 50°, which comprehends three-fourths of the useful soil of North America, we have three well-marked varieties of climate, that of the east coast, the west coast, and the basin of the Mississippi. On the east coast, from Georgia to Lower Canada, the mean temperature of the year is lower than in Europe by 9° at the latitude of 40°, and by 12½° at the latitude of 50°, according to Humboldt's calculation. In the next place, the range of the thermometer is much greater than in Europe, the summer being much hotter and the winter much colder. At Quebec the temperature of the warmest month exceeds that of the coldest by no less than 60½° of Fahrenheit; while at Paris, which is nearly under the same latitude, the difference is only 31°. In the third place, the climate undergoes a more rapid change in America as we proceed from south to north, a degree of latitude in the middle of the temperate zone producing a decrease of annual temperature of 1·13° in Europe, and of 1·57° in America. The comparison is greatly to the disadvantage of America when made in this form; but when the east coasts of the two continents are compared, the case is altered: the Old World is found to have no superiority over the New, for Pekin has still colder winters and warmer summers than Philadelphia, which is under the same latitude. It is the west coast of the new continent which ought to exhibit the climate of Europe; and from the few facts known, we have reason to believe that it is quite as mild and equable. At the mouth of Columbia River, in latitude 46½°, Captains Lewis and Clarke found the rains to be copious and frequent; but they had very little frost, and saw no ice even in the depth of winter. From observations made in 1822–4, it appears that the mean heat of the warmest month was about 62°, of the coldest about 36°, and of the whole year 51°. Now the place is under the same latitude with Quebec, where the snow lies five months, and the mean temperature during the three winter months is 18° below the freezing point. This single circumstance marks emphatically the contrast in the climate of the east and west coasts of North America. But the mouth of Columbia River is also under the same parallel with Nantes at the mouth of the Loire, where snow and ice are no strangers in the cold season of the year. We have, therefore, good grounds to conclude that the west coast of America, in the middle latitudes, has nearly as mild and equable a climate as the west coast of Europe. The climate of the great central valley, or basin of the Mississippi, has a considerable affinity to that of the east coast. It was long a matter of dispute in what the difference between the two consists; but this seems at last to have been clearly settled, by the meteorological registers kept at the military posts of the United States. From a comparison of four of these registers, from posts near the centre of this great valley, with others kept on the Atlantic coast in the same latitudes, it appears that in the hottest month the temperature is from 5° to 6° higher, and in the coldest month as much lower, in the basin of the Mississippi, than on the coasts of New England. The proportion of fair weather to cloudy is as 5 to 1 in favor of the east coast. The climate of the interior, therefore, exhibits in still greater excess those extremes of temperature which distinguish the eastern coast of this continent from the western, and from the shores of Europe. The fourth region of extra-tropical America includes the parts beyond Mount St. Elias on the west coast, and, in the interior, the plains extending from the 50th parallel to the Polar Seas. The intensity of the cold in this tract of country is scarcely equaled by any thing that is known under the same parallels in Northern Asia. The northernmost spot in America where grain is raised is at Lord Selkirk's colony, on Red River, in latitude 50°. Wheat, and also maize, which requires a high summer heat, are cultivated here. Barley would certainly grow as far north as Fort Chippewayan, in latitude 58¾°, where the heat of the four summer months was found by Captain Franklin to be 4° higher than at Edinburgh. There is even reason to believe that both this species of grain and potatoes might thrive as far north as Slave Lake, since the spruce fir attains the height of 50 feet three degrees farther north, at Fort Franklin, in latitude 65°. These, however, were low and sheltered spots; but in this dreary waste generally it will not be found practicable, we suspect, to carry the arts of civilized life beyond the 60th parallel; and the desirable country, capable of supporting a dense population, and meriting the name of temperate, can scarcely be said to extend beyond the 50th parallel. At 65° the snow covers the ground in winter to the depth of only two feet, but small lakes continue frozen for eight months. The sea is open only for a few weeks, fogs darken the surface, and the thermometer in February descended, in one instance, to *minus* 58°, or 90° below the freezing point. At Melville Island, under the 75th parallel, such is the frightful rigor of the climate, that the temperature of the year falls 1° or 2° below the zero of Fahrenheit's scale. It is a peculiarity in the climate of America, that beyond the parallel of 50° or 52°, it seems to become suddenly severe at both extremities. At the one, summer disappears from the circle of the seasons; at the other, winter is armed with double terrors.

In no single circumstance is the superiority of America over the Old World so conspicuous as in the number and magnitude of its navigable rivers. The Amazon alone discharges a greater quantity of water than the eight principal rivers of Asia, the Euphrates, Indus, Ganges, Oby, Lena, Amour, and the Yellow River and Kang-tse of China. The Mississippi, with its branches, affords a greater amount of inland navigation than all the streams, great and small, which irrigate Europe; and the Plata, in this respect, may probably claim a superiority over the collective water of Africa. But the American rivers not only surpass those of the Old World in length and volume of fluid, but they are so placed as to penetrate every where to the heart of the continent. By the Amazon, a person living at the eastern foot of the Andes, 2000 miles of direct distance from the Atlantic, may convey himself or his property to the shores of that sea in forty-five days, almost without effort, by confiding his bark to the gliding current. If he wishes to return, he has but to spread his sails to the eastern breeze, which blows perennially against the stream. The navigation is not interrupted by a single cataract or rapid, from the Atlantic to Jaen, in west longitude 78°, where the surface of the stream is only 1240 feet above the level of its estuary at Para. The remotest and least accessible part of North America is the great interior plain extending from the Rocky Mountains to the Alleghanies and the lakes, between the parallels of 40° and 50°; but the Mississippi, Missouri, and St. Lawrence, with their branches, are so wonderfully ramified over this region, that when it is filled with civilized inhabitants, two centuries hence, those who dwell in its inmost recesses, at the falls of the Missouri, for instance, 1700 miles from the Atlantic, will have a more easy communication with the ocean than the population of the interior of Spain and Hungary. It is only necessary to cast the eye over a map of South America, to see that all the most sequestered parts of the interior are visited by branches of the Plata and the Amazon. These streams, having their courses in general remarkably level, and seldom interrupted by cataracts, may be considered, without a figure, as a vast system of natural canals, terminating in two main trunks, which communicate with the ocean at the equator and the 35th degree of south latitude. Since the invention of steam navigation, rivers are, in the truest sense of the term, Nature's highways, especially for infant communities, where the people are too poor, and live too widely dispersed, to bear the expense of constructing roads. There is little risk in predicting that in two or three centuries the Mississippi, the Amazon, and the Plata will be the scenes of an active inland commerce, far surpassing in magnitude any thing at present known on the surface of the globe. The Mississippi is navigable for boats from the sea to the falls of its principal branch, the Missouri, 1700 miles from the Mexican Gulf in a direct line, or 3900 by the stream; and the whole amount of boat navigation afforded by the system of rivers, of which the Mississippi is the main trunk, has been estimated as equal to 40,000 miles in length, spread over a surface of 1,350,000 square miles. Perhaps this is rather beyond the truth; but let us call the navigation 35,000 miles, and the following table will exhibit the lengths, size of the basins, and probable extent of the navigable waters of the greater rivers of America:

	Length.	Area of Basin.	Navigable Waters.
	Miles.	Sq. Miles.	Miles.
Mississippi to source of Missouri	4300	1,350,000	35,000
St. Lawrence through the lakes	2200	600,000	4,000
Orinoco	1800	400,000	8,000
Amazon, not including Araguay	4000	2,100,000	50,000
Plata, including Uruguay......	2400	1,200,000	20,000

The Amazon contains many islands, is broad, and in the upper part so deep, that on one occasion Condamine found no bottom with a line 103 toises long. At its mouth, two days before and after the full moon, the phenomenon called a *Bore* occurs in a very formidable shape. It is a wave of water rushing from the sea, with its front as steep as a wall and as high as a house. No small vessel can encounter it without certain destruction.

The estuaries of all these great American rivers open to the eastward; and thus Providence seems to have plainly indicated that the most intimate commercial relations of the inhabitants of America should be with the western shores of the Old World. It should at the same time be observed that the position of the great rivers of America is but one example of a physical arrangement which is common to the whole globe; for it is remarkable that, in the Old World as well as in the New, no river of the first class flows to the westward. Some, as the Nile, the Lena, and the Oby, flow to the north; others, as the Indus and the rivers of Ava, to the south; but the largest, as the Wolga, Ganges, Great River and Yellow River of China, the Euphrates, and the Amour, have their courses to the east or southeast. This arrangement is not accidental, but depends most probably on the inclination of the primary rocks, which, in all cases where their *direction* approaches to the south and north, seem to have their steepest sides to the west and the longest declivities to the east. We have examples in the Scandinavian Alps, the mountains of Britain, the Ghauts of India, the Andes, and the Rocky Mountains.

North America, like the Southern peninsula, naturally divides itself into five physical regions: 1. The table-land of Mexico, with a strip of low country on its eastern and western shores; 2. The plateau lying between the Rocky Mountains and the Pacific Ocean, a country with a mild and humid atmosphere as far north as the 55th parallel, but inhospitable and barren beyond this boundary; 3. The great central valley of the Mississippi, rich and well wooded on the east side, bare but not unfertile in the middle, dry, sandy, and almost a desert on the west; 4. The eastern declivities of the Alleghany Mountains, a region of natural forests, and of mixed but rather poor soil; 5. The great northern plain beyond the 50th parallel, four-fifths of which is a bleak and bare waste, overspread with innumerable lakes, and resembling Siberia both in the physical character of its surface and the rigor of its climate.

We should extend this article to an unreasonable length were we to describe in detail the discoveries and settlements made by the several nations of Europe in America. We shall therefore confine ourselves to a very brief chronological notice of the more important events.

1495. The first place in which the Spaniards established their power was the large island of Hayti or Hispaniola, which was inhabited by a numerous race of Indians, of a mild and gentle character, a third part of whom are said to have perished within two or three years after the Spaniards conquered them. — 1497. John Cabot, in the service of Henry VII. of England, discovered Newfoundland, and coasted along the shores of North America to Florida.—1500. Cabral, a Portuguese, visited the coast of Brazil, and discovered the mouth of the Amazon. It was probably colonized before 1515, as the first cargo of wood was sent from it to Portugal in that year.—1508. Vincent Pinzon is said to have entered the Rio de le Plata. It was in the same year that the Spaniards, finding the aborigines too weak for the labor of the mines in Hayti, first imported negroes from Guinea, and thus laid the foundation of a traffic which continues to this day to disgrace the civilization of Europe. — 1511. Diego Columbus conquered the island of Cuba with 300 soldiers, of whom he did not lose one.—1513. Balboa crossed the isthmus of Darien with 290 men, and discovered the South Sea.—1519. Hernando Cortes sailed from Cuba with 11 ships and 550 men, and landed on the coast of Mexico, which had been discovered in the previous year. The conquest of the empire was finished in 1521 by 950 Spaniards, assisted by a vast number of the Indians of Tlascala.—1531. Peru invaded by Pizarro, and conquered in little more than one year, with a force of 1000 men.—1534. James Cartier, a Frenchman, discovers the Gulf of St. Lawrence.—1535. Mendoza, a Spaniard, with 2000 followers, founds Buenos Ayres, and conquers all the country, as far as Potosi, at which silver mines were discovered nine years after. —1537. Cortes discovers California.—1541. Chili conquered; Santiago founded; Orellana sails down the Amazon to the Atlantic from the sources of the Rio Napo.—1578. New Albion, on the northwest coast of America, discovered by Sir Francis Drake.—1586. The Spaniards found St. Thomas's Island, in Guiana. — 1587. Davis's Straits and Cumberland Islands discovered by John Davis.—1604. De Monts, a Frenchman, founded the first settlement in Nova Scotia, then called Acadie.—1607. After many ineffectual attempts during more than twenty years, the first permanent settlement of the English in North America was made this year, on the banks of James's River, in Virginia.—1608. Quebec founded by the French, who had had a small neglected colony in Canada since 1542.—1611. Newfoundland colonized by the English; a Dutch colony established at Hudson's River. New York was founded in 1614.—1618. Baffin penetrates to the 78th degree of latitude, in the bay which bears his name.—1620. The first English colony established in New England, at Plymouth. It was in this year that the first negroes were imported into Virginia. They were brought by a Dutch vessel.—1635. A French colony established in Guiana.—1655. Jamaica conquered by the English.—1664. The Dutch colonies on Hudson's River capitulate to the English.—1666. The Buccaneers begin their depredations on the Spanish colonies.—1682. William Penn establishes a colony in Pennsylvania. La Salle takes possession of Louisiana in the name of the French king.—1698. A colony of 1200 Scots planted at Darien, and ruined in the following year, in consequence of the miserable jealousy of the English.—1733. Georgia colonized by the English.—1760. Canada, and all the other French settlements in North America, conquered by the English.

The following table, given by Humboldt, exhibits the average produce of all the gold and silver mines in the New World about 1803:

	Pure Gold.	Pure Silver.	Value of both.
	Marks.	Marks.	Dollars.
Mexico	7,000	2,338,220	23,000,000
Peru	3,400	611,090	6,240,000
Chili	12,212	29,700	2,060,000
La Plata	2,200	481,830	4,850,000
Colombia (New Granada)	20,505		2,990,000
Brazil	29,900		4,360,000
	75,217	3,460,840	43,500,000
In English money			£8,700,000

The Spanish mark, in which the quantity is expressed in the first two columns, is valued at 145·82 dollars in gold, and at 9·4 dollars in silver. This branch of industry has been injured more deeply than any other during the late wars. The great exertions required to maintain the mines free of water, the amount of capital necessary to keep them working, and the facility with which violent hands could be laid upon their produce, all rendered these establishments extremely liable to suffer from domestic convulsions. Mr. Ward computes that in the 15 years between 1810 and 1825, the annual produce of the Mexican mines did not exceed 10,000,000 of dollars, or about *two-fifths* of their average annual produce during the 15 years preceding. In Brazil, the washings have probably experienced no interruption. Humboldt computes the whole produce of the American mines from 1492 to 1803 to be 5,706,000,000 dollars, or £1,255,000,000, of which only 4½ per cent. was retained in America, and 5,445,000,000 dollars (£1,197,900,000), or 95½ per cent. was remitted to Europe.

The project of joining the Atlantic and Pacific Oceans by a canal carried across the narrow part of the American continent, has often excited the attention of statesmen and commercial men. This canal, if executed upon a scale sufficient to admit vessels of 300 or 400 tons, would have a powerful influence upon the fate of America. For all the purposes of commercial intercourse it would bring the east and west sides of the continent within one-third part of their present distance from one another, and would be of even more advantage to the New World than the discovery of the passage to India by the Cape has been to the Old. It has also been proposed to accomplish the same object by a boat canal, or by a railroad, and four different routes have been recommended. A digest of the surveys and explorations connected with these, and an estimate of their comparative merits, has been published in the *Journal of the Geographical Society* (vol. xx. 1851), by Captain Fitzroy, R.N. From this our materials are derived.

1. The Isthmus of Tehuantepec, at 94½° west longitude. The distance from sea to sea in a straight line is 140 English miles, the surface has few great inequalities, and the lowest summit level is about 700 feet above the sea. The climate is said to be rather better than at the parts of the isthmus farther eastward, and there is a settled population, though not very numerous, from whom labor might be obtained. On the other hand, there is no port at either end of the line, the rivers are small, and barred at their mouths by sand-banks, and the length of the route, as well as the elevation of its summit level, would render the execution of a railroad or a canal too expensive to permit the hope of even a moderate remuneration for the outlay. The project, however, has found warm support in the United States, as it would render available by far the shortest maritime route to California. A survey has been made, and a cession of the necessary quantity of land has, we believe, been obtained.

2. The Nicaragua route, at 11° of north latitude. The first portion of this is the River San Juan, which flows from the Lake of Nicaragua, and, after a course of 80 miles, falls into the Caribbean Sea. It is of considerable depth, but is obstructed by rapids, and the port at its mouth, now called Greytown, is only capable of receiving small vessels. The lake is 90 or 100 miles long, 30 or 40 broad, and 125 feet above mean tide level at Greytown. Its depth varies from 2 fathoms to 40, but much of it has never been sounded, and recent surveys show shallows at both ends. From this lake to the Pacific six different routes have been traced, and some of them surveyed. One through the Lake Managua (which is 28 feet higher than Nicaragua Lake), westward to the Bay of Fonseca, would require 90 or 100 miles of canal, and the whole length of inland navigation from Greytown would exceed 300 miles; another route from the same lake to Realejo is 40 miles shorter; and a third to Tamarinda a good deal shorter still, but both the latter want good ports at their termini on the Pacific. A fourth route goes direct from the southwest side of Nicaragua Lake to San Juan del Sur; it is only 10 to 12 miles in length, but requires a tunnel (for ships) 1 or 2 miles long, and the port at its mouth is very small. A fifth runs from the same lake a little farther east to the Bay of Salinas, a distance of 15 miles, half of which is by the River Sapoa, and now navigable for boats; and the summit level is only 130 feet above the lake, and twice as much above the Pacific. It is believed there would be a sufficient supply of water from the stream, and the canal would further have the advantage of a good port. Captain Fitzroy seems to think this one of the most promising lines, but it has not yet been carefully surveyed. Of the sixth proposed route, running from the east end of the lake to the Gulf of Nicoya, neither the precise length nor the nature of the intervening country is known. Of the whole district Captain Fitzroy says, that though insufficiently explored, "enough is known to discourage any attempt to construct either canal or railway, unless the Sapoa track (the fifth) should prove to be as eligible as Dr. Oersted believes. Even then there will be the disadvantages of so inferior a harbor as that of Greytown, and the difficulties of the river, which must be cleansed from its numerous obstructions, though renewed annually by floods." He considers the climate pestilential, particularly in the low grounds on both sides of the river, which holds its course amidst forests, swamps, and mud banks. Mr. Squier, however, in his work on Nicaragua, thinks the climate comparatively good. In reference to a canal there is a physical evil not to be overlooked, namely, the volcanic eruptions which shake the soil, and might disturb the levels; and there is a moral one still more serious, arising from the fre-

quent insurrections and political revolutions, which makes property insecure, and may render engagements with the government mere waste paper. The latter evil applies to the whole isthmus, but more especially to this district, touching as it does the territories of three States (Nicaragua, Costa Rica, and Mosquito) which are often at war with one another.

3. The Panama line, at 79° and 80° of west longitude. The extreme narrowness of the isthmus here called attention to it as an eligible point for establishing a communication between the two seas, before any other locality was thought of. Numerous explorations have been made; four routes have been pretty carefully surveyed—those of Loyd, Morel, Garella, and Hughes; and along the last of these a railway has been in operation since February, 1855. It commences on the Atlantic at Limon or Navy Bay, from which the direct distance to Panama, according to Captain Fitzroy, is (33 geographical) 38½ English miles. It passes by Gorgona, and is carried 42 miles over elevations of nearly 300 feet, through a tunnel, and over large viaducts and bridges, terminating a little westward of Panama. The port of Chagres is unfit for large ships. Limon Bay, which is large, and has a good depth of water, is exposed to strong north winds. A breakwater, to protect it from these, has been proposed, but is impracticable on account of the vast sum it would cost. But Captain Fitzroy thinks that a large wet dock or basin might be excavated between Manzanilla Island and the main land, at the terminus of the railroad, and might serve as the first step toward an artificial harbor, to which Limon Bay would be accessory as a useful roadstead. "On the opposite coast, near Panama, a spacious and tolerably sheltered anchorage, with access to works carried out into the sea, may be found in the bay, but not very near the city." A ship canal here, whether at the elevation of the railroad (300 feet), or at the lower level proposed by Garella, of 150 feet, would require works on a gigantic scale; for his plan includes a tunnel *for ships*, 125 feet in interior height, 97 feet wide, and nearly three miles long, with about 33 locks. Without some better security than can now be obtained, it is not probable that any private company will risk the capital necessary for the execution of such works. Morel, in his survey, professes to have found a valley or tract of low ground between the Trinidad, a branch of the Chagres, and the Caymito, which falls into the Pacific 10 miles west of Panama, of which low ground the summit level is only 40 feet above the sea. This, unluckily, is contradicted by other authorities; but if such a low summit level exist, a channel navigable by the largest ships might possibly be made from sea to sea without a lock. The portion of the railroad now in progress is the southern half, extending from Panama to Gorgona, and was expected to be finished in 1853. On the north side, the River Chagres is made use of as far as navigable.

4. The Atrato and Cupica line commences on the Atlantic side in the Gulf of Darien, at 77° of west longitude. It has not been surveyed, but the nature and form of the ground are well known, and its suitableness for a canal was pointed out by Humboldt 40 years ago. The route extends from the inner part of the Gulf of Darien up the River Atrato, thence westward along its branch, the Naipi, and through a low tract of ground to the River Cupica, which falls into the Pacific. The whole length of the proposed line is estimated at 114 miles. For two-thirds of this distance, or 76 miles, the rivers are said to be navigable by ships, for 19 miles more by loaded boats, and it is supposed that a canal might be cut through the remaining 19 miles without any extraordinary difficulty. The proprietor of an estate on the Naipi told Mr. Watts, the British vice-consul at Carthagena, that he was in the habit of crossing to the Bay of Cupica, and the rise between the bay and the river was gradual.—E. B.

A company with a large capital was formed in England, within a few years, for the purpose of constructing a ship canal over the Isthmus; but according to the recent Report by Lieutenant Strain, of the U.S. Navy (1855), the work is almost impracticable. He represents the summit level between the oceans to be one thousand instead of one hundred and fifty feet. An English expedition started from the Pacific side in December, 1853, and returned after a few days' investigation of the route before suggested, and found it unfavorable for any canal near the proposed route. A few years will perhaps develop a more extended series of observations in this quarter.

Amethyst (Germ. *Amethyst*; Fr. *Amethyste*; It. *Amatista*; Sp. *Ametisto*; Lat. *Amethystus*), a precious stone, of which there are two species differing widely in quality and value. The *Oriental amethyst* is a gem of the most perfect violet color, and of extraordinary brilliancy and beauty. It is said to be as hard as the sapphire or ruby, with which it also corresponds in its form and specific gravity (*see* SAPPHIRE), differing in color merely. It has been met with in India, Persia, Siam, and other countries; but it is exceedingly scarce. That found in India is said by Pliny to be the best. —*Principatum amethysti Indicæ tenent*, Nat. Hist. lib. xxxvii. cap. 9. Mr. Mawe says he had rarely seen an Oriental amethyst offered for sale, unless small and inferior in color. Mr. Hope, the author of *Anastasius*, had in his cabinet the finest gem of this sort in Europe. This exquisite specimen exceeds an inch in its greatest diameter; in daylight it exhibits the most beautiful violet color, while by candlelight it is a decided blue. The *Occidental amethyst* is merely colored crystal or quartz. "When perfect, its color resembles that of the violet, or purple grape; but it not unfrequently happens that the tinge is confined to one part of the stone only, while the other is left almost colorless. When it possesses a richness, clearness, and uniformity of hue, it is considered a gem of exquisite beauty; and as it occurs of considerable size, it is suited to all ornamental purposes. In specific gravity and hardness it bears no comparison with the Oriental amethyst; it is also inferior in beauty and lustre; though I have often seen the common amethyst offered for sale as Oriental. Brazil, Siberia, and Ceylon produce very fine amethysts: they are found in rolled pieces in the alluvial soil, and finely crystallized in fissures of rock. From the first of these localities, they have lately been imported in such quantities as considerably to diminish their value; but as they are the only colored stones, except garnets, that are worn with mourning, they still retain, when perfect, a distinguished rank among the precious gems. The present price of inferior light-colored stones, in the rough state, is about 20*s.* per pound, while those of good quality sell at 10*s.* or 12*s.* per ounce. Amethysts calculated for brooches or seals may be purchased at from 15*s.* to two or three guineas each, for which, ten years ago, treble that sum would have been given."—MAWE *on Diamonds*, 2d. ed.

Amianthus, **Asbestos**, or **Mountain Flax**, a mineral of which there are several varieties, all more or less fibrous, flexile, and elastic. It is inconsumable by a high degree of heat; and in antiquity the art was discovered of drawing the fibres into threads, and then weaving them into cloth. Pliny says that he had seen napkins made of this substance, which, when soiled, were thrown into the fire, and that they were better cleaned by this means than they could have been by washing! Hence it obtained from the Greeks the name of Αμιαντος (undefiled). Its principal use, as stated by Pliny, was to wrap the bodies of the dead previously to their being exposed on the funeral pile, that the ashes of the corpse might not be mixed with those of the wood. And in corroboration of this statement we may mention, that in 1702, a skull, some calcined bones, and a quantity of ashes, were found at Rome, in a cloth of amianthus nine Roman palms in length by seven in width. Its employment in this way was, however, confined to a few of the very richest families, incombustible cloth being very scarce, and bringing an enormously high price. *Rarum inventu, difficile textu propter brevitatem. Cùm inventum est, æquat pretia excellentium margaritarum.*—PLIN., *Hist. Nat.* lib. xix. cap. 1. The disuse of the practice of cremation, or of burning the dead, caused the manufacture of amianthine cloth to be neglected. Several moderns have, however, succeeded in making it; but if it be not lost, the art is now rarely practiced.—For further particulars, *see* REES's *Cyclopedia.*

Ammoniac, Sal. *See* ALKALIES.

Ammoniacum (Fr. *Gomme Ammoniaque;* It. *Gomma Ammoniaco;* Sp. *Goma Ammoniaco;* Lat. *Ammoniacum;* Arab. *Feshook*), a concrete resinous juice obtained from a plant resembling fennel, found in the north of Africa, Arabia, Persia, the East Indies, etc. Pliny says that it derived its name from its being produced in the vicinity of the temple of Jupiter Ammon, in Africa.—*Hist. Nat.* lib. xii. cap. 23. It has a faint but not ungrateful smell; and a bitter, nauseous, sweet taste. The fragments are yellow on the outside and white within, brittle, and break with a vitreous fracture; their specific gravity is 1·207. The best ammoniacum is brought from Persia by Bombay and Calcutta, packed in cases and chests. It is in large masses, composed of small round fragments or tears; or in separate dry tears, which is generally considered a sign of its goodness. The tears should be white internally and externally, and free from seeds or other foreign substances. Reject that which is soft, dark-colored, and foul. It is used principally in the materia medica, and the quantity imported is but small.—REES's *Cyclopedia;* THOMSON's *Dispensatory.*

Ammunition, a general name for all warlike provisions, but more particularly powder, ball, etc.—E. B.

Amoy, a commercial city and sea-port of China, province of Fo-kien, on an island of the same name in a bay of the China Sea, opposite Formosa, and 320 miles E.N.E. of Canton. Lat. 24° 10′ N.; long. 118° 13′ E. Population, 250,000. The city is separated from the suburbs or outer town by a line of rocky hills, commanded by a citadel on a height, and fortified with numerous works constructed during the late war. The town is not handsome nor clean, but has many roomy public buildings, well-supplied shops, and good private houses. Harbor excellent; ships can lie close to the quays, or in a deep and sheltered creek. There is a considerable trade, especially with Formosa; manufactures of porcelain, grass cloths, umbrellas, paper, etc., which, with sugar-candy and Congou tea, compose its principal exports. Imports comprise rice, sugar, camphor, and European produce. Amoy, then the great military depôt of the province, was taken on the 26th August, 1841, by the English, who held the fortified island of Kolungsoo, commanding the entrance to the harbor, until the final payment of the sum of six million dollars exacted from the Chinese government by the treaty of Nankin.

Amplitude, in *Astronomy,* an arch of the horizon intercepted between the east or west point and the centre of the sun or a planet at its rising or setting; and which therefore is said to be either north and south, or *ortive* and *occasive.*

Magnetical Amplitude, the different rising or setting of the sun from the east or west points of the compass. It is found by observing the sun, at his rising and setting, by an amplitude compass.—E.B.

Amsterdam, the principal city of Holland, situated on the Y, an arm of the Zuyder Zee, in lat. 52° 22′ 17″ N., long. 4° 53′ 15″ E. From 1580 to 1750, Amsterdam was, perhaps, the first commercial city of Europe; and though her trade has experienced a great falling off since the last-mentioned epoch, it is still very considerable. In 1785 the population is said to have amounted to 235,000; in 1815 it had declined to 180,179; but its increase in the interval has been such, that it amounted in 1840 to 210,077. The harbor is spacious and the water deep; and it has recently been much improved by the construction of docks, two of which are already completed, and a third in a very advanced state. Owing, however, to a bank (the Pampus) where the Y joins the Zuyder Zee, large vessels going or coming by that sea are obliged to load and unload a part of their cargoes in the roads. The navigation of the Zuyder Zee is also, by reason of its numerous shallows, very intricate and difficult; and as there were no hopes of remedying this defect, it became necessary to resort to other means for improving the access to the port. Of the various plans suggested for this purpose, the preference was given to the scheme for cutting a canal capable of admitting the largest class of merchantmen, from the north side of the port of Amsterdam to Newdiep, opposite to the Texel, and a little to the east of the Helder. This canal has fully answered the views of the projectors, and has proved of signal service to Amsterdam, by enabling large ships to avoid the Pampus, as well as the difficult navigation of the Zuyder Zee, where they were frequently detained for three weeks, and to get to and from Newdiep without any sort of risk in less than twenty-four hours. The canal was begun in 1819, and completed in 1825. It has five sluices large enough to admit ships of the line; the dues and charges on account of towing, etc., being at the same time very moderate. At Newdiep the water is deeper than in any other port on the coast of Holland, and ships are there in the most favorable position for getting expeditiously to sea.—*See* CANALS. The imports principally consist of sugar, coffee, spices, tobacco, cotton, tea, indigo, cochineal, wine and brandy, wool, grain of all sorts, timber, pitch and tar, hemp and flax, iron, hides, linen, cotton and woolen stuffs, hardware, rock salt, tin plates, coal, dried fish, etc. The exports consist partly of the produce of Holland, partly and principally of the produce of her possessions in the East and West Indies, and other tropical countries, and partly of commodities brought to Amsterdam, as to a convenient *entrepôt* from different parts of Europe. Of the first class are cheese and butter (very important articles), madder, clover, rape, hemp, and linseeds, rape and linseed oils, Dutch linen, etc. Geneva is principally exported from Schiedam and Rotterdam; oak bark and cattle principally from the latter. Of the second class are spices, coffee, and sugar, principally from Java, but partly also from Surinam, Brazil, and Cuba; indigo, cochineal, cotton, tea, tobacco, and all sorts of Eastern and colonial products. And of the third class, all kinds of grain, linens from Germany, timber, and all sorts of Baltic produce; Spanish, German, and English wools; French, Rhenish, and Hungarian wines, brandy, etc. The trade of Amsterdam may, indeed, be said to comprise every article that enters into the commerce of Europe. Her merchants were formerly the most extensive dealers in bills of exchange, and though London be now, in this respect, far superior to Amsterdam, the latter still enjoys a respectable share of this business.

The Bank of the Netherlands was established at Amsterdam in 1814. It is not, like the old Bank of Amsterdam, which ceased in 1796, merely a bank of deposits, but a bank of deposit and circulation formed on the model of the Bank of England. Its capital, which originally amounted to 5,000,000 florins, was doubled in 1819. It has the exclusive privilege of issuing notes. Its original charter, which was limited to twenty-five years, was prolonged in 1838 for twenty-five years more. About 300 or 350 large ships belong to Amsterdam; they are employed in the East and West India trades, and in trading to the Baltic, the Mediterranean, etc. There is comparatively little coasting trade at Amsterdam, the communication with most other ports in the vicinity being principally kept up by canals, and that with Friesland by regular packets. The total imports into Holland in 1851 were estimated at 303,993,224 florins, and the exports at 242,744,806. The United Kingdom, the German Customs Union, Belgium, Java, France, and Russia, are the countries with which she carries on the most extensive trade.

Dutch Commercial Policy.—The policy of Holland, civil, religious, and commercial, has long been of the most liberal and enlightened description (see *post*); and she was the first country to follow the example set in repealing the Navigation Laws in 1849. The Dutch law on this subject was passed in 1850. Previously to that period discriminating duties were imposed on most articles imported on foreign bottoms, and also on those imported by foreigners into Java and her other colonies. But these preferences no longer exist. The following is an extract from the law relative to these matters: Differential duties are abolished on the vessels of those States which "*a.* Place the Dutch flag on the same footing with their national flag trading to and from their own ports (coasting trade and fisheries excepted); *b.* Which place the Dutch flag on the same footing with their national flag trading to and from their colonies, if they possess any; and, *c.* Which do not levy other differential duties to the disadvantage of the produce of the Netherland colonies, or to the prejudice of produce imported from other parts of the world, from Netherland ports, than those which are levied in favor of the produce of their own colonies, when imported direct."

The fisheries and the coasting trade of Holland and of her colonies is reserved to Dutch ships. But it is no longer necessary that the latter should be of Dutch build. Foreign built ships have, however, to pay, on being registered, an *ad valorem* duty of 4 per cent. over and above the fee charged on the registration of Dutch-built ships. Several important reductions were at the same time made in the tariff of import duties. The navigation dues or tolls that were formerly charged on vessels or goods passing through Holland by the Rhine and the Yssel, and transit duties of all kinds, have also been repealed. And though it may be said, and truly, that these wise and liberal measures will be much more advantageous to the Dutch than to any other people, still they are of the greatest importance to all commercial nations, and especially to those who have an extensive intercourse with them. We are glad to have to state that this liberal policy has in Holland, as in England, had its appropriate reward. Commerce has been largely extended. The mercantile marine is in a highly prosperous state, and is daily receiving large additions. Many Dutch ships have latterly been chartered by English merchants.

The importations into the United States from Holland, in the year 1852–3, were, free of duty, $115,227; dutiable, $1,509,943; total, $1,625,170; in American vessels, $462,641; foreign, $1,162,529. Total value of imports for the same year from the Dutch East Indies, $384,583; Dutch West Indies, $409,185.

The exports of domestic produce for the same year were, in American vessels, $872,780; in foreign vessels, $1,110,943; total, $1,983,723. To the Dutch East Indies, $202,822; to the Dutch West Indies, $251,258.

COMPARATIVE TABLE OF EXPORTS OF DOMESTIC PRODUCE TO HOLLAND, FOR THE FISCAL YEARS ENDING JUNE 30, 1853, 1854.

Years.	Exports.			Imports.
	American Vessels.	Foreign Vessels	Total.	
1853	462,641	1,162.529	1,625,170	1,983.723
1854	1.409.195	890.515	2.299.710	1.695.970

In 1852 Great Britain imported from Holland 221,559 quarters of wheat, oats, and other grain, but she frequently supplies more considerable quantities. She also sends large quantities of butter and cheese (226,671 cwt. of the former, and 266,857 ditto of the latter in 1850), with, in 1851, 56,461 head of cattle and 165,365 sheep; her other exports are bark for tanning, flax and hemp, clover-seed, madder, geneva, nutmegs, etc. England also takes considerable quantities of Dutch sugar and coffee. The greater portion, however, of the trade between the United Kingdom and Holland is carried on with Rotterdam, which is much more conveniently situated for such intercourse than Amsterdam. But the latter continues to engross by far the larger share of the commerce with the flourishing colony of Java and the other Dutch possessions in the East; and is, consequently, the principal continental mart for Eastern produce.

The warehousing system has been long established in Amsterdam; and all goods, whether for home consumption or transit, may be deposited in bonded warehouses. Speaking generally, goods can only be kept in bonded warehouses for two years; but grain of all kinds may be kept for an unlimited period. The warehouse rent chargeable per month on a quarter of wheat is, on an upper loft, 1*d.* and 2-5ths; on an under loft 1½*d.* On a ton (Engl.) of sugar in casks the charge is 8*d.*; in bags, 6*d.*

The dock and its adjacent warehouses, belonging to the *Entrepôt General*, or establishment for warehousing goods imported by sea, or intended to be re-exported by sea or by the Rhine, are large and commodious. The dock has water to float the largest ships, and the dues and other charges are exceedingly moderate. Merchants may employ their own men or those of the dock in loading or unloading; and may either place their property in separate vaults or floors of which they keep the key, or intrust it to the care of the dock officers.

Dutch Trading Company.—A large proportion of the foreign trade of Holland was for a considerable period engrossed by the large trading company called the *Nederlandsche Handelmaatschappy*, created in 1824. Its capital, which consisted originally of 37 million florins, was reduced in 1824 to 24 million florins; but as the company borrowed 10 million florins in 1835, and 13 millions more in 1837, its capital consists of 47 million florins. At first it extended its operation to America and the West Indies, as well as to the East Indies. But it has latterly very much contracted the scale of its operations; and having lent 40 millions of its capital to government, it is now merely the agent employed by the latter to bring home and sell that part of the produce of Java which, under the new colonial system, belongs to the State, and to carry on the trade with Japan, which, however, is of little or no value. The company has no ships of its own, but charters those of private individuals. Its charges on importation are limited to certain fixed rates. The business of insurance is extensively practiced at Amsterdam; the premiums are moderate, and the security unexceptionable. The high duty formerly imposed in other countries on policies of insurance contributed to the increase of this business in Holland.

Credit, Discount, etc.—Holland is, and has always been, a country of short credits. A discount is usually given for prompt payment, at the rate of 1 per cent. for six weeks, and 2 per cent. for two months; but the terms of credit on most articles and the discount allowed for ready money, have been fixed by usage, and are regarded as essential conditions in every bargain. In consequence of the preference given in Holland to ready money transactions, it is not a country in which adventurers without capital have much chance of speedily making a fortune. "Rien, en effet, de plus facile que de s'établir à Amsterdam; mais *rien de plus difficile de s'y soutenir sans des grandes ressources.* Dans cette ville, où l'argent abonde, où on le prête contre des sûretés à si bon marché, *il est presque impossible de s'en procurer à crédit*; et sans argent il n'y a plus de possibilité d'y travailler, que de trouver quelqu'un qui veuille de se charger d'un papier nouveau qui ne seroit pas appuyé d'un crédit que l'opinion, la protection, ou des effets réels feroient valoir à la bourse. Les Hollandois suivent là-dessus des maximes très austeres,

même à l'égard des maisons d'une certain considération."—*Encyclopédie Méthodique*, *Commerce*, t. ii. p. 650. But this *austerity* is not a disadvantage, but the reverse. It prevents commerce from degenerating, as it has too often done in other places, into gambling adventures, and places it on a comparatively solid foundation. And it should be mentioned to the honor of the Dutch, and as a proof of the excellence of this system, that notwithstanding the distress and loss of trade occasioned by the invasion and occupation of their country by the French, the bankruptcies in 1795 and subsequent years were not, comparatively, so numerous as in England in ordinary seasons! The regulations in the Code Napoléon as to bankruptcy are enforced in Holland.

It has long been the practice in Holland to make, on selling articles, considerable deductions from their weight, particularly from those of large bulk, as compared with their value. These tares and drafts, as they are termed, are now fixed by ancient usage.

Magnitude of the Commerce of Holland in the Seventeenth Century.—Causes of its Prosperity and Decline.—We believe we need make no apology for embracing this opportunity to lay before our readers the following details with respect to the commerce and commercial policy of Holland. It forms one of the most instructive topics of investigation; and it is to be regretted that so little attention should have been paid to it in this country. Previously to the commencement of the long-continued and glorious struggle made by the Dutch to emancipate themselves from the blind and brutal despotism of Old Spain, they had a considerable marine, and had attained to distinction by their fisheries and commerce; and the war, instead of being injurious to the trade of the republic, contributed powerfully to its extension. After the capture of Antwerp by the Spaniards, in 1585, the extensive commerce of which it had been the centre was removed to the ports of Holland, and principally to Amsterdam, which then attained to the distinction she long enjoyed, of the first commercial city of Europe.

In 1602 the Dutch East India Company was formed; and, notwithstanding the pernicious influence of that association, the Indian trade increased rapidly in magnitude and importance. Ships fitted either for commercial or warlike purposes, and having a considerable number of soldiers on board, were sent out within a few years of the establishment of the company. Amboyna and the Moluccas were first wrested from the Portuguese, and with them the Dutch obtained the monopoly of the spice trade. Factories and fortifications were in no long time established, from Bussorah, near the mouth of the Tigris, in the Persian Gulf, along the coasts and islands of India as far as Japan. Alliances were formed with several of the Indian princes; and in many parts, particularly on the coasts of Ceylon, and in various districts of Malabar and Coromandel, they were themselves the sovereigns. Batavia, in the large and fertile island of Java, the greater part of which had been conquered by the Dutch, formed the centre of their Indian commerce; and though unhealthy, its port was excellent, and it was admirably situated for commanding the trade of the Eastern Archipelago. In 1651 they planted a colony at the Cape of Good Hope, which had been strangely neglected by the Portuguese.

Every branch of commerce was vigorously prosecuted by the Dutch. Their trade with the Baltic was, however, by far the most extensive and lucrative of which they were in possession. Guicciardini mentions that the trade with Poland, Denmark, Prussia, etc., even before their revolt, was so very great, that fleets of 300 ships arrived twice a year at Amsterdam from Dantzic and Livonia only; but it increased prodigiously during the latter part of the sixteenth and the beginning of the seventeenth centuries. The great population of Holland, and the limited extent and unfruitful nature of the soil, render the inhabitants dependent on foreigners for the greater part of their supplies of corn. The countries round the Baltic have always furnished them with the principal part of those supplies; and it is from them that they have been in the habit of bringing timber, iron, hemp and flax, pitch and tar, tallow, ashes, and other bulky articles required in the building of their houses and ships, and in various manufactures. Nothing, however, redounds so much to the credit of the Dutch as the policy they have invariably followed with respect to the trade in corn. They have at all times had a large capital embarked in this business. The variations which are perpetually occurring in the harvests early led them to engage very extensively in a sort of speculative corn trade. When the crops happened to be unusually productive, and prices low, they bought and stored up large quantities of grain, in the expectation of profiting by the advance that was sure to take place on the occurrence of an unfavorable year. Repeated efforts were made, in periods when prices were rising, to prevail on the government to prohibit exportation; but they steadily refused to interfere. In consequence of this enlightened policy, Holland has long been the most important European *entrepôt* for corn; and her markets have on all occasions been furnished with the most abundant supplies. Those scarcities which are so very disastrous in countries without commerce, or where the trade in corn is subjected to fetters and restraints, have not only been totally unknown in Holland, but became a copious source of wealth to her merchants, who then obtained a ready and advantageous vent for the supplies accumulated in their warehouses. "Amsterdam," says Sir Walter Raleigh, "is never without 700,000 quarters of corn, none of it of the growth of Holland; and a dearth of only one year in any other part of Europe enriches Holland for seven years. In the course of a year and a half, during a scarcity in England, there were carried away from the ports of Southampton, Bristol, and Exeter alone nearly £200,000; and if London and the rest of England be included, there must have been £2,000,000 more."—*Observations touching Trade and Commerce with the Hollander*, Miscel. Works, vol. ii. The very well informed author of the *Richesse de la Hollande*, published in 1778, observes, in allusion to these circumstances, "Que la disette de grains regne dans les quatre parties du monde; vous trouverez du froment, du seigle, et d'autres grains à Amsterdam; *ils n'y manquent jamais.*"

The Bank of Amsterdam was founded in 1609. The principal object of this establishment was to obviate the inconvenience and uncertainty arising from the circulation of the coins imported into Amsterdam from all parts of the world. The merchants who carried coin or bullion to the bank obtained credit for an equal value in its books: this was called bank-money; and all considerable payments were effected by writing it off from the account of one individual to that of another. The establishment continued to flourish till the invasion of the French in 1795. Between the years 1651 and 1672, when the territories of the republic were invaded by the French, the commerce of Holland seems to have reached its greatest height. De Witt estimates its increase from the treaty with Spain, concluded at Munster in 1643, to 1669, at fully a half. He adds, that during the war with Holland, Spain lost the greater part of her naval power; that since the peace, the Dutch had obtained most of the trade to that country, which had been previously carried on by the Hanseatic merchants and the English; that almost all the coasting trade of Spain was carried on by Dutch shipping; that Spain had even been forced to hire Dutch ships to sail to her American possessions; and that so great was the exportation of goods from Holland to Spain, that all the merchandise brought from the Spanish West Indies was not sufficient to make returns for them.

At this period, indeed, the Dutch engrossed, not by means of any artificial monopoly, but by the greater number of their ships, and their superior skill and economy in all that regarded navigation, almost the whole carrying trade of Europe. The value of the goods exported from France in Dutch bottoms, toward the middle of the fourteenth century, exceeded 40,000,000 livres; and the commerce of England with the Low Countries was, for a very long period, almost entirely carried on in them.

The business of marine insurance was largely and successfully prosecuted at Amsterdam; and the ordinances published in 1551, 1563, and 1570, contain the most judicious regulations for the settlement of such disputes as might arise in conducting this difficult but highly useful business. It is singular, however, notwithstanding the sagacity of the Dutch, and their desire to strengthen industrious habits, that they should have prohibited insurance upon lives. It was reserved for England to show the advantages that might be derived from this beautiful application of the science of probabilities.

In 1690, Sir William Petty estimated the shipping of Europe at about 2,000,000 tons, which he supposed to be distributed as follows: viz., England, 500,000; France, 100,000; Hamburg, Denmark, Sweden, and Dantzic, 250,000; Spain, Portugal, and Italy, 250,000; that of the Seven United Provinces amounting, according to him, to 900,000 tons, or to nearly one half of the whole tonnage of Europe! No great dependance can, of course, be placed upon these estimates; but the probability is, that, had they been more accurate, the preponderance in favor of Holland would have been greater than it appears to be; for the official returns to the circulars addressed in 1701 by the commissioners of customs to the officers at the different ports show that the whole mercantile navy of England amounted at that period to only 261,222 tons, carrying 27,196 men.—MACPHERSON's *Annals of Commerce, anno* 1701. It may, therefore, be fairly concluded that during the seventeenth century the foreign commerce and navigation of Holland was greater than that of all Europe besides; and yet the country which was the seat of this vast commerce had no native produce to export, nor even a piece of timber fit for ship-building. All had been the fruit of industry, economy, and a fortunate combination of circumstances. Holland owed this vast commerce to a variety of causes: partly to her peculiar situation, the industry and economy of her inhabitants, the comparatively liberal and enlightened system of civil as well as of commercial policy adopted by the republic; and partly also to the wars and disturbances that prevailed in most European countries in the sixteenth and seventeenth centuries, and prevented them from emulating the successful career of the Dutch.

The ascendency of Holland as a commercial state began to decline from about the commencement of last century. After the war terminated by the treaty of Aix-la-Chapelle, the attention of the government of Holland was forcibly attracted to the state of the shipping and foreign commerce of the republic. The discovery of means by which their decline might be arrested, and the trade of the republic, if possible, restored to its ancient flourishing condition, became a prominent object in the speculations of every one who felt interested in the public welfare. In order to procure the most correct information on the subject, the stadtholder, William IV., addressed the following queries to all the most extensive and intelligent merchants, desiring them to favor him with their answers: "1. What is the actual state of trade? And if the same should be found to be diminished and fallen to decay, then, 2. To inquire by what methods the same may be supported and advanced, or, if possible, restored to its former lustre, repute, and dignity." In discussing these questions, the merchants were obliged to enter into an examination, as well of the causes which had raised the commerce of Holland to the high pitch of prosperity to which it had once attained, as of those which had occasioned its subsequent decline. It is stated that, though not of the same opinion upon all points, they, speaking generally, concurred as to those that were most important. When their answers had been obtained and compared with each other, the stadtholder had a dissertation prepared from them, and other authentic sources, on the commerce of the republic, to which proposals were subjoined for its amendment. Some of the principles advanced in this dissertation apply to the case of Holland only; but most of them are of universal application, and are not more comprehensive than sound. We doubt, indeed, whether the benefits resulting from religious toleration, political liberty, the security of property, and the freedom of industry, have ever been more clearly set forth than in this dissertation. It begins by an enumeration of the causes which contributed to advance the commerce of the republic to its former unexampled prosperity: these the authors divide into three classes, embracing under the first those that were natural and physical; under the second, those they denominated moral; and under the third, those which they considered adventitious and external.

The central situation of the country, its command of some of the principal inlets to the Continent, and the necessity under which the inhabitants have been placed, in consequence of the barrenness of the soil and its liability to be overflowed, to exert all their industry and enterprise, are circumstances that seem to be in a great degree peculiar in Holland. But though there can be no doubt that their influence has been very considerable, no one will pretend to say that it is to be compared for a moment with the influence of those free institutions which, fortunately, are not the exclusive attributes of any particular country, but have flourished in Phœnicia, Greece, England, and America, as well as in Holland.

Many dissertations have been written to account for the decline of the commerce of Holland. But, if we mistake not, its leading causes may be classed under two prominent heads; viz., first, the natural growth of commerce and navigation in other countries; and, second, the weight of taxation at home. During the period when the republic rose to great eminence as a commercial State, England, France, and Spain, distracted by civil and religious dissensions, or engrossed wholly by schemes of foreign conquest, were unable to apply their energies to the cultivation of commerce, or to withstand the competition of so industrious a people as the Dutch. They, therefore, were under the necessity of allowing the greater part of their foreign, and even of their coasting trade, to be carried on in Dutch bottoms, and under the superintendence of Dutch factors. But after the accession of Louis XIV. and the ascendency of Cromwell had put an end to internal commotions in France and England, the energies of these two great nations began to be directed to pursuits of which the Dutch had hitherto enjoyed almost a monopoly. It was not to be supposed that when tranquillity and a regular system of government had been established in France and England, their active and enterprising inhabitants would submit to see one of their most valuable branches of industry in the hands of the foreigners. The Dutch ceased to be the carriers of Europe, without any fault of their own. Their performance of that function necessarily terminated as soon as other nations became possessed of a mercantile marine, and were able to do for themselves what had previously been done for them by their neighbors.

Whatever, therefore, might have been the condition of Holland in other respects, the natural advance of rival nations must inevitably have stripped her of a large portion of the commerce she once possessed. But the progress of decline seems to have been considerably accelerated, or rather, perhaps, the efforts to arrest it were rendered ineffectual, by the extremely heavy taxation to which she was subjected, occasioned by the unavoidable expenses incurred in the revolutionary struggle with Spain, and the subsequent wars with France and England. The necessities of the State led to the imposition of taxes on corn, on flour when it was ground at the mill, and on bread when it came from the oven; on butter, and fish, and fruit; on income and legacies; the sale of houses; and, in short, almost every article of either necessity or convenience. Sir William Temple mentions that in his time—and taxes were greatly increased afterward—one fish sauce was in common use, which directly paid no fewer than *thirty* different duties of excise; and it was a common saying at Amsterdam, that every dish of fish brought to table was paid for *once* to the fishermen, and *six* times to the State.

The pernicious influence of this heavy taxation has been ably set forth by the author of the *Richesse de la Hollande*, and other well-informed writers; and it has also been very forcibly pointed out in the Dissertation already referred to, drawn up from the communications of the Dutch merchants. "Oppressive taxes," it is there stated, "must be placed at the head of all the causes that have co-operated to the prejudice and discouragement of trade; and it may be justly said, that it can only be attributed to them that the trade of this country has been diverted out of its channel, and transferred to our neighbors, and must daily be still more and more alienated and shut out from us, unless the progress thereof be stopped by some quick and effectual remedy; nor is it difficult to see, from these contemplations on the state of our trade, that the same will be effected by no other means than a *diminution of all duties.* In former times this was reckoned the only trading state in Europe; and foreigners were content to pay the taxes, as well on the goods they brought hither as on those they came here to buy, without examining whether they could evade or save them, by fetching the goods from the places where they were produced, and carrying others to the places where they were consumed: in short, they paid us our taxes with pleasure, without any further inquiry.' But, since the last century, the system of trade is altered all over Europe: foreign nations, seeing the wonderful effect of our trade, and to what an eminence we had risen only by means thereof, they did likewise apply themselves to it; and, to save our duties, sent their superfluous products beside our country, to the places where they are most consumed; and in return for the same, furnished themselves from the first hands with what they wanted." But, notwithstanding this authoritative exposition of the pernicious effects resulting from the excess of taxation, the necessary expenses of the State were so great as to render it impossible to make any sufficient reductions. And, with the exception of the transit trade carried on through the Rhine and the Meuse, which is in a great measure independent of foreign competition, and the American trade, most of the other branches of the foreign trade of Holland, though still very considerable, continue in a comparatively depressed state.

In consequence principally of the oppressiveness of taxation, but partly, too, of the excessive accumulation of capital that had taken place while the Dutch engrossed the carrying trade of Europe, profits in Holland were reduced toward the middle of the seventeenth century, and have ever since continued extremely low. This circumstance would of itself have sapped the foundations of her commercial greatness. Her capitalists, who could hardly expect to clear more than two or three per cent. of net profit by any sort of undertaking carried on at home, were tempted to vest their capital in other countries, and to speculate in loans to foreign governments. There are the best reasons for thinking that the Dutch were, until very lately, the largest creditors of any nation in Europe. It is impossible, indeed, to form any accurate estimate of what the sums owing them by foreigners previously to the late French war, or at present, may amount to; but there can be no doubt that at the former period the amount was immense, and that it is still very considerable. M. Demeunier (*Dictionnaire de l'Economie Politique*, tom. iii. p. 720) states the amount of capital lent by the Dutch to foreign governments, exclusive of the large sums lent to France during the American war, at *seventy-three* millions sterling. According to the author of the *Richesse de la Hollande* (ii. p. 292), the sums lent to France and England only, previously to 1778, amounted to 1,500,000 livres tournois, or sixty millions sterling. And besides these, vast sums were lent to private individuals in foreign countries, both regularly as loans at interest and in the shape of goods advanced at long credits. So great was the difficulty of finding an advantageous investment for money in Holland, that Sir William Temple mentions that the payment of any part of the national debt was looked upon by the creditors as an evil of the first magnitude. "They receive it," says he, "with tears, not knowing how to dispose of it at interest with such safety and ease."

Among the subordinate causes which contributed to the decline of Dutch commerce, or which have, at all events, prevented its growth, we may reckon the circumstance of the commerce with India having been subjected to the trammels of monopoly. De Witt expresses his firm conviction that the abolition of the East India Company would have added very greatly to the trade with the East; and no doubt can now remain in the mind of any one that such would have been the case. The interference of the administration in regulating the mode in which some of the most important branches of industry should be carried on, seems also to have been exceedingly injurious. Every proceeding with respect to the herring fishery, for example, was regulated by the orders of government, carried into effect under the inspection of officers appointed for that purpose. Some of these regulations were exceedingly vexatious. The period when the fishery might begin was fixed at five minutes past twelve o'clock of the night of the 24th of June! and the master and pilot of every vessel leaving Holland for the fishery were obliged to make oath that they would respect the regulation. The species of salt to be made use of in curing different sorts of herrings was also fixed by law; and there were endless regulations with respect to the size of the barrels, the number and thickness of the staves of which they were to be made; the gutting and packing of the herrings; the branding of the barrels, etc., etc.—*Histoire des Pêches, etc., dans les Mers du Nord*, tom. i. chap. 24. These regulations were intended to secure to the Hollanders that superiority which they had early attained in the fishery, and to prevent the reputation of their herrings from being injured by the bad faith of individuals. But their real effect was precisely the reverse of this. By tying up the fishers to a system of routine, they prevented them from making any improvements; while the facility of counterfeiting the public marks opened a much wider door to fraud than would have been opened had government wisely declined interfering in the matter.

In despite, however, of the East India monopoly, and the regulations now described, the commercial policy of Holland has been more liberal than that of any other nation. And in consequence, a country not more extensive than Wales, and naturally not more fertile, conquered, indeed, in a great measure from the sea, has accumulated a population of upward of two millions; has maintained wars of unexampled duration with the most powerful monarchies; and, besides laying out immense sums in works of utility and ornament at home, has been enabled to lend hundreds of millions to foreigners.

During the occupation of Holland by the French, first as a dependent State, and subsequently as an integral part of the French empire, her foreign trade was almost entirely destroyed. Her colonies were successively conquered by England; and, in addition to the loss of her trade, she was burdened with fresh taxes. But such was the vast accumulated wealth of the Dutch, their prudence, and energy, that the influence of these adverse circumstances was far less injurious than could have been imagined; and, notwithstanding all the losses she had sustained, and the long interruption of her commercial pursuits, Holland continued, at her emancipation from the yoke of the French in 1814, to be the richest country in Europe! Java, the Moluccas, and most of her other colonies were then restored, and she is now in the enjoyment of a large foreign trade. Her connection with Belgium was an unfortunate one for both countries. The union was not agreeable to either party, and was injurious to Holland. Belgium was an agricultural and manufacturing country; and was inclined, in imitation of the French, to lay restrictions on the importation of most sorts of raw and manufactured produce. A policy of this sort was directly opposed to the interests and the ancient practice of the Dutch. But though their deputies prevented the restrictive system from being carried to the extent proposed by the Belgians, they were unable to prevent it from being carried to an extent that materially affected the trade of Holland. Whatever, therefore, may be the consequences as to Belgium, there can be little doubt that the separation of the two divisions of the kingdom of the Netherlands will redound to the advantage of Holland. It must ever be for the interest of England, America, and all trading nations, to maintain the independence of a State by whose means their productions find a ready access to the great continental markets. It is to be hoped that the Dutch, profiting by past experience, will adopt such a liberal and conciliatory system toward the natives of Java as may enable them to avail themselves to the full of the various resources of that noble island. And if they do this, and freely open their ports, with as few restrictions as possible, to the ships and commodities of all countries, Holland may still be the centre of a very extensive commerce, and may continue to preserve a respectable place among mercantile nations. Even at this moment, after all the vicissitudes they have undergone, the Dutch are, beyond all question, the most opulent and industrious of European nations. And their present no less than their former state shows that a free system of government, security, and the absence of restrictions on industry, can overcome almost every obstacle; "can convert the standing pool and lake into fat meadows, cover the barren rock with verdure, and make the desert smile with flowers."

Amulets, or **Charms**. All nations have been fond of amulets. The Egyptians had a great variety; so had the Jews, Chaldeans, and Persians. Among the Greeks, they were much used in exciting or conquering the passion of love. They were also in estimation among the Romans.—PLINY. OVID. Among the Christians of early ages, amulets were made of the wood of the true cross, about A.D. 328. They have been sanctioned by religion and astrology, and even in modern times by medical and other sciences; witness the anodyne necklace, etc. The pope and Catholic clergy make and sell amulets and charms even to this day.—ASHE. HAYDN.

Anam, or **An-nam**, an empire of Southeastern Asia; between lat. 10° and 23° N., and long. 102° and 109° E.; comprising Cochin-China, Tonquin, and a part of Camboja. Surface generally fertile, and climate healthy. The coasts are bold, and include some of the best harbors in the world. Products, rice, sugar, cinnamon, pepper, and other spices; indigo, dye-woods, an inferior tea, ivory, and the precious metals. These articles form the principal exports. Imports are manufactured silks, porcelain, fine teas, and drugs from China, opium from India, cottons from Canton and Singapore, woolens and fire-arms from Europe. The navy is large; and the people have a maritime taste, excelling most Asiatics in ship-building.—HARPER'S *Gazetteer*.

Anchor, in *Navigation*, from the Greek *ἄγκυρα*, which Vossius thinks is from *ὄγκη*, a *crook* or *hook*, an instrument of iron or other heavy material used for holding ships in any situation in which they may be required to lie, and preventing them from drifting by the winds or tides, by the currents of rivers, or any other cause. This is done by the anchor, after it is let down from the ship by means of the cable, fixing itself into the ground, and there holding the vessel fast. The anchor is thus obviously an implement of the first importance in navigation, and one on which too much attention can not be bestowed in its manufacture and proper construction, seeing that on it depends entirely the safety of the vessel in storms. The invention of so necessary an instrument remounts, as may be supposed, to the remotest antiquity. The most ancient anchors consisted merely of large stones, baskets full of stones, sacks filled with sand, or logs of wood loaded with lead. Of this kind were the anchors of the ancient Greeks, which, according to Apollonius Rhodius and Stephen of Byzantium, were formed of stone; and Athenæus states that they were sometimes made of wood. These sorts of anchors retained the vessel merely by their inertia, and by the friction along the bottom. Iron was afterward introduced for the construction of anchors, and also the grand improvement of forming them with teeth or flukes to fasten themselves into the bottom; whence the words *ὀδόντες* and *dentes* are frequently taken for anchors in the Greek and Latin poets. The invention of the teeth is ascribed by Pliny to the Tuscans; but Pausanias gives the merit to Midas, king of Phrygia. Originally there was only one fluke or tooth, whence anchors were called *ἑτερόστομοι*; but shortly afterward the second was added, according to Pliny, by Eupalamus, or, according to Strabo, by Anacharsis, the Scythian philosopher. The anchors with two teeth were called *ἀμφίβολοι* or *ἀμφίστομοι*, and from ancient monuments appear to have been much the same with those used in our days, except that the stock is wanting in them all. Every ship had several anchors, the largest of which, corresponding to our bower or sheet anchor, was never used but in extreme danger, and was hence peculiarly termed *ἱερά* or *sacra;* whence the proverb *sacram anchoram solvere*, as flying to the last refuge.

Weight.—Anchors are now universally made of wrought iron, excepting in Spain and some parts of the South Sea, where they are made of copper. One essential quality in every anchor is a sufficient weight and angle of arm and fluke to fix itself in the bottom; and this has been determined by practice for different anchors, and for vessels of different sizes. Large vessels have several anchors of different sizes, which are stowed in different parts of the vessel. These are distinguished by different names; viz., the *best bower* to the starboard; and the *small bower* to the port cathead, with the flukes on the bill-board; the *sheet-anchor* on the after part of the fore-channels, on the starboard side; and the *spare-anchor* on the port side. The above anchors are of the same size and weight. The two latter are only let go in cases of danger, when the vessel is riding in a heavy gale. In men-of-war they are always kept ready for letting go. The *stream-anchor* is of a much smaller size than the above, used only for riding in rivers or moderate streams. It is not generally above one-fourth or one-fifth of the weight of the others. Lastly, the *kedge-anchor* is still smaller, being only about one-half of the stream-anchor, and is only used when kedging in a river. Ships of the large class carry four large and three small anchors, and the smallest class, as brigs, cutters, and schooners, three or four.

The weight of anchors for different vessels is allowed by the tonnage. A pretty near rule for the principal anchor of ordinary-sized vessels is to allow for the cwts. in the anchor one-twentieth of the tonnage. Thus a vessel of 400 tons would require her principal anchor to be 20 cwt., or according to the following tables:

MERCHANT VESSELS.		
Tonnage.	Cable Chain.	Weight of Anchor.
Tons.	In.	Cwt.
20	$\frac{9}{16}$	1
35	$\frac{11}{16}$	$1\frac{3}{4}$
50	$\frac{3}{4}$	$2\frac{3}{4}$
65	$\frac{13}{16}$	$3\frac{1}{2}$
70	—	$4\frac{1}{2}$
80	$\frac{7}{8}$	5
100	$\frac{15}{16}$	$5\frac{3}{4}$
130	1	7
160	1	8
190	$1\frac{1}{8}$	$9\frac{1}{2}$
220	$1\frac{1}{8}$	$10\frac{1}{2}$
250	$1\frac{3}{16}$	12
280	$1\frac{1}{4}$	14
320	—	$15\frac{1}{2}$
380	$1\frac{3}{8}$	$17\frac{1}{2}$
430	$1\frac{7}{16}$	20
480	$1\frac{1}{2}$	21
520	$1\frac{1}{2}$	25
720	$1\frac{11}{16}$	33

VESSELS OF WAR.			
Guns.	Tonnage.	Cable Chain.	Weight of Anchor.
	Tons.	In.	Cwt.
20	500	$1\frac{3}{8}$	25
24	700	$1\frac{1}{2}$	29
28	750	$1\frac{1}{2}$	33
32	920	$1\frac{5}{8}$	38
36	970	$1\frac{5}{8}$	41
38	1000	$1\frac{3}{4}$	44
40	1100	$1\frac{3}{4}$	47
44	1300	$1\frac{3}{4}$	50
50	1500	$1\frac{7}{8}$	61
64	1600	2	65
74	1900	2	72
80	2500	$2\frac{1}{8}$	85
90	2600	$2\frac{1}{4}$	92
100	2700	$2\frac{1}{4}$	94
120	3000	$2\frac{1}{4}$	99 to 100

Form and Dimensions.—Next to the weight, the form of the anchor, and the proportions of the different parts, are of great importance. The most general form, and that which has indeed been almost universally adopted all over the world, consists of the two hooked arms for penetrating and fixing themselves into the soil; the long bar or shank for attaching the cable; and the stock, which is attached to the extremity of the shank, and serves to direct one of the points downward into the soil. The weight of the anchor, then, causes the point to penetrate more or less according to the softness or hardness of the bottom; and the action of the vessel on the cable, instead of loosening the anchor, tends rather, by the hooked shape of the arms, to fix these deeper and firmer into the soil; so that the vessel is held quite fast, unless either the cable itself gives way, or any part of the anchor, or the anchor is dragged along owing to the looseness of the soil. The cable draws upward by the extremity, and turns the whole round the point of the fluke. The one end of the shank is made square, to receive and hold the stock steadily in its place without turning. To keep the stock also from shifting along the shank, there are raised on it from the solid iron, or welded on it, two square tenon-like projections, called nuts. The length of the square of the shank is about one-sixth of the whole length of the shaft, and the thickness about one-twentieth. From the end of this square the shank increases in thickness, tapering toward the extremity, where the arms are attached: in all this part it is either made wholly round, or with a flat on opposite sides, or polygonal. The end next the stock is called the *small round.* The other extremity, where the arms and the shank unite, is called the *crown,* and the point of the angle between the arms and the shank the *throat.* Here the thickness of the shank is from 1½ inch in small anchors, to 3 inches in large ones, greater than at the small round. A distance equal to that between the throat of one arm and its bill is marked on the shank from the place where it joins the arms, and is called the *trend.* Near the extremity of the square part of the shank is the hole for receiving the *shackle* for the cable, which is about half the thickness of the small round, and the diameter nearly equal to the length of the square. The shackle is lapped with cordage to prevent the cable from chafing. When hempen cables are used in the British service, one length of bower chain cable, called a *ganger*, is bent to the spare anchor, and the hempen cable united with Admiral Elliott's shackle.

The *arms* make an angle of about 56° with the shank. They are made either round or polygonal like the shank, about half their length. The remainder of the arm consists of three parts, the *blade*, the *palm*, and the *bill.* The blade is merely the continuation of the arm in a square form. The palm or fluke is a broad, flat, triangular plate, fixed on the inside of the blade, the use of which is, by exposing a broad surface, to take a firmer hold of the ground. The bill is the extremity of the arm, where it is tapered nearly to a point, for the purpose of penetrating more readily into the soil. In some cases the arm is made quite straight from the crown to the bill; in others, and particularly in small anchors, the interior half is made with the arch of a circle. The whole length of the arm is nearly half the length of the round part of the shank. It tapers slightly from the throat to the blade, where it is about the same thickness with the small round of the shank. The palm is about one-third of this in thickness, and the breadth of its base is nearly equal to its length.

The *stock* of the anchor is made of oak, consisting of two beams embracing the square, and firmly united by iron bolts and hoops. The length of the stock is rather greater than that of the shank, the thickness in the middle about one-twelfth of its length, and tapering to about the half of this at the extremities, the taper being all on the under surface next the arms, and the other quite straight. The taper is not quite regular. It commences at about half the breadth of the stock from the shank, and continues in one straight line to the extremity. The beams of the stock are hooped close together at the extremities, but gradually open toward the centre, that, in case of the wood shrinking, the hoops may be driven farther in. Of late years the stock has frequently been made of wrought iron, the same as the anchor; and this plan is now very generally followed in anchors up to sixty cwt. It has this advantage, that the stock can be at any time taken out and laid parallel with the anchor, which is very convenient for stowage. The iron stock consists merely of a long round bar, about half the diameter of the anchor at the square. Instead of embracing the anchor, like the wood, it goes through a hole in the square, which is swelled out to receive it. It has a shoulder in the middle, which rests against the square, and a key through a hole in the stock on the other side keeps it fast. When the stock is to be taken out of its place, the key is driven out: the stock then slides through the hole in the shank, and by means of a bend at its extremity, it is laid parallel with the shank.

The operation of the anchor is easily understood. Being let down by means of the cable, the weight of the arms throws them downward, and keeps the whole in a vertical position until it reaches the ground, where it lights upon the crown; and then falling over, the position of the stock at right angles to the arms, and its length and height, together with the weight of the cable, are sure to throw it with one of the arms pointed into the ground, if it does not take this situation of itself. This effect is aided by the anchor descending quickly—and hence it must be allowed to descend freely; for which purpose, in *throwing* or *casting* the anchor, the cable is arranged, one end being attached to the anchor and the cable bitted on deck, and the inner end removed below. Every thing being prepared, the lashing of the anchor is cast off, and the men stand ready to let go; and when this word is given by the person in command, the fastenings are all cast off, and the anchor, falling into the sea, descends with rapidity. When the anchor, again, is to be removed from its situation and drawn up into the vessel, the operation is termed *weighing;* which requires often a very heavy purchase, particularly at starting. This is obtained by means of the windlass or capstan, round which the cable is wound, and a number of hands applied to work it. With cables which are too large to be wound round a windlass, a smaller rope or chain is used, termed a messenger, which, being attached to the cable at different points, and wound round the capstan, serves to bring the cable forward. But since the introduction of chain cables this contrivance is not so much required.

When the anchor is brought above water, a tackle from the cat-head, called the cat, is hooked on to the shackle of the anchor, and hoisted up; the cat-head stopper is then passed, viz., one end of it is fastened round the cat-head, and the other is brought through the shackle of the anchor, then over the stopper-cleat, and is belayed round a timber head; the cat is then unhooked, and another tackle, called the fish, is hooked on just within the flukes, and the arms are hove up so as to lie upon the gunnel, or bill-board; the stock is then made vertical by hauling upon another tackle, called the stock-tackle, in which position the anchor is secured by the stock-lashing for sea. In the event of bad weather, and before commencing a long voyage, the cat-head stopper and shank painter is doubled.

Mooring Anchors are those which are fixed in certain situations in harbors or roadsteads, and to which any of the vessels frequenting the place may be secured. As these are no way limited as to weight like portable anchors, they often consist merely of a large block of stone, with an inner ring fixed in the middle of the upper side; or several such stones may be fastened together so as to act as one mass. Mooring anchors are also often made by choosing one of the largest anchors used for first-rate ships, weighing 80 cwt., and by bending one of the arms close down upon the shank, to prevent it catching hawsers when transporting ships, nets of fishermen, fouling, etc. These anchors are lowered down into the water with a very strong iron mooring chain fastened to the ring, to which the ships are fastened: they are usually made from such as are damaged in one of the flukes or arms. A new kind of mooring anchor, of cast iron, was described by Mr. Hemman, of Chatham, to the *Society for the Encouragement of Arts, etc.*, in 1809, for which he obtained a silver medal from the society.

Floating Anchor.—This is the name given to a sort of anchor which has often been proposed, but never reduced to practice, for preventing a vessel from drifting, in cases where the great depth of the sea precludes the use of the cable and ordinary anchor. The plan suggested by Dr. Franklin seems the most rational. This anchor consisted of two cross-bars, secured together in the middle, and having sail-cloth fastened to them in the shape of a parallelogram. To the centre of these bars the cable was attached, and, being thrown overboard, it was thought the resistance of so large a surface would at least check the rapidity of the ship's motion.

The following is Mr. Aylen's plan for anchoring in deep water out of soundings, to prevent vessels from drifting in a calm when in a tide-way, or if disabled: Hoist out immediately one of the boom boats, let go the kedge anchor, and veer out 40 or 50 fathoms over the bow, and stop it to the ring in the bow and stern of the boat, and then veer out from the ship from 70 to 80 fathoms.

Much attention has been paid of late to the improvement of the manufacture of anchors, and several specimens were sent by the makers to the Royal Exhibition in 1851. A committee, consisting of five ship-owners of London, Liverpool, and Glasgow, with five nominated by the Lords of the Admiralty, was appointed to test the relative merits of these. After trying, on the parade ground of Sheerness dock-yard, on the beach at Garrison point, at Blackstakes in the River Medway, and at the Nore, those that were submitted for competition, viz., Admiralty, Aylen's (a modified Admiralty), Honiball (or Porter's), Isaacs' (United States), Lenox's, Mitcheson's, Rodgers', and Trotman's (an improved Porter's), they reported in 1853 that, taking into consideration the results of all the trials to which the anchors had been subjected, they thought it best to record their opinions in the following tabulated forms:

TABLE SHOWING THE RELATIVE ORDER IN WHICH THE SEVERAL ANCHORS STAND WITH REGARD TO EACH OF THE PROPERTIES ESSENTIAL TO A GOOD ANCHOR; THE NAMES ARRANGED ALPHABETICALLY.

ANCHORS.	Strength computed from first crack.	Holding long and short scope.	Facility of stowing.	Quick holding.	Quick tripping.	Exemption from fouling.	Facility of sweeping.	Facility of transport in boats.	Fishing in a heavy seaway.	Canting.
Admiralty....	4	5	1	2	1	4	1	2	2	2
Aylen........	7	4	1	2	3	4	1	2	2	5
Honiball (or Porter's)..	2	2	3	4	2	1	4	3	5	3
Isaacs........	1	6	4	5	1	1	4	4	5	1
Lenox	6	3	2	1	2	3	2	1	3	2
Mitcheson....	Refused this trial.	1	3	1	3	2	3	2	4	4
Rodgers......	5	2	1	1	2	4	2	1	1	2
Trotman	3	1	3	3	4	1	4	3	5	5

TABLE SHOWING THE ESTIMATED NUMERICAL VALUES OF THE SEVERAL ANCHORS IN REGARD TO THE PROPERTIES CONSIDERED ESSENTIAL TO A GOOD ANCHOR.—[This Table only professes to show approximate values, and has no pretensions to mathematical accuracy or precision.]

ANCHORS.	Strength computed from the first crack.	Holding long and short scope.	Facility of stowing.	Quick holding.	Quick tripping.	Exemption from fouling.	Facility of sweeping.	Facility of transport in boats.	Fishing in a heavy seaway with present fish-hook.	Canting.	Total values.
Proportionate values of the Qualities................	15	80	10	15	5	10	5	5	10	5	160
Admiralty..................	2·07	6·42	1·82	2·01	·89	·65	·95	·65	1·98	·73	18·17
Aylen......................	1·89	9·10	1·82	2·01	·45	·65	·95	·65	1·98	·44	19·94
Honiball (Porter's)..........	2·33	10·69	·91	1·53	·67	1·85	·29	·52	·55	·60	19·94
Isaacs......................	2·63	5·	·45	·59	·89	1·85	·29	·26	·55	·81	13·32
Lenox......................	1·92	9·56	1·36	2·36	·67	1·11	·71	·87	1·32	·73	20·61
Mitcheson..................		14·10	·91	2·36	·45	1·39	·57	·65	·88	·52	21·83
Rodgers....................	1·94	10·69	1·82	2·36	·67	·64	·95	·87	2·19	·73	22·86
Trotman....................	2·22	14·44	·91	1·77	·31	1·85	·29	·52	·55	·44	23·30
Totals...............	15·00	80·00	10·00	14·99	5·00	9·99	5·00	4·99	10·00	5·00	159·97

The following is a recapitulation of the order in which the anchors were ranked by the committee, together with their relative percentage of inferiority or superiority to the Admiralty anchor, the value of which, as given in the foregoing table (18·17), was taken as the standard or unit:

Trotman	1·28 or 28 per cent.	Superior to Admiralty anchor.
Rodgers	1·26 or 26 do.	
Mitcheson	1·20 or 20 do.	
Lenox	1·13 or 13 do.	
Honiball	1·09 or 9 do.	
Aylen	1·09 or 9 do.	
Admiralty	1· the standard.	
Isaacs	·73 or 27 per cent. inferior to Admiralty.	

Supposing both the flukes, and about two feet of the shank and crown of the anchor is gone (invariably the place where all anchors break), the weight of the broken part would be about half the weight of the original, say

	Cwt.
Bower anchor for the Hastings class 74 cwt., half	37
Stream anchor and stock for the above ship	22
Kedge and stock for do.	11
	70

In making anchors in the Royal dock-yards of Great Britain, the different parts are forged by the steam-hammers. In the first place, large slabs or pieces are made about five feet long, and three of them put together, soundly welded, and drawn out of sufficient length for the shank; the arms and palms are forged nearly in the same way; the palms are welded on to the arms, and then the arms welded on to the shank, and the shackle is riveted on to the shank, the anchor then being complete.

The shank for an anchor is made larger at the lower end, where the arms are to be welded to it, and is of a square figure. A sort of rebate or scarf is here formed on each side of the square, in order that the arms may apply more properly for welding. This scarf is made in the original shape of the fagot, and finished by cutting away some of the metal with chisels while it is hot, and using sets or punches, properly formed, to make a square angle to the shoulder of the scarf. The upper end of the shank is likewise square; and the length between these square parts is worked either to an octagon or round, tapering regularly from the lower to the upper end. The hole to receive the ring of the anchor is pierced through the square part at the upper end, first by a small punch, and then larger ones are used till it is sufficiently enlarged. The punch is made of steel; and when it is observed to change color by the heat, it is struck on the opposite end to drive it out, and is instantly dipped in water to cool it, and another driven in. The projecting pieces or nuts, which are to keep the stock or wooden beam of the anchor, and its place on the shank, are next welded on. To do this the shank is heated, and at the same time a thick bar is heated in another forge: the end of this is laid across the shank, and the men hammer it down to weld it to the shank; then the piece is cut off by the chisel, and another piece welded on the opposite side.

While this process of forging the shank is going on, the smiths of another forge, placed as near as convenient to the former, are employed in making the arms, which are made from fagots in the same manner as the shank, but of less size and shorter, they are made taper, one end of each being smaller than the other; the larger ends are made square, and cut down with scarfs, to correspond with those at the lower end of the shank. The middle parts of the arms are rounded, and the outer extremities are cut away as much as the thickness of the flukes or palms, that the palms may be flush with the upper sides when they are welded on. The flukes are generally made at the iron-forges in the country, by the forge-hammer; but in some yards they are made by fagoting small bars, leaving a long one for a handle. The next business is to unite the arms to the end of the shank; and in doing this particular care is necessary, as the goodness of the anchor is entirely dependent upon its being effectually performed. In so large a weld, the outside is very liable to be welded, and make a good appearance, while the middle part is not united. To guard against this, both surfaces of the scarfs should be rather convex, that they may be certain to touch in the middle first. When the other arm is welded, the anchor is complete, except the ring, which is made from several small bars welded together and drawn out into a round rod, then bent to a circle, put through the hole in the shank, and its ends welded together. If the shank or other part is crooked, it is set right by heating it in the crooked part, and striking it over the anvil, or by the Hercules. After all this the whole is heated, but not to a white heat, and the anchor hammered in every part, to finish and make its surface even. This is done by lighter hammers, worked by both hands, but not swung over the head. This operation renders the surface of the metal hard and smooth; and if very effectually performed, the anchor will not rust materially by the action of the sea-water.

The iron from which anchors are made ought to be of the best quality: that kind of it which is called red short will not bear sufficient hammering to weld the bars; and cold short, from its brittleness, is not to be depended upon when the anchor is in use. A good anchor should be formed of the toughest iron that can be procured. The most extensive establishment for fabricating anchors, etc., in England, is that at Woolwich dock-yard, where the British Admiralty anchors are made. There the blowing apparatus, the working of the lift and tilt hammers, etc., is all done by a steam-engine of from fourteen to sixteen horse power.—E. B.

To steer the ship to her Anchor, is to steer the ship's head toward the place where the anchor lies when they are heaving in the cable, or lying in a strong tide-way, that the cable may thereby enter the hawse with less resistance, and the ship advance toward the anchor with greater facility. Ships often prevent collision by attention to the helm.

Anchorage, or Anchoring Ground. Good anchoring ground should neither be too hard nor too soft; for, in the first case, the anchor is apt not to take a sufficient hold, and in the other to drag. The best bottom is a stiff clay, and next to it a firm sand. In a rocky bottom the flukes of the anchor are sometimes torn away, and hempen cables are liable to chafe and be cut through. It is also essential to a good anchorage that the water be neither too deep nor too shallow. When too deep, the pull of the cable, being nearly perpendicular, is apt to jerk the anchor out of the ground; and when too shallow, the ship is exposed to the danger, when riding in a storm, of striking the bottom. Where a ship is in water that is land-locked, and out of the tide, the nature of the ground is of comparatively little importance.

Anchovy (Fr. *Anchois;* It. *Acciughe;* Lat. *Encrasicolus*), a small fish (*Clupea encrasicolus*, Linn.), common in the Mediterranean, resembling the sprat. Those brought from Gorgona, in the Tuscan Sea, are esteemed the best. They should be chosen small, fresh pickled, white outside and red within. Their backs should be round. The sardine, a fish which is flatter and larger than the anchovy, is frequently substituted for it. About 120,000 pounds are annually entered in Great Britain for home consumption.

Anderson, Adam, was born in Scotland in 1692. He was a clerk for forty years in the South Sea House in London, where he published a large work, entitled *Historical and Chronological Deduction of the Origin of Commerce, containing a History of the Great Commercial Interests of the British Empire*, etc., which is voluminous and heavy; but he seems to have anticipated, in some of his speculations, the opinions of later times. It was first published in 1762, in two vols. folio. A third edition appeared in 1797–9, in four vols. 4to, the last volume being an appendix and continuation by the editor, Mr. Walton. Anderson died in 1765.

Andes. The Andes form a mighty mountain chain running nearly parallel to the western coast of South America. The central ridge extends in an undivided chain from the Rio Atrato, at the Isthmus of Darien, in lat. 8° N., to the Cordilleras of Vilcaneto and Cuzco, in lat. 15° 50′ S., where it separates into western and eastern ridges that inclose the extensive and elevated valley of Desaguedero, and exhibit some stupendous peaks that almost rival the altitude of the Himalayas of the East. After running parallel to each other to lat. 19° 30′ S., they again coalesce, and constitute one central chain to the Straits of Magellan, in lat. 53°. The Andes of South America, then, have a range of about 4200 miles. The most western of the two longitudinal ridges runs parallel to the Pacific, and is called the *Cordillera* of the Coast; the eastern chain is generally termed the *Cordillera* of the Interior, and its northern prolongation *Cordillera Real.* The valley of Desaguedero extends from lat. 15° 5′ to lat. 19° 30′ S., with a varying breadth of 35 to 60 miles, presenting an area of 16,000 square geographical miles. It contains the celebrated Lake of Titicaca, the cradle of Peruvian civilization. It was on the shores of this lake that Manco Capac, the first Inca, was miraculously discovered by the Quichu, the ancestors of the Peruvians.

"The central Andes are rich beyond conception in all the metals, lead only excepted. One of the most curious ores in the bowels of those mountains is the *pacos*, a compound of clay, oxide of iron, and the muriate of silver with native silver. The mines of Mexico and Peru, so long the objects of envy and admiration, far from being yet exhausted, promise, under a liberal and improved system, to become more productive than ever. But nature has blended with those hidden treasures the active elements of destruction. The whole chain of the Andes is subject to the most terrible earthquakes. From Cotopaxi to the South Sea no fewer than forty volcanoes are constantly burning; some of them, especially the lower ones, ejecting lava, and others discharging the muriate of ammonia, scorified basalt, and porphyry, enormous quantities of water, and especially *moya*, or clay mixed with sulphur and carbonaceous matter. Eternal snow invests their sides, and forms a barrier to the animal and vegetable kingdoms. Near that confine the torpor of vegetation is marked by dreary wastes."—*Edinb. Review*, vol. xv. p. 233.

Anemometer and **Anemoscope,** machines for measuring the force and indicating the course of the wind.

Angelica, a large umbelliferous plant, with hollow jointed stalks, of which there are several varieties. It grows wild, and is cultivated in moist places near London, and in most European countries from Lapland to Spain. Its roots are thick, fleshy, and resinous; have a fragrant agreeable smell, and a bitterish pungent taste, mixed with a pleasant sweetness glowing on the lips and palate for a long time after they have been chewed. To preserve them, they must be thoroughly dried, and kept in a well-aired place. The other parts of the plant have the same taste and flavor as the roots, but in an inferior degree. The leaves and seeds do not retain their virtues when kept. The London confectioners make a sweetmeat of the tender stems. The faculty used to direct that none but the roots of Spanish angelica should be kept by the druggists. In Norway the roots are sometimes used as bread, and in Iceland the stalks are eaten with butter. The plant is used mostly in confectionery and the materia medica. —Lewis's *Mat. Med.*; Rees's *Cyclopedia, etc.*

Angels, in *Commerce.* An angel was an ancient gold coin, weighing four pennyweights, and was valued at 6*s.* 8*d.* in the reign of Henry VI., and at 10*s.* in the reign of Elizabeth, 1562. The angelot was an ancient gold coin, value half an angel, struck at Paris when that capital was in the hands of the English, in the reign of Henry VI., 1431.—Wood.

Anise Seed (Fr. *Anis;* It. *Anise;* Lat. *Anisum*), a small seed of an oblong shape. It is cultivated in Germany, but the best comes from Alicant, in Spain. It is also a product of China, whence it is exported. It should be chosen fresh, large, plump, newly dried, of a good smell, and a sweetish aromatic taste.

Anker, a liquid measure at Amsterdam. It contains about 10¼ gallons English wine measure.

Annals (*Annales*, from *annus*, a *year*), a term commonly applied to a concise and plain kind of narrative of historical facts digested in the order of time, each event being arranged under the particular year in which it happened. Although this style of composition does not necessarily exclude the casual observations of the writer, episodes or formal digressions are incompatible with the brevity characteristic of annals; while history, on the other hand, comprises not only the narrative and exposition of facts, but also the writer's observations on actions, motives, causes, and consequences in general; thus affording ample scope for illustration and embellishment. Annals may be said to constitute the essence of history, since they are the elements or materials of which it is composed.

Annealing, by the workmen called *nealing*, is a process used in glass-making, and in the manufacture of certain metals. In glass-making it consists in placing the bottles, etc., while hot, in a kind of oven or furnace, where they are suffered to cool gradually. They would otherwise be too brittle for use. The difference between unannealed and annealed glass, with respect to brittleness, is very remarkable. When an unannealed glass vessel is broken, it often flies into a small powder, with a violence seemingly very unproportioned to the stroke it has received. In general it is in greater danger of breaking from a very slight stroke than from one of some considerable force. One of these vessels will often resist the effects of a pistol-bullet dropped into it from the height of two or three feet; yet a grain of sand falling into it will make it burst into small fragments. This takes place sometimes immediately on dropping the sand into it; but often the vessel will stand for several minutes after, seemingly secure; and then, without any new injury, it will fly to pieces. If the vessel be very thin it does not break in this manner, but seems to possess all the properties of annealed glass.

The same phenomena are still more strikingly seen in glass drops or tears. They are globular at one end, and taper to a small tail at the other. They are the drops which fall from the melted mass of glass on the rods on which the bottles are made. They drop into the tubs of water which are used in the work; the greater part of them burst immediately in the water. When those that remain entire are examined, they discover all the properties of unannealed glass in the highest degree. They will bear a smart stroke on the thick end without breaking; but if the small tail be broken, they shiver into small powder with a loud explosion. They appear to burst with more violence, and the powder is smaller in an exhausted receiver than in the open air. When they are annealed they lose these properties.

Glass is one of those bodies which increase in bulk when passing from a fluid into a solid state. When it is allowed to crystallize regularly, the particles are so arranged that it has a fibrous texture. It is elastic, and susceptible of long-continued vibrations; but when a mass of melted glass is suddenly exposed to the cold, the surface crystallizes, and forms a solid shell round the interior fluid parts. This prevents them from expanding when they become solid. They therefore have not the opportunity of a regular crystallization, but are compressed together with little mutual cohesion. On the contrary, they press outward to occupy more space, but are prevented by the external crust. In consequence of the effort of expansion in the internal parts, the greater number of glass drops burst in cooling; and those which remain entire are not regularly crystallized. A smart stroke upon them communicates a vibration to the whole mass, which is nearly synchronous in every part; and therefore the effort of expansion has little more effect than if the body were at rest; but the small tail and the surface only are regularly crystallized. If the tail be broken, this communicates a vibration along the crystallized surface without reaching the internal parts. By this they are allowed some expansion; and overcoming the cohesion of the thin outer shell, they burst it, and are dispersed in powder.

In an unannealed glass vessel the same thing takes place. Sometimes the vibration may continue for a considerable time before the internal parts overcome the resistance. If the vessel be very thin, the regular crystallization extends through the whole thickness; or at least the quantity of compressed matter in the middle is so inconsiderable as to be incapable of bursting the external plate.

By the process of annealing the glass is kept for some time in a state approaching to fluidity; the heat increases the bulk of the crystallized part, and renders it so soft, that the internal parts have the opportunity of expanding and forming a regular crystallization.

Iron.—In the manufactures in which the malleable metals are employed, annealing is used to soften a metal after it has been rendered hard by the hammer; and also to soften cast iron, which is rendered very hard and brittle by rapid cooling.

In the manufacture of steel goods, which are first formed by the hammer, and require to be filed or otherwise treated, and in which softness and flexibility are essential to the change, annealing is absolutely necessary. This is particularly the case in making files and scissors, that the metal may be left sufficiently soft for cutting the teeth, and for filing off those parts which can not be ground. Annealing is not less necessary in the drawing of wire, whether iron, copper, brass, silver, or gold. The operation of drawing soon gives the wire a degree of hardness and elasticity which, if not removed from time to time by annealing, would prevent the extension of the wire, and render it extremely brittle. The same operation is also necessary in rolling or flattening those metals which are in a cold state, such as brass, silver, gold, etc. The brazier who forms vessels of copper and brass by the hammer, can work upon it only for a little time before he is obliged to anneal it.

The methods often employed for annealing iron and steel are very injudicious, and materially injure the latter when it is used for making cutting instruments. After they have been formed by the hammer, they are sometimes piled up in an *open* fire, slowly raised to red heat, and then allowed as gradually to cool. By this method the surface of the steel will be found considerably scaled, from the action of the oxygen of the atmosphere. When it is remembered that steel consists of iron joined to carbon, it will be evident that the steel immediately under the scaly oxide will be deprived of its carbon, which has been carried off by the attraction of the oxygen; and, in consequence, will lose the property of acquiring that degree of hardness necessary to a cutting instrument.

Nothing, therefore, can be more obvious than that steel particularly should be annealed in close vessels, to prevent that effect. For this purpose the goods should be placed in a trough or recess made of fire-stone or fire-brick, and stratified with ashes or clean sand, and finally covered with a thick stratum of the same; but if the size of the vessel be small, it may have a cover of its own materials. This oven or trough must now be heated by the flame of a furnace passing under and round it, till the whole is of a red heat. It must then be suffered to cool, without letting in the air. The goods so treated will be much softer than by the other method. The surface, instead of becoming scaled, will have acquired a metallic whiteness, from the presence of a small quantity of carbonaceous matter contained in the ashes in which they were imbedded. They will become so flexible also, as to allow them to bend considerably without breaking, which is very far from being the case before the operation. The fracture, before annealing, will be smooth and short; but afterward it will be rough, exhibiting bright parts, of a crystalline appearance. Wire, especially that of iron and steel, should be treated in a similar way when it is annealed. The wire used for some purposes requires to be soft, and is sold in that state. If the wire, after finishing, when it is bright and clean, were to be annealed in contact with oxygen, it would not only lose all its lustre and smoothness, but much of its tenacity. The process above mentioned will therefore be particularly necessary in annealing finished wire, as well as in softening it from time to time during the drawing.

Copper and brass suffer much less than iron and steel from annealing in the open air, and do not require to be heated above a low red heat. If, however, the lustre is to be preserved, a close vessel would be desirable. The latter metals, after annealing, although much discolored by the oxygen of the atmosphere, may be cleansed by immersion in a hot liquor composed of water and a small quantity of sulphuric or nitric acid. Very small brass or copper wire is frequently annealed by exposing it to the flame of hay or straw. In casting minute pieces of pig-iron, which is generally done in damp sand, the metal possesses the property of steel to such a degree as to assume, by the rapid cooling, a degree of hardness equal to hardened steel; at the same time that the articles are so brittle as to break by falling on the ground. When, however, these goods are treated in the way above directed, they acquire a degree of softness which renders them penetrable by the file, and at the same time capable of bending. In this state they are much less tenacious than steel, but still so much so as to have been sold in the form of cutlery for steel.

The change which metals undergo by annealing is not yet thoroughly understood. Most of the malleable metals are susceptible of two distinct forms, one called the crystalline form, which they assume by slow cooling; and the other the fibrous, which is acquired by hammering or rolling. When this, however, is carried beyond a certain point, the metal becomes so hard that it is not capable of being bent far without breaking. All the malleable metals in the ingot or in their cast state are brittle, and exhibit a crystalline fracture. By hammering or rolling they become more tenacious, and break with difficulty, exhibiting what is called a fibrous fracture. At the same time they become stiffer and more elastic. They lose the latter properties by annealing, but become more malleable. If the annealing, however, be long continued, the malleability diminishes, and they again have a crystalline fracture. Zinc by wire-drawing becomes very flexible, and possesses a degree of tenacity not inferior to that of copper; but if it be kept in boiling water for a length of time, it will resume its original brittleness, and show a crystalline appearance when broken. This proves that the particles of metals can change their arrangement without losing their solid form; which is still more strongly confirmed by the fact that brass wire loses its tenacity by exposure to the fumes of acids, and even by the presence of a damp atmosphere. This is not caused by the moisture, but by the action of air upon the moistened surface. The manufacturers of common pins are obliged to keep their wire in a dry atmosphere, or immersed in water. If the wire be first moistened, and then exposed to the air, it will assume the brittle state much sooner. In this condition it breaks with a crystalline fracture, similar to that exhibited by an ingot. When a steel-plate, such as a watch-spring, has been once tempered, the operation of simply rubbing it bright will render it soft and elastic. The same change is brought about by slightly hammering it. It, however, resumes its elastic state by being carefully heated till it becomes of a blue color. If the heat be continued to redness, particularly in a close vessel, it becomes perfectly annealed.—E. B.

Annotto, or **Arnotto** (Fr. *Rocou;* Ger. *Orlean;* It. *Oriana*), a species of red dye formed of the pulp enveloping the seeds of the *Bixa Orellana*, a plant common in South America, and the East and West Indies; but dye is made, at least to any extent, only in the first. It is prepared by macerating the pods in boiling water, extracting the seeds, and leaving the pulp to subside; the fluid being subsequently drawn off, the residuum, with which oil is sometimes mixed up, is placed in shallow vessels and gradually dried in the shade. It is of two sorts, viz. *flag* or *cake*, and *roll* annotto. The first, which is by far the most important article in a commercial point of view, is furnished almost wholly by Cayenne. It is imported in square cakes, weighing 2 or 3 pounds each, wrapped in banana leaves. When well made, it should be of a bright yellow color, soft to the touch, and of a good consistence. It imparts a deep but not durable orange color to silk and cotton, and is used for that purpose by the dyers. Roll annotto is principally brought from Brazil. The rolls are small, not exceeding 2 or 3 ounces in weight; it is hard, dry, and compact, brownish on the outside, and of a beautiful red color within. The latter is the best of all ingredients for the coloring of cheese and butter, and is now exclusively used for that purpose in all the British and in some of the Continental dairies. In Gloucestershire it is the practice to allow an ounce of annotto to a cwt. of cheese; in Cheshire, 8 dwts. are reckoned sufficient for a cheese of 60 pounds. When genuine, it neither affects the taste nor the smell of cheese or butter. The Spanish Americans mix annotto with their chocolate, to which it gives a beautiful tint.—GRAY'S *Supplement to the Pharmacopœias;* LOUDON'S *Encyc. of Agriculture*, and private information.

Annuities. An annuity is a periodical income arising from pensions, lands, houses, or money lent. When the possession of an annuity is not to be entered upon until the expiration of a certain period, it is called a *reversionary*, or *deferred* annuity; when the time of possession is not deferred, the annuity is sometimes called *immediate*, but in general it is simply termed an annuity.

Annuities or Pensions were first granted in 1512, when £20 were given to a lady of the court for services done; and £6 13*s.* 4*d.* for the maintenance of a gentleman, 1536. The sum of £13 6*s.* 8*d.* was deemed competent to support a gentleman in the study of the law, 1554. An act was passed empowering the government to borrow one million sterling upon an annuity of fourteen per cent., 4 and 6 William and Mary, 1691–3. This mode of borrowing soon afterward became general among civilized governments. An annuity of £1 per annum, accumulating at ten per cent., compound interest, amounts in one hundred years to £137,796.—HAYDN.

The doctrine of compound interest and annuities-certain is too simple ever to have occupied much of the attention of mathematicians: inquiries into the values of interests dependent upon the continuance or the failure of human life, being more interesting and difficult, have occupied them more, but yet not so much as their importance would seem to demand; the discoveries both in pure Mathematics and Physics, especially those of Newton, which distinguished the close of the seventeenth century, having provided them with ample employment of a more interesting kind, ever since the subjects of this article were submitted to calculation.

When annuities are dependent upon the existence of a life or lives they are called *Life Annuities.* The values of such annuities are calculated by means of tables of mortality, which show, out of a considerable number of individuals born, how many on an average have lived to complete each year of their age, and consequently the *expectation* of life for each particular age: this, combined with a certain rate of per cent., will reduce the calculations, if made upon a sufficiently large scale, to mathematical certainty (see articles *Tables of Mortality, Interest, and Life Insurance*).

In the year 1808 the British government commenced granting life annuities at prices calculated according to the Northampton Tables of Mortality, and continued so to grant them for 20 years, at a great loss to the nation, especially on younger lives, as was shown at the time by a distinguished writer (Joshua Milne, Esq). None were granted then, however, on lives under 35 years of age. After the year 1816 annuities were granted to all persons of ages above 21 years.

In March, 1819, Mr. Finlaison was appointed government actuary, with proper assistants and access to the registers of the nominees in tontines, and others on whose lives annuities had been granted by government for more than a hundred years before; in which registers the exact ages at which the annuitants were nominated, and at which they died, were stated. Upon these data Mr. Finlaison made a table of mortality more valuable than any thing of the same kind which had yet been published, according to which the British government grant annuities at the present time.

By Mr. Finlaison's table it was found that the lives of annuitants were generally *better* (longer) than the general average of the population, as insured lives generally belong to the better classes. This subject will be more fully treated in *Tables of Mortality, Interest, and Life Insurance.*

Calculations are made, and annuities granted by the British government and by Life Insurance Companies, both in Europe and this country, upon all combinations of lives, such as joint lives, survivorships of two or more lives, etc., etc., affording a perfectly safe and reliable investment, and in the case of a Mutual Life Office, one of very great advantage to the annuitant.

The doctrine of annuities, with its kindred science of Life Insurance, is so abstruse that few writers are found willing to devote their time and attention to it unless actuated by professional motives or an unusual taste for the subject; fortunately, however, its treatment is marked by uniform and eminent talent and ability, so that nearly all the works upon this subject contain something new and valuable. The standard authors are, David Jones, Jenkins Jones, Milne, Morgan, Lubbock, Samuel Brown, G. Davies Babbage, and Dr. Price.

The lives on which annuities depend will generally be somewhat better (by which we here mean, will attain to greater longevity) than the general average of the population, though probably not nearly so much better as many believe them to be. The prevailing error in the popular estimate on this subject appears to have arisen in great measure from comparing the mortality among annuitants and assured lives, with that represented to take place by tables of mortality erroneously considered to correspond with the general average of the people; while, from being constructed on erroneous principles, and from insufficient *data*, or else being derived from observations made where the mortality was and is much greater than in Britain, the mortality, according to these tables, was considerably greater than that which actually prevails among the bulk of the people here. Proofs of this will be found under the article *Law of Mortality.*

The tables on the following page show the cost of an annuity of $100, and the amount of annuity which a deposit of $1000 will purchase according to the life table of the Mutual Life Insurance Company of New York. The rates charged by that company are found in the columns marked five per cent.

Annuity produced by a deposit of One Thousand Dollars at the Age stated.

Age.	Four and a half per Cent.	Five per Cent.	Six per Cent.
	$ Cts.	$ Cts.	$ Cts.
10	56 00	60 50	69 70
11	56 30	60 80	69 90
12	56 60	61 10	70 20
13	56 90	61 40	70 50
14	57 30	61 70	70 80
15	57 60	62 00	71 20
16	58 00	62 40	71 50
17	58 30	62 80	71 80
18	58 70	63 10	72 20
19	59 10	63 50	72 50
20	59 50	63 90	72 90
21	59 90	64 30	73 30
22	60 40	64 70	73 70
23	60 80	65 20	74 10
24	61 30	65 60	74 60
25	61 80	66 10	75 00
26	62 30	66 60	75 50
27	62 80	67 10	76 00
28	63 40	67 70	76 50
29	63 90	68 20	77 10
30	64 50	68 80	77 60
31	65 10	69 40	78 20
32	65 80	70 00	78 80
33	66 50	70 70	79 50
34	67 20	71 50	80 20
35	67 90	72 20	80 90
36	68 70	73 00	81 60
37	69 60	73 80	82 40
38	70 40	74 60	83 30
39	71 30	75 50	84 10
40	72 30	76 50	85 10
41	73 30	77 50	86 10
42	74 40	78 60	87 10
43	75 60	79 70	88 20
44	76 80	80 90	89 40
45	78 10	82 20	90 70
46	79 40	83 60	92 10
47	80 90	85 00	93 50
48	82 50	86 60	95 00
49	84 10	88 20	96 70
50	85 80	90 00	98 40
51	87 70	91 80	100 20
52	89 70	93 80	102 20
53	91 80	95 90	104 30
54	94 00	98 10	106 60
55	96 40	100 50	109 00
56	99 00	103 10	111 50
57	101 70	105 90	114 30
58	104 70	108 80	117 30
59	107 80	112 00	120 50
60	111 20	115 40	123 90
61	114 90	119 10	127 60
62	118 80	123 00	131 50
63	123 00	127 20	135 80
64	127 50	131 70	140 40
65	132 30	136 60	145 30
66	137 50	141 80	150 60
67	143 10	147 50	156 20
68	149 10	153 50	162 30
69	155 60	160 00	168 90
70	162 70	167 10	176 10
71	170 40	174 90	183 90
72	178 70	183 20	192 40
73	187 70	192 30	201 50
74	197 50	202 10	211 50
75	208 10	212 80	222 30

Sum required to purchase, at the respective Ages mentioned, an Annuity of One Hundred Dollars.

Age.	Four and a half per Cent.	Five per Cent.	Six per Cent.
	$ Cts.	$ Cts.	$ Cts.
10	1786 46	1653 76	1435 52
11	1776 73	1645 63	1429 69
12	1766 85	1637 38	1423 78
13	1756 79	1628 96	1417 73
14	1746 55	1620 38	1411 56
15	1736 11	1611 62	1405 24
16	1725 46	1602 67	1398 77
17	1714 60	1593 53	1392 15
18	1703 51	1584 19	1385 36
19	1692 20	1574 63	1378 40
20	1680 64	1564 86	1371 26
21	1668 82	1554 85	1363 93
22	1656 76	1544 62	1356 41
23	1644 45	1534 15	1348 70
24	1631 84	1523 41	1340 77
25	1618 96	1512 41	1332 62
26	1605 76	1501 13	1324 22
27	1592 26	1489 56	1315 58
28	1578 43	1477 69	1306 69
29	1564 27	1465 50	1297 53
30	1549 78	1453 01	1288 09
31	1534 93	1440 18	1278 38
32	1519 71	1426 99	1268 35
33	1504 12	1413 46	1258 01
34	1488 13	1399 54	1247 34
35	1471 72	1385 23	1236 32
36	1454 89	1370 52	1224 93
37	1437 60	1355 36	1213 15
38	1419 85	1339 76	1200 97
39	1401 61	1323 69	1183 60
40	1382 86	1307 12	1175 29
41	1363 59	1290 05	1161 76
42	1343 78	1272 45	1147 74
43	1323 41	1254 30	1133 20
44	1302 45	1235 58	1118 12
45	1280 92	1216 28	1102 50
46	1258 77	1196 39	1086 30
47	1236 04	1175 90	1069 53
48	1212 80	1154 90	1052 26
49	1189 09	1133 42	1034 50
50	1164 92	1111 47	1016 27
51	1140 30	1089 06	997 56
52	1115 24	1066 18	978 38
53	1089 71	1042 82	958 69
54	1063 74	1018 99	938 52
55	1037 30	994 67	917 82
56	1010 41	969 87	896 62
57	983 11	944 62	874 92
58	955 42	918 96	852 76
59	927 39	892 91	830 15
60	899 07	866 52	807 16
61	870 53	839 87	783 82
62	841 85	813 03	760 21
63	813 09	786 05	736 38
64	784 33	759 01	712 39
65	755 65	731 99	688 32
66	727 07	705 01	664 19
67	698 67	678 14	640 07
68	670 47	651 41	615 98
69	642 47	624 81	591 92
70	614 63	598 31	567 86
71	586 88	571 85	543 72
72	559 58	545 76	519 84
73	532 72	520 05	496 23
74	506 34	494 75	472 91
75	480 47	469 90	449 93

"*Select Lives.*—That the lives on which annuities depend can not be so very select or so much better than the common average, as has generally been supposed, might reasonably be expected on these grounds: 1. As to annuitants. The lives are not all chosen on account of their presumed goodness; for many persons who have no occasion to provide for others who may survive them, purchase annuities on their own lives, only that they may themselves enjoy the whole benefit of the purchase-money, both principal and interest, during their lives. And the greatest recommendation of these lives seems to be, that they are generally prudent persons, of temperate and regular habits. Many other persons, especially females, spendthrifts, and faithful servants, enjoy annuities bequeathed to them by their deceased relatives, masters, or mistresses, as the most eligible provision for their future comfort and security from want; and there seems little ground to suppose them to be better lives than the common average of the same age and sex.

"2. In such cases as tontines, where most of the lives are selected for their presumed goodness, the best criterion probably is, hereditary longevity in the family of the nominee; but partiality for their own friends or kindred often has considerable influence in biasing the judgment of those who select them. That they will generally be persons of good constitutions and regular habits when selected, is all that is likely to be obtained under these circumstances; and that is also the case with the average of the population in comfortable circumstances. Whatever the constitutions and habits of annuitants may be, the annuities held by them during their own lives, by protecting them from many of the wants, cares, and anxieties which the bulk of the people are exposed to, no doubt contribute to their longevity. But where powerful motives to raise money by the sale of an annuity on a person's own life exist, it is extremely difficult to prevent him from parting with it, whatever precautions may have been taken with that view; and with it he also loses that help to longevity.

"3. Insured lives are also generally supposed to be much better than the average of the population, as it is incumbent upon the insurance offices to be cautious in selecting them. But bad lives, by the failure of which persons interested in them would sustain loss, are most likely to be offered, and are continually offered, for insurance: and there is reason to believe that all the caution in selection which the offices in general can exercise, is necessary to keep the lives insured up to the average goodness of the bulk of the population; supposing always that people in general of the industrious classes are in prosperous, or at least in comfortable circumstances. When that is not the case, as for some years previous to 1830 there is reason to apprehend it was not in this country, there will be a corresponding increase in the general mortality, which will not sensibly affect the general mass of persons on whose lives annuities and reversions or assurances depend."—E. B.

Antarctic. The south pole is so called because it is opposite to the north or arctic pole. A continent of 1700 miles of coast from east to west, and 64 to 66 degrees south, was discovered in the Antarctic Ocean by French and American Exploring Expeditions, under D'Urville and Wilkes, respectively on the same day, January 19, 1840; a coincidence the more singular, as the discoverers were at a distance from each other of 720 miles. It was coasted by Captain Wilkes for 1700 miles. Mr. Briscow, of the British Navy, fell in with land, which he coasted for 300 miles, in lat. 67°, long. 50°, in the year 1830.

Antimony (Ger. and Du. *Spiesglas;* Fr. *Antimoine;* It. *Antimonio;* Russ. *Antimonia;* Lat. *Antimonium*), a metal which, when pure, is of grayish white color, and has a good deal of brilliancy, showing a radiated fracture when broken; it is converted by exposure to heat and air into a white oxide, which sublimes in vapors. It is found in Saxony and the Hartz; also in Cornwall, Spain, France, Mexico, Siberia, the Eastern Islands, and Martaban, in Pegu. We are at present wholly supplied with this metal from Singapore, which receives it from Borneo: it is imported in the shape of ore, and commonly as ballast. It is about as hard as gold; its specific gravity is about 6·7; it is easily reduced to a very fine powder; its tenacity is such that a rod of one-tenth of an inch in diameter is capable of supporting ten pounds weight. Antimony is used in medicine, and in the composition of metal types for printing. The ores of antimony are soft, and vary in color from light lead to dark lead gray; their specific gravity varies from 4·4 to 6·8; they possess a metallic lustre, are brittle, and occur in the crystallized massive forms.—THOMSON'S *Chemistry* and private information. Antimony was very early known, and applied by the ancients to various purposes. It was used as paint to blacken both men's and women's eyes, as appears from 2 *Kings* ix. 30, and *Jeremiah* iv. 30, and in Eastern countries it is thus used to this day. When mixed with lead, it makes types for printing; and in physic its uses are so various that, according to its preparation, alone, or in company with one or two associates, it is sufficient to answer all a physician desires in an apothecary's shop.—BOYLE.

Antipodes, in *Geography*, a name given to those inhabitants of the globe that live diametrically opposite to each other. The word is Greek, and compounded of *ἀντί, opposite*, and *πούς, a foot*, because their feet are opposite to each other. Plato is regarded as the first who thought it possible that antipodes existed, and is looked upon as the inventor of the word. As this philosopher apprehended the earth to be spherical, he had only one step to make to conclude the existence of the antipodes. The ancients in general treated this opinion with the highest contempt, never being able to conceive how men and trees could subsist suspended in the air with their feet upward, for so they apprehended they must be in the other hemisphere. They never reflected that these terms *upward* and *downward* are merely relative, and signify only nearer to, or farther from, the centre of the earth, the common centre to which all heavy bodies gravitate.—E. B.

Antwerp (Flem. *Antwerpen;* Fr. *Anvers*), a famous fortified city of Belgium, and the centre of its foreign trade (capital and province of the same name) on the Scheldt, 60 miles from the sea, and distant by railroad 27¼ miles from Brussels, 32 from Ghent, 150½ from Cologne, 258¼ from Paris, and 74 from Ostend. Lat. of cathedral, 51° 13′ 2″ N.; long. 4° 24′ 2″ E. Population 90,000. Its port was greatly improved by Napoleon, who erected two large basins; and ships anchor in the river opposite the city in from 32 to 40 feet water at ebb-tide. Chief manufactures, silk and cotton hosiery, thread, tape, and linen cloths, calico-printing, embroidery, bleaching, and sugar refining. Ship-building is extensively carried on, and the diamond-cutters of this city are celebrated. The principal imports are coffee, grain, and seeds, raw sugar and woven fabrics; exports flax, woven goods, refined sugar, metals, glass, etc. In the 16th century Antwerp was the richest and most commercial city in Europe, and contained 200,000 inhabitants. In 1648, at the treaty of Westphalia, it was stipulated by Spain and Holland that the navigation of the Scheldt should be shut up—a stipulation which was observed till the occupation of Belgium by the French, when it was abolished. It was taken by the Spaniards in 1576 and in 1585, and by the French in 1792 and 1794. It was the capital of the department Deux Nethes, under the dominion of the French, to whom it again surrendered December 24, 1832. It is the birth-place of the painters Teniers, Jordaens, and Vandyck, the geographer Ortelius, and the engraver Edelinck. In 1803, the improvement of the harbor was begun, and extensive new docks and warehouses have since been constructed. Ships of the largest burden come up to the town, and goods destined for the interior are forwarded with the greatest facility by means of canals and railways. Almost all the foreign trade of Belgium is at present centred in Antwerp, which has again become a place of much commercial importance. There is regular steam communication between Antwerp and London, and Hull and Rotterdam.

Goods may be warehoused in Antwerp *en entrepôt*, at the rates of charge specified in a fixed tariff. The exports chiefly consist of flax, cotton and linen manufactured goods, refined sugar, glass, zinc, oak-bark, grain and seeds, lace, etc. The imports consist principally of coffee, sugar, and other colonial products, cotton stuffs and other manufactured goods, corn, raw cotton, leather, timber, tobacco, wool, rice, dye-stuffs, salt, wines, fruits, etc. A large proportion of the imports not being intended for home consumption, but for transit to other countries, their amount is always much greater than the amount of the exports. Of the total value of the articles imported into Antwerp in 1839, amounting to 97,960,200 francs (£3,918,408), those supplied by England were worth very near 30,000,000 francs; ditto by Russia, 14,366,900 francs; ditto by the United States, 8,217,800 francs; ditto by France, 7,630,200 francs, etc. The principal articles were coffee, worth 14,745,500 francs; grain and seeds, 13,936,800 francs; sugar, 11,430,800 francs; woven fabrics, 11,339,100 francs; raw cotton, 5,225,200 francs; metals, 4,872,300 francs, etc. The total value of the articles exported during the same year was 35,630,000 francs (£1,425,140), whereof those sent to England were worth 14,349,100 francs; ditto to Holland, 5,777,500 francs; the Hanse Towns, 4,320,200 francs.

Money, Weights, and Measures.—The French system of moneys, weights, and measures has been adopted in Belgium. Formerly accounts were kept in florins, worth 1*s.* 8¾*d.* sterling. The quintal formerly in use, and still sometimes referred to, = 103¼ pounds avoirdupois. In 1837 the Commercial Bank, a joint-stock association, was founded in Antwerp. It has a capital of 25,000,000 francs (£1,000,000), divided into 25,000 shares of 1000 francs each, and transacts all sorts of banking business. Here also are two considerable insurance companies. The railway from Antwerp to Brussels, 28¼ miles in length, has been signally successful, and has been of great advantage to both cities, but especially to Antwerp.

Custom-house Regulations.—Captains of ships arriving at Antwerp, or any of the Belgian ports, must make, within twenty-four hours, a declaration in writing of the goods of which their cargo consists, specifying the marks and numbers of the bales, parcels, etc., their value, according to the current price at the time when the declaration is made, the name of the ship or vessel, as well as that of the captain, and of the country to which she belongs, etc.

Nine-tenths of the commerce of Belgium carried on by sea centres in Antwerp. The great articles of export are corn, especially wheat; flax; cattle, sheep, and pigs; cast and wrought iron; muskets, fowling-pieces, and small arms; linen and woolen fabrics; clover and other seeds; coal, butter, books, etc. The total value of the exports of articles of the growth and manufacture of Belgium amounted, in 1850, to 263,647,000 francs. Of these the exports to France (principally by land) amounted to 74,480,000 francs; those to Great Britain to 41,943,000; the other great importers of Belgium produce being the German Customs Union, the Netherlands, and the United States. The great articles of import are raw cotton, sugar, coffee, and other colonial products; indigo and all sorts of dyewoods, spices, wine, rice, ashes, fish, oils, etc. We subjoin

An Account of the Number and Tonnage of Vessels entered at Antwerp, and at each of the Belgian Ports, in 1845, 1846, 1847, 1848, and 1849.

Ports.	1845.		1846.		1847.		1848.		1849.	
	Vessels.	Tons	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
Antwerp	1,919	280,899	2,208	327,680	1,923	323,675	1,134	204,288	1,654	274.428
Ostend	624	62,710	687	55,486	608	58,494	407	48,271	444	48,918
Ghent (Zelzaete)	224	30,456	166	21,715	198	27,009	110	16,714	235	28.814
Nieuport	111	3,581	80	2,897	65	2,241	89	3,391	91	4.207
Total	2,878	377.646	3.141	407,778	2,794	411,419	1.740	272.664	2.424	356.367

Anville, Jean Baptiste Bourguignon d', a French geographer of the highest eminence, and perhaps unsurpassed in any age. This celebrated man was born at Paris on the 11th of July, 1697. His passion for geographical research displayed itself from his earliest years. At the age of twelve, while reading the Latin authors at college, he amused himself with drawing maps of the countries which they described. While he was thus busily employing himself one day in the class, his master observed and was about to punish him; but upon casting his eye upon the performance, he immediately judged him to be rather deserving of encouragement. D'Anville from this time devoted himself entirely to geography, particularly that of the ancient world; and at the age of twenty-two he began to delineate maps which attracted the attention of the most eminent geographers.—E. B.

Apeak, in *Seamen's language*, signifies perpendicular; thus the anchor is said to be apeak when the stem of the ship is brought directly over it by drawing in the cable.

Apothecary. In the United States, a dispenser of medicines. In England, frequently prescriptions as well as medicines are furnished.

Apron, in *Naval Architecture*, is a piece of curved timber fixed behind the lower part of the stem, immediately above the foremost end of the keel. Apron is also a name given to a platform or flooring of plank raised at the entrance of a dock, against which the dock gates are shut. *Apron*, in *Gunnery*, a piece of lead which caps or covers the vent or touch-hole of a gun.

Appellation, the name by which any thing is known or distinguished when spoken of. Nothing can be more foreign to the original meaning of many words and proper names than their present or vulgar appellations, frequently owing to the history of those things being forgotten, or an ignorance of the language in which they were expressed. Who, for example, would dream that the legal proclamation called "O yes," was a proclamation commanding the talkers to become hearers, being the French word *Oyez*, listen, retained in our courts ever since the law pleadings were held in French? Or would any person suppose that the head-land on the French coast near Calais, called by seamen Blackness, has been so entitled from its French name of *Blanc Nez*, or the *White Head-land?*

King Henry the Eighth having taken the town of Boulogne in France, the gates of which he brought to Hardes, in Kent, where they are still remaining, the flatterers of that reign highly magnified this action, which, Porto Bello like, became a popular subject for signs; and the port or harbor of Boulogne, called *Boulogne Mouth*, was accordingly set up at a noted inn in Holborn. The name of the inn long outliving the sign and fame of the conquest, an ignorant painter, employed by a no less ignorant landlord to paint a new one, represented it by a bull and a large gaping human mouth; answering to the vulgar pronunciation of *bull and mouth.* The same piece of history gave being to the *bull and gate*, originally meant for Boulogne Gate, and represented by an embattled gate or entrance into a fortified town.

The *barber's pole* has been the subject of many conjectures; some conceiving it to have originated from the word *poll* or head, with several other conceits as far-fetched and as unmeaning; but the true intention of that party-colored staff was to show that the master of the shop practiced surgery, and could breathe a vein as well as mow a beard. The white band which encompasses the staff was meant to represent the fillet thus elegantly twined about it.

Nor were the *chequers*, at this time a common sign of a public house, less expressive—being the representation of a kind of draught-board called *tables*, and showing that there that game might be played. From their color, which was red, and the similarity to a lattice, it was corruptly called the *red lettuce*, which word is frequently used by ancient writers to signify an ale-house.

The *Spectator* has explained the sign of the *Bell-savage Inn* plausibly enough, in supposing it to have been originally the figure of a beautiful female found in the woods, called in French *la belle sauvage.* But another reason has since been assigned for that appellation, namely, that the inn was once the property of Lady Arabella Savage, and familiarly called *Bell Savage's Inn*, probably represented, as at present, by a bell and a savage or wild man, which was a rebus for her name, rebuses being much in fashion in the sixteenth century.

The *three gilt balls* so commonly hung out as signs at pawnbrokers' shops, by the vulgar humorously enough said to indicate that it is two to one that the things pledged are never redeemed, were in reality the arms of a set of merchants from Lombardy, who were the first that publicly lent money on pledges. They dwelt together in a street, from them named Lombard Street, in London, and also gave their name to another at Paris. The appellation of Lombard was formerly all over Europe considered as synonymous with that of usurer.

At the institution of yeomen of the guards, they used to wait at table on all great solemnities, and were ranged near the buffets. This procured them the name of *buffetiers*, not very unlike in sound to the jocular appellation of *beef-eaters*, now given them; though probably it was rather the voluntary misnomer of some wit than an accidental corruption arising from ignorance of the French language.

The opprobrious title of *bum bayliffe*, so constantly bestowed on the sheriff's officers, is, according to Judge Blackstone, only the corruption of *bound bayliffe*, every sheriff's officer being obliged to enter into bonds, and to give security for his good behavior, previous to his appointment.

A *cordwainer* seems to have no relation to the occupation it is meant to express, which is that of a shoemaker. But *cordonier*, originally spelled *cordouanier*, is the French word for that trade; the best leather used for shoes coming originally from Cordova, in Spain.—E. B.

Apples, the fruit of the *Pyrus Malus*, or apple-tree. It is very extensively cultivated in most temperate climates. An immense variety and quantity of excellent apples are raised in England, partly for the table, and partly for manufacturing into cider. Those employed for the latter purpose are comparatively harsh and austere. The principal cider counties are Hereford, Monmouth, Gloucester, Worcester, Somerset, and Devon. Mr. Marshall estimated the produce of the first four at 30,000 hogsheads a year, of which Worcester is supposed to supply 10,000; but it is now probably much greater. Half a hogshead of cider may be expected, in ordinarily favorable seasons, from each tree in an orchard in full bearing. The number of trees on an acre varies from 10 to 40, so that the quantity of cider must vary in the same proportion, that is, from 5 to 20 hogsheads. The produce is, however, very fluctuating, and a good crop seldom occurs above once in three years.—LOUDON'S *Encylopedia of Agriculture*, etc. Besides the immense consumption of native apples, the English import, for the table, large supplies of French and other foreign apples. Owing, however, to the duty, previously to 1842, having been an *ad valorem* one of 5 per cent., we are unable to specify the quantities imported. They must, however, have been very considerable, as their declared value amounted, in 1841, to £41,197 4*s*. 10*d*. In 1842 the duty was fixed at 6*d*. per bushel on raw, and 2*s*. per bushel on dried apples. At an average of 1850 and 1851, the entries for consumption amounted to 442,950 bushels. The duties in England were reduced in the course of the year 1853 to 3*d*. per bushel on raw, and 1*s*. per bushel on dried apples. The apples produced in the vicinity of New York are universally admitted to be the finest of any; but unless selected and packed with care, they are very apt to spoil before reaching England. The exports of apples from the United States during the year ending the 30th of June, 1852, amounted to 18,411 barrels, valued at 43,635 dollars. Of these 1808 barrels were shipped for the United Kingdom. In the year 1854-5, the quantity exported was 33,959 barrels, at a value of $107,600.

Appraiser (from *ad*, *to*, and *pretium*, *value*), one who rates or sets a value upon goods, etc., used principally in the custom-house to designate men who appraise goods entered for duty.

Apprentice, a person of either sex bound by indenture to serve some particular individual or company of individuals for a specified time, in order to be instructed in some art, science, mystery, or trade.

Apprenticeship, the servitude of an apprentice, or the duration of his indenture.

Seven years seem anciently to have been, all over Europe, the usual term established for the duration of apprenticeships in the greater part of incorporated trades. All such incorporations were anciently called *universities*, which indeed is the proper Latin name for any incorporation whatever. The university of smiths, the university of tailors, etc., are expressions which we commonly meet with in the old charters of ancient towns. When those particular incorporations which are now peculiarly called *universities* were first established, the term of years which it was necessary to study in order to obtain the degree of master of arts, appears evidently to have been copied from the term of apprenticeship in common trades, of which the incorporations were much more ancient. As to have wrought seven years under a master properly qualified was necessary in order to entitle any person to become a master, and to have himself apprentices in a common trade; so to have studied seven years under a master properly qualified was necessary to entitle him to become a master, teacher, or doctor (words anciently synonymous), in the liberal arts, and to have scholars or apprentices (words likewise originally synonymous) to study under him.

Apprenticeships were altogether unknown to the ancients. The reciprocal duties of master and apprentice make a considerable article in every modern code. The Roman law is perfectly silent with regard to them. There is no Greek or Latin word which expresses the idea we now annex to the word apprentice—a servant bound to work at a particular trade for the benefit of a master during a term of years, upon condition that the master shall teach him that trade.—E. B.

Aqua Fortis. *See* ACID (*Nitric*).

Aqua Marina. *See* BERYL.

Aqua Vitæ (Ger. *Aquavit*; Fr. *Eau de vie*; It. *Acqua vite*; Sp. *Agua de vida*; Russ. *Wodka*; Lat. *Aqua vitæ*), a name familiarly applied to all native distilled spirits; equivalent to the *eau de vie*, or brandy, of the French, the *whisky* of the Scotch and Irish, the *geneva* of the Dutch, etc. In this way it is used in the excise laws relating to the distilleries.

Aqueduct, a conduit or channel for the conveyance of water. It is derived from *aqua*, water, and *ductus*, a conduit. It is applied more particularly to those structures of masonry which have been erected for the conveyance of water across valleys, to which, however, we would rather give the name of aqueduct bridges, extending the term aqueduct to the whole conduit or channel by which the water is conveyed from one place to another. The conveyance of water for the supply of large cities has in all ages formed a very important object of public economy; and aqueducts of various kinds have been in use for this purpose from the earliest times, the remains of which have been examined by travelers in different parts of the East. Pococke describes a work of this kind erected by Solomon, for conveying water from the pools and fountains near Bethlehem to Jerusalem. "The aqueduct," he says, "is built on a foundation of stone; the water runs in round earthen pipes about ten inches diameter, which are cased with two stones, hewn out so as to fit them, and they are covered over with rough stones well cemented together; and the whole is so sunk into the ground on the side of the hills, that in many places nothing is to be seen of it." But it was in the luxurious capital of Rome that the system of aqueducts was brought to the greatest perfection, and carried to an extent which has never been equaled even in modern times, and has justly excited admiration both from the number and magnificence of the works themselves, and the prodigious quantities of water which by these means were continually poured into the city. These aqueducts extended, some of them 30, 40, and even 60 miles from the city, in one continued covered channel of stone, carried by arcades over the widest and deepest valleys, and by tunnels running in many parts for miles through mountains and through the solid rock. "If we consider attentively," says Pliny, "the quantities of water brought into the city for the use of the public, for baths, for fish-ponds, for private houses, for artificial lakes, for gardens in the neighborhood of the city, and for villas; if we look also at the works which have been constructed for forming a regular channel for the waters—ar-es raised up, mountains pierced with tunnels, and valleys filled up to a level; it must be acknowledged that there is nothing in the whole world more wonderful."

Within the last century, the invention and improvement of the manufacture of cast iron has completely changed the mode of conducting water into cities, by the introduction of cast-iron pipes instead of the stone conduits of former times. These pipes can now be formed of almost any dimensions, and united together into a continued series, so closely as to prevent the escape of the water, even under a violent pressure arising from the altitude of the fountain-head. They enable us, therefore, to take advantage of and give effect to that grand principle in hydrostatics, that the fluid element tends continually to a level, even though it be confined in the smallest or most complicated system of pipes; so that however low it be carried in any valley, or to whatever distance, still it will rise on the opposite side to the orignal altitude of the fountain-head—a principle which is most important, indeed, in such works, seeing that by it we are not restricted, as the Romans were, almost to a perfect level in the line of the conduit. We have seen that, for the purpose of attaining this level, or very gentle declivity, all along the conduit, they were under the necessity of raising it by arcades continued in one unbroken series, frequently 30 or 40 miles in extent; and, in addition to this, often prolonging the length of the track by a circuitous route, turning and winding for miles out of its course, for the very purpose of increasing its length.

But the use of pipes enables us to dispense with these long arcades, all raised nearly to the same level with the fountain-head; because the conduit may be varied in its level to any extent, and still will rise at last to its original altitude. The pipes, therefore, are merely laid all along the surface of the ground, with a cover of two or three feet of soil to place them beyond the reach of frost. To prevent, however, the frequent or abrupt alternations of rise and fall, any sudden inequalities in the ground are equalized by cuttings and embankments, but not to any thing like the extent that would be required to raise the whole to a level. This, therefore, forms a capital improvement in the method of conducting water, and the greatest, indeed, which has ever been made in this important branch of practical mechanics. That it was not introduced by the Romans, is not to be ascribed, as many have done, to their ignorance of the hydrostatic principle that the fluid would rise to a level in the opposite branches of the same train of pipes. Professor Leslie has shown that they were well acquainted with this principle, and has moreover obtained from Italy a portion of a leaden pipe, supposed to have been used in the baths of Caracalla, which sets this matter at rest. But from the low state of the arts at that period, they were unable to give effect to the principle. They had not the means of fabricating pipes of such a magnitude as would have been required for the enormous quantity of water consumed in Rome, and at the same time of strength sufficient to withstand the pressure from the fountain-head. Lead was the only material that could be used by them for the purpose; and besides the enormous thickness that so weak a material would have required, and the impracticability of their forming them, and uniting them together endwise, they were too well acquainted with the tendency of lead to render the water unwholesome by its poisonous impregnation. The use of cast iron was quite unknown. There remained, therefore, no resource but in the aqueducts, which, though attended no doubt with vast expense, and requiring great enterprise, as well as both skill and patience, were yet attainable by these means, and formed when completed a simple and very perfect mode of effecting the object. Hence arose all those works above described which have since excited such astonishment. Now, however, when the manufacture of cast iron has been brought to such perfection, and methods contrived for uniting perfectly together all the pipes into one connected train, this improved system has been universally adopted.

Croton Aqueduct.—The Croton Aqueduct, by which the city of New York is supplied with water, may be regarded as the most magnificent work of the kind executed in modern times. It was commenced in 1837, and completed in 1842, at an expense of 8,575,000 dollars, the distribution pipes costing 1,800,000 dollars additional. Its length from the Croton Lake to the receiving reservoir is 38¼ miles. The Croton Lake, which is formed by the Croton Creek, a small stream of wholesome water falling into the Hudson, covers 400 acres, and contains a body of water of about 500,000,000 gallons. To the valley of the Harlem River, a distance of 33 miles, the aqueduct is built of stone, brick, and cement, arched over and under, 6 feet 3 inches wide at the bottom, 7 feet 8 inches at the top, and 8 feet 5 inches high; and capable of discharging 60,000,000 gallons per day. It is carried over the Harlem valley in iron pipes laid upon a magnificent bridge 1460 feet long, constructed of arches 114 feet above high-water mark at Yorkville. These pipes pass into the receiving reservoir, which is 1826 feet long and 836 feet wide, covering an area of 37 acres, and capable of containing 150,000,000 gallons. Hence, to the distributing reservoir, a distance of 2¼ miles, the water is conveyed by a double line of iron pipes 3 feet in diameter. This second reservoir is 420 feet square and 44 feet above the streets, with a capacity of 20,000,000 gallons—whence the water is conveyed through the city by about 170 miles of pipe, principally from 6 to 12 inches in diameter.

In those parts of British India where the fall of rain is scanty and uncertain, recourse is had to artificial irrigation, and the waters of many of the rivers of the country have been rendered available for this purpose by means of public works constructed by the government. Of these the most important is the Ganges Canal, which traverses the northwestern provinces of Bengal, and distributes over their vast area nearly the whole volume of the waters of the Ganges. The canal begins at the point where the river issues from the mountains and enters the plains of Bengal. About 20 miles from its source, the line of the canal crosses the valley of the Solani River, and the works for effecting the transit are designed on a scale worthy of the undertaking. The valley is between two and three miles in width. An earthen embankment is carried across, raised on an average between 16 and 17 feet above the surrounding country, and having a width of 350 feet at its base, and 290 feet in the upper part. This embankment forms the bed of the canal, which is protected by banks 12 feet in depth and 30 feet wide at the top. To preserve these banks from the effects of the action of the water, lines of masonry formed into steps extend on each side throughout their entire length. The Solani River is crossed by an aqueduct 920 feet long, having side walls 8 feet thick and 12 deep, the depth of the water being 10 feet. The water of the canal passes through two separate channels. That of the River Solani flows under fifteen arches, having a span of 50 feet each, constructed in the most substantial manner, and springing from piers resting on blocks of masonry sunk into the bed of the river.

The great water-works that supply the city of Marseilles with the water of the Durance, by a canal about 60 miles in length, are among the boldest undertakings of the kind in modern times. This canal, begun in 1830, and not yet completed (1852), has already cost above £2,000,000 sterling. It is conveyed through three chains of limestone mountains by forty-five tunnels, forming an aggregate length of 8½ miles, and across numerous valleys by aqueducts; the largest of which, the Aqueduct of Roquefavor, over the ravine of the River Arc, about 5 miles from Aix, surpasses in size and altitude the ancient Pont du Gard.

The immense volume of water, which passes at the rate of 198,000 gallons per minute, is carried across as in the old Roman aqueducts by a channel of masonwork. The height of this aqueduct is 262 feet, and its length 1287. The number of cubic yards of masonry contained in it is 57,000; the total cost has been £151,394.

Edinburgh Water-works.—The works undertaken by the Edinburgh Water Company in 1819 were probably the most complete and perfect of the time. They were designed by Mr. Jardine, the then engineer of the company, and carried out under his superintendence in a style quite worthy of the city, and offering, both in the general design and in all the details, a model of propriety and skill in this species of hydraulic architecture. The Crawley springs were conducted by an aqueduct into a covered cistern at a point about 7 miles distant from Edinburgh, and a supply from the stream called the Glencorse Burn, conveyed by an open-work tunnel from about a mile and a half westward. This tunnel is in some places upward of 30 feet deep, and the valley through which it passes, consisting entirely of gravel, acts as a filter through which the water descends and percolates, all solid matter being intercepted in its passage to the tunnel from whence it is delivered into the cistern, and conveyed to Edinburgh by a chain of pipes varying from 20 to 15 inches of interior diameter, without being exposed to the light of day. From the numerous undulations of the surface, the fall of the pipe is not uniform. Abrupt inequalities, however, were removed by cutting and embanking. Toward the northern termination of the line the pipe is carried through a tunnel of 2160 feet in length, and about 70 or 80 feet under the surface of Heriot's Green. In crossing the Grass Market it forks off by one branch to a reservoir in the Castle Hill, and by another about 120 feet under the reservoir, through a tunnel 740 feet in length, cut through the rock of which the ridge leading to the Castle is composed. Branches were laid through all the principal streets.

The pipes are in lengths of 9½ feet each, and were tested before being laid by a pressure equal to a vertical column of 800 feet of water. The joints are what are termed spigot and faucet. Cocks for the discharge of air accumulating in the pipes are placed at the summits of all the considerable elevations; and in the hollows are placed sluice cocks for the purpose of running off sand or other solid matter which may colleet in the pipe. It is capable of delivering 253·56 cubic feet of water per minute into the reservoir at the Castle Hill.

The formation of the Compensation Reservoir was undoubtedly the greatest work of hydraulic engineering of its day. It was designed and completed by Mr. Jardine, and, with the then limited experience of contractors and workmen in the construction of similar works, its successful completion does great honor to the genius and perseverance of the engineer. It has been twice enlarged, and now forms an artificial lake extending over an area of 46 imperial acres.—E. B.

Arangoes, a species of beads made of rough carnelian. They are of various forms—as, barrel, bell, round, etc.—and all drilled. The barrel-shaped kind, cut from the best stones, are from two to three inches long, and should be chosen as clear as possible, whether red or white, having a good polish, and free from flaws. The bell-shaped are from one to two inches long, being in all respects inferior. Considerable quantities were formerly imported from Bombay, for re-exportation to Africa; but since the abolition of the slave-trade, the imports and exports of Arangoes are comparatively trifling.—MILBURN's *Orient. Com.*

Arbitration, a term derived from the nomenclature of the Roman law, and applied to an arrangement for taking and abiding by the judgment of a selected person in some disputed matter, instead of carrying it to the established courts of justice. Arrangements for avoiding the delay and expense of litigation, and referring a dispute to friends or neutral persons, are a natural practice, of which traces may be found in any state of society; but it is to the Justinian jurisprudence that we owe it as a system which has found its way into the practice of European nations in general, and has even evaded the dislike of the English common lawyers to the civil law. The eighth section of the fourth book of the Pandects is devoted to this subject, and may be consulted through the commentary of Heineccius, or a more minute critical inquiry by Gerard Noodt, in his commentary on this section (Opera, ii. 135). Almost all the advantages, as well as the defects of the system in modern practice, seem to have been anticipated by the Roman jurists. Thus it is shown that voluntarily selected judges can only properly decide questions which the parties themselves could settle by giving and taking, and that they ought not to be authorized to deal with criminal inquiries or public questions; while, by excluding matters of personal status, such as marriage or legitimacy, the Roman jurists anticipated the principle, that even private questions which may affect the public morals or policy can not be thus extrajudicially disposed of. They dwell on the principal advantage of the system in excluding appeal from the arbiter's decision on any such ground as erroneous law, or false views of the influence of well-investigated facts. But, on the other hand, they discuss, with their usual scientific subtlety, the many defects, such as excess of authority, neglect of form, and partiality in receiving pleadings or evidence, and the like, by which arbitrations become vitiated; and thus these jurists at once suggest what is ever the defect of a system of arbitration, that the more it performs its function of doing justice, the more it becomes what the established tribunals of the country ought to be, and fosters two systems of judicature where one should be sufficient. Some of the civilians make a distinction between the *arbitrator*, the name technically applicable to a person voluntarily chosen by parties to decide disputes, and the *arbiter*, an officer to whom the prætor remitted questions of fact as to a jury. In this sense arbiters appear to have been employed as a substitute for jury trial in some of the old provincial laws of France; and hence, perhaps, it comes that, by a very remarkable provision in the French code of commerce, all questions between partners touching the partnership must be referred to arbitration. In the code of civil procedure, the title *des arbitrages* is treated so fully and minutely, as very forcibly to convey the impression of a separate system of voluntary jurisdiction being created for performing what ought to be accomplished by the ordinary tribunals in a well-regulated judicial system.

Arbitration, in the *Law of England* (according to Blackstone), is "where the parties, injuring and injured, submit all matters in dispute, concerning any personal chattels or personal wrong, to the judgment of two or more *arbitrators*, who are to decide the controversy; and if they do not agree, it is usual to add, that another person be called in as *umpire* (*imperator*), to whose sole judgment it is then referred; or frequently there is only one arbitrator originally appointed." The decision must be in writing (unless otherwise expressly provided in the submission), and is called an *award;* and thereby the question is as fully determined, and the right transferred or settled, as it could have been by the agreement of the parties or the judgment of a court of law or equity.

There were, however, many inconveniences attending this mode of proceeding: and in the year 1698, the Legislature accordingly interfered, and passed the act 9th and 10th Will. III., cap. 15, which enacted that, "for promoting trade, and rendering the awards of arbitrators the more effectual in all cases, for the final determination of controversies referred to them by merchants and traders, or others, concerning matters of account or trade, or other matters;" all merchants and others desiring to end any controversy, suit, or quarrel (for which there is no other remedy but by personal action or suit in equity) by arbitration, may agree that their submission of their suit to the award or umpirage of any person shall be made a rule of any of the courts of record, and may insert such agreement in their submission; which agreement being proved by the affidavit of one of the witnesses thereto, the court shall make a rule that such arbitration or umpirage pursuant to such submission shall be conclusive; and after such rule made, the parties disobeying the award shall be liable to be punished, as for a contempt of court; unless such award shall be set aside, as procured by corruption or undue means in the arbitrators or umpire, to be proved on oath to the court, before the last day of the next term after the award is made.

An application for an attachment for not performing an award may be resisted at any time for defects appearing on the face of the award itself; for such an award, after that time, might be pleaded in bar to any action brought upon it, although it can not be *set aside* for such defects after the end of the next term. Submissions of disputes to arbitration may be by consent of the parties, or with the interposition of a court of justice; by rule of court, or order of a judge, when a cause is pending, either by bond, agreement in writing, or by parole. A verbal agreement, however, to abide by an award can not be made a rule of court. Nor can matters purely criminal be submitted to the decision of an arbitrator. And by the 12th and 13th Vict. c. 45, § 12–15, the provisions of the former statutes as to arbitrations are extended to "controversies and disputes, for which the remedy is by appeal to a Court of General or Quarter Sessions of the Peace." Lastly, although the right of real property can not pass by a mere award, yet if a party be awarded to convey land, and refuse, he will be liable to an action, or to an attachment for not performing the award. The agreement of reference must be expressed with great care and accuracy; provisions should be inserted giving power to either party to make the submission a rule of court, to enable the court to refer the matter back to the same or to another arbitrator; and in case of the death of either party before award, for its making and delivery to his representatives; and also as to the costs, which are usually directed to be in the discretion of the arbitrator as to those of the reference, and as to those of the cause to abide the event of the award; and a certain day should be appointed on or before which the arbitrator is to make his award, with a power to each arbitrator to enlarge the time.

When arbitrators have the power of electing an umpire, they may choose him, and call in his assistance as soon as they begin to take the subject into consideration; and this is the more convenient practice, as it secures a decision upon a single investigation of the controversy. As to the award: it must be in pursuance of the submission, and embrace all the matters submitted, and not extend beyond it in the subject-matter, in persons, in time, or in particular circumstances; it must be certain; it must make a final end and determination of all matters contained in the submission; it must be mutual, that is, it must not be entirely of things to be performed by one party, without such things being in satisfaction of the matters in difference; and, finally, it must not be unreasonable, illegal, or impossible to be effectuated. Formerly, a submission to arbitration, being a mere authority, might be revoked at any time before execution by an instrument of as high a nature as that by which the submission was created. But now, by the English Law Amendment Act (3d and 4th Will. IV., cap. 42), the submission to arbitration by *Rule of Court*, or *Judge's order*, or *order of Nisi Prius*, or if there be an *agreement to make the submission a Rule of Court*, can not be revoked by any party thereto, without leave of the court or a judge. The death, however, of either party before award is a revocation of the authority, unless otherwise provided in the submission; and so also is the marriage of a female before award; the marriage operating as a civil death to all her rights as a *feme sole*. Under this statute the attendance of witnesses, or production of documents before the arbitrator, may be compelled by a rule of court, or order of a judge, on payment of expenses and loss of time; and the arbitrators are empowered to administer oaths to the witnesses, where it is so agreed or ordered by the rule or order of reference. Any witnesses failing to attend are deemed to be guilty of contempt of court, or giving false evidence guilty of perjury. The court or judge may also, in the cases within the statute, enlarge the time for an arbitrator to make his award.—E. B.

Archangel, the principal commercial city of the north of Russia, in lat. 64° 32′ 8″ N., long. 40° 33′ E., on the right bank of the Dwina, about 35 English miles above where it falls into the White Sea. Pop. 24,500. The harbor is at the island of Sollenbole, about a mile from the town. The bar at the mouth of the Dwina has from 13 to 14½ feet water; so that ships drawing more than this depth must be partially loaded outside the bar from lighters. The Dwina being a navigable river, traversing a great extent of country, and connected by canals with the Wolga on the one hand, and the Neva on the other, Archangel is a considerable *entrepôt*. It was discovered in 1554, by the famous Richard Chancellor, the companion of Sir Hugh Willoughby in his voyage of discovery; and from that period down to the foundation of Petersburg was the only port in the Russian empire accessible to foreigners. Though it has lost its ancient importance, it still enjoys a pretty extensive commerce. The principal articles of export are grain, tallow, flax, hemp, timber, linseed, iron, potash, mats, tar, etc. Deals from Archangel, and Onega in the vicinity of Archangel, are considered superior to those from the Baltic. Hemp not so good as at Riga, but proportionally cheaper. Tallow is also inferior. Iron same as at Petersburg, sometimes cheaper and sometimes dearer. The quality of the wheat exported from Archangel is about equal to that from Petersburg. The imports, which are not very extensive, consist principally of sugar, coffee, spices, salt, woolens, hardware, etc. The trade of Archangel has latterly been declining. It is much influenced by the demand from the more southerly parts of Europe, and especially from England, for corn. When a brisk demand is anticipated, oats are brought in large quantities from the interior, sometimes even from a distance of 1500 miles, in covered barks capable of holding several hundred quarters. But as there are few extensive establishments here, the supplies are scanty, except when a large demand is expected for some time previously to the season for bringing them down.—ODDY's *European Commerce*, and private information.

Moneys, *Weights*, and *Measures*, same as at PETERSBURG: which see.

Archipelago, called by the Turks *Ak degniz*, the White Sea, to distinguish it from *Cara degniz*, the Black Sea, is generally applied to that part of the Mediterranean extending from European Turkey and Greece on the west, to Asia Minor on the east, and stretching southward to the island of Candia.

The name Archipelago was unknown to the ancients, and is generally supposed to be a corruption of Αἰγαῖον πέλαγος, by which name, the derivation of which is uncertain, it was known to the Greeks. The ancients divided it into, (1.) *Mare Thracium*, the northern part, extending southward to the northern coast of Eubœa; (2.) *Mar Myrtoum*, the southwestern part, washing the shores of Attica and Argolis; (3.) *Mare Icarium*, the southeastern part, extending along the coasts of Caria and Ionia.

The navigation of this sea is rendered difficult by the many islands and rocks with which it abounds, and by the frequent occurrence of sudden squalls, especially about the equinoxes; but it has a great number of safe and commodious gulfs and bays. Besides the Cyclades and Sporades, which are the two principal groups of smaller islands, it contains Eubœa, Samos, Chios, Lesbos, Lemnos, Imbros, Samothrace, etc. All these islands are mountainous, and many of them are of volcanic formation; while others are almost entirely composed of pure white marble, for which Paros, one of the Cyclades, in particular, is so celebrated. The larger islands have some very fertile and well-watered valleys and plains. The principal productions are wheat, wine, oil, mastic, figs, raisins, honey, wax, cotton, and silk. The inhabitants are much engaged in fishing, and the coral and sponge fishery are actively prosecuted among the Sporades. Manufactures are at a very low ebb, almost the only branch carried on being that of cotton-weaving. The climate is mild and salubrious; the heats of summer being tempered by the sea-breezes, while the winters are less severe than on the neighboring main-land. The men are hardy, well-built, and handsome; and the women are noted for their beauty. The islands of the Archipelago are considered to belong partly to Europe and partly to Asia. At present the Cyclades form a portion of the Greek kingdom, while most of the other islands are subject to Turkey.

The name Archipelago, which was primarily given to the Ægean Sea, is now applied to various other seas which contain numerous islands, as the Eastern Archipelago, Caribbean Archipelago, etc.

Archive, or **Archives**, a chamber or apartment wherein the records, charters, and other papers and evidences, of a state, house, or community are preserved, to be consulted occasionally. Thus we say the *archives* of a college, of a monastery, etc.

Arctic Circle is a lesser circle of the sphere, parallel to the equator, and 23° 30′ distant from the north pole; from whence its name. This, and its opposite, the *antarctic*, are called the two *polar circles*, and may be conceived to be described by the motion of the poles of the ecliptic round the poles of the equator, or of the world.

Arctic Ocean, that portion of the North Sea which extends from the arctic circle (lat. 66° 30′ N.) to the north pole. It receives the waters of the northern slopes of the great continents, and is the recipient of the drainage of an area of 3,751,270 square miles. It enters deeply, in the form of gulfs, bays, etc., into the northern parts of the continents of both hemispheres. The principal of these indentations are the White Sea, in Europe; Sea of Kara, Gulfs of Obe and Yenisee, in Siberia; and Baffin's Bay, in North America. It is united to the Pacific by Behring's Strait, and to the Atlantic by Davis' Strait, and a wide sea extending from Greenland on the west to Norway and Lapland on the east. This portion of the Arctic Ocean is occupied centrally by Greenland, and on the east is the extensive group of Spitzbergen, the small island of San Mayen, and Iceland. West of Greenland, and divided from it by Davis' Strait and Baffin's Bay, are a considerable number of islands of great size, which have been but imperfectly explored. The region north of lat. 70° is the most dreary on the face of the globe.

The shores are covered with eternal snows, and the surface of the sea, when its icy covering is rent asunder, presents a series of huge floating masses in perpetual motion, and whose tremendous collisions are attended with the most appalling sounds. Dense fogs, violent storms, and endless nights, add to the horrors of the scene. In the region of Spitzbergen the sun is not seen for several months in the year, and the thermometer rarely rises above 45° Fahrenheit; while there is but one month in the year (July) in which snow does not fall. The only, or at least the greatest degree of light the inhabitants enjoy during their long winters, or from the latter end of September to the beginning of May, is that which proceeds from the borrowed lustre of the moon, the stars, the aurora, or the snow blink. This ocean freezes even in summer, and during the eight winter months a continuous body of ice extends over its entire surface, filling the area of the circle of between 3000 and 4000 miles in diameter. The icebergs, of which vast numbers are continually in motion wherever an opening appears, vary from a few yards to miles in circumference, and rise to hundreds of feet in height. The ice in these regions is very transparent, compact, and remarkable for the variety and beauty of its tints. The water is extremely pure, shells being distinctly visible at a depth of 80 fathoms. The pressure of the water at a depth of 1¼ miles has been found to be 2809 lbs. on a square inch of surface.

The history of adventure in the Arctic Seas presents a striking disproportion between effort and achievement. All that human daring can do has been done to open up the mysteries of these dreary regions. The first attempt to explore the Polar Seas was made in 1553, by Willoughby and Chancellor, who were sent out with instructions to ascertain if there was a north-east passage, or if they could reach China by passing to the north of Europe and Asia. Willoughby reached Nova Zembla, but he and all his crew were frozen to death. Chancellor entered the White Sea, and thus opened a communication with Russia. Captain Cook reached Icy Cape from the Pacific in 1778. In 1607 Captain Hudson was sent out to attempt to discover the northwest passage, and reached the lat. of 81°, but was under the necessity of putting back on account of the ice. In 1773 this experiment was again tried by an expedition under the command of Captain Phipps, who advanced about as far as Captain Hudson had previously done; and a similar attempt was made in 1818, which proved equally unfortunate, under Captain Buchan. In 1818 Captain Ross attempted a northwest passage, and passed through Lancaster Sound. In 1819 Captain Parry reached long. 110° W., and in 1821–23 examined the coast to the north of Hudson's Bay; in 1824 he reached Prince Regent Inlet. In 1826 Captain Franklin was sent overland to explore the north coast of America, to the west of Mackenzie's River; and at the same time Captain Beechey was dispatched to meet him in Behring's Strait. The two expeditions approached each other to within a distance of 146 miles, but returned without meeting. In 1827 Captain Parry was sent out to penetrate as far as possible in the direction of the Pole in boats and sledges, over the ice, and he reached about 82° 40′, the highest latitude yet attained. In 1829–33 Captain Ross sailed up Prince Regent Inlet, ascertained that there is no communication between the Arctic Ocean and the Atlantic south of Barrow's Strait. The expedition sent out in search of the long-desired route from the Atlantic to the Pacific, through the Polar Seas, commanded by Sir John Franklin, sailed in 1845, with two ships, the *Erebus* and *Terror*, and has not since been heard of. Several expeditions have been dispatched in search of the missing navigator and his companions, but hitherto without success. One of these expeditions, commanded by Captain Kellet, attained, on August 15, 1849, the lat. of 71° 12′ N., long. 170° 10′ W.; and on the 16th discovered an almost inaccessible island of granite, rising 1400 feet above the sea, beyond which a range of high land was seen; but constant snow-storms compelled him to quit the neighborhood without doing more, to prevent his being hemmed in by the pack-ice.

The long absence of the expedition under the command of Captain Franklin, and the unsuccessful efforts made from Britain to ascertain the fate of the missing navigators, induced Lady Franklin to appeal to America for aid in seeking for her husband and his companions. Her appeal was responded to by Henry Grinnell. He purchased vessels, which, with the countenance and aid of the United States Government, were sent to assist in the search. This munificent act of Mr. Grinnell is without a precedent. It was an undertaking by a private citizen of one country to seek out and restore to their homes, if possible, the officers and crews of the absent ships of another. The American searching vessels were placed under the command of Lieutenant De Haven, of the United States navy. The *Rescue*, the foremost vessel of the American expedition, entered Wellington Channel in company with the *Assistance*, the foremost vessel of all the British expeditions, on the 24th of August, 1850; and when, at the close of the season, it became apparent that no further progress could be made, the American vessels, *without the aid of steam*, were at the farthest point that was made by any vessel of the three British expeditions then engaged in the search, all of which had been assisted by steam on their outward voyage, when in and while crossing Baffin's Bay. The expeditions of Ross, Austin, and Penny made harbors. The Americans were afloat the whole of a long arctic winter, at the mercy of the winds, the currents, and the ice. On the 18th of September, De Haven was north of Cape Bowditch, the most northern point seen by Parry in 1819, and farther north within Lancaster Sound than had been attained by any vessel of all the exploring and searching expeditions. His discoveries began at Cape Bowden, on the 17th of September; by the end of the month he was at 75° 25′ N. Here he saw hitherto unknown land to the east, and the west, and far to the north. To this new-discovered land he gave the name of GRINNELL LAND; and to a height of land seen, Mount Franklin; and named the bodies of water Maury Channel, etc. The following season this country was explored by passing over the ice much farther west, by Captain Penny and others of the British navy. The name of GRINNELL LAND has been ungenerously omitted from the charts of this region published by the British Admiralty, and the name of *Albert Land* supplies its place.—HARPER'S *Gazetteer.* Captain Sir Robert M'Clure, in the autumn of 1850, by traveling over ice, connected the geography of the waters of the Pacific and the Atlantic for the first time. When in 1853 this news arrived in England, he was hailed, very justly, as the discoverer of the Northwest Passage. But no vessel has ever passed through the frozen straits traversed by M'Clure. The passage discovered by him has been crossed on the ice many times, but never by ship or boat of any sort.

May 31, 1853, Dr. Kane started on his second voyage, and being longer than the time proposed, the *Arctic*, under Lieutenant Hartstein, was sent in search of him. Dr. Kane was found at the Danish settlements on his return home, having lost his vessels and suffered great hardship, but without meeting any success in his efforts or making further discoveries. Lieutenant Hartstein arrived, with Dr. Kane, October 11, 1855. It is now almost certain that the remains found by Dr. Rae were those of Sir John Franklin and party, and the Royal Geographical Society propose giving him the reward of £10,000 which was offered.

Argo, in *Antiquity*, the ship celebrated in ancient poetry as that in which the Argonauts made their expedition to Colchis in quest of the golden fleece. Jason having happily accomplished his enterprise, consecrated the ship *Argo* to Poseidon (Neptune), or, as others say, to Athena (Minerva), on the isthmus of Corinth, where, they add, it did not remain long before it was translated into heaven, and made a constellation.—E. B.

Argol, Argal, or **Tartar** (Germ. *Weinstein;* Du. *Wynsteen;* Fr. *Tartre;* It. Sp. and Port. *Tartaro;* Russ. *Winnui kamen;* Lat. *Tartarus*), a hard crust formed on the sides of the vessels in which wine has been kept; it is red or white according to the color of the wine, and is otherwise impure. On being purified, it is termed *cream* or *crystals of tartar.* It consists principally of bitartrate of potash. White argol is preferable to red, as containing less drossy or earthy matter. The marks of good argol of either kind are, its being thick, brittle, hard, brilliant, and little earthy. That brought from Bologna is reckoned the best, and fetches the highest price. Argol is of considerable use among dyers, as serving to dispose the stuffs to take their colors the better. Pure argol, or cream of tartar, is extensively used in medicine. It has an acid and rather unpleasant taste. It is very brittle, and easily reduced to powder: specific gravity, 1·95. The English duty on argol, of 6*d.* per cwt., was repealed in 1845. In 1852 the imports and exports of argol into Great Britain amounted respectively to 17,839 and 3545 cwt. The price of argol in London, in September, 1853, varied; Bologna, from 58*s.* to 62*s.* per cwt.; Leghorn, 46*s.* to 56*s.* per cwt.; Naples, Sicily, etc., 33*s.* to 39*s.*

Aristolochia (Fr. *Serpentaire;* Germ. *Schlangenwurzel;* It. *Serpentaria;* Lat. *Aristolochia serpentaria*), the dried root of Virginia snake-root, or birthwort: it is small, light, and bushy, consisting of a number of fibres matted together, sprung from one common head, of a brownish color on the outside, and pale or yellow within. It has an aromatic smell, something like that of valerian, but more agreeable; and a warm, bitterish, pungent taste, very much resembling camphor.—*Encyclopædia Metrop.*

Arithmetic. Where first invented is not known, at least with certainty. It was brought from Egypt into Greece by Thales, about 600 B.C. The oldest treatise upon arithmetic is by Euclid (7th, 8th, and 9th books of his *Elements*), about 300 B.C. The sexagesimal arithmetic of Ptolemy was used A.D. 130. Diophantus of Alexandria was the author of thirteen books of arithmetical questions (of which six are extant) in 156. Notation by nine digits and zero, known at least as early as the sixth century in Hindostan; introduced from thence into Arabia about 900; into Spain, 1050; into England, 1253. The date in Caxton's *Mirror of the World*, Arabic characters, is 1480. Arithmetic of decimals invented in 1482. First work printed in England on arithmetic (*de Arte Supputandi*) was by Tonstall, bishop of Durham, 1522. The theory of decimal fractions was perfected by Lord Napier, in his *Rabdologia*, in 1617.—HAYDN.

Ark, Noah's, a floating vessel built by the patriarch Noah, for the preservation of his family, and the several species of animals, during the Deluge. The ark has afforded several points of curious inquiry relating to its form, capacity, materials, etc. The wood of which it was built is called in the Hebrew *gopher wood*, and in the Septuagint, *square timbers.* Some translate the original *cedar*, others *pine*, others *box*, etc. Pelletier prefers cedar, on account of its incorruptibility and the great abundance of it in Asia. Fuller and Bochart contend that it was built of what the Greeks call κυπαρισσός, or the *cypress-tree;* for, taking away the termination, *kupar* and *gopher* differ very little in sound. In what place Noah built and finished his ark is no less a matter of dispute; but the most general opinion is, that it was built in Chaldea, in the territories of Babylon. Its dimensions, as given by Moses, are 300 cubits in length, 50 in breadth, and 30 in height. Dr. Arbuthnot computes its burden at 81,062 tons. It contained, besides eight persons of Noah's family, one pair of every species of unclean animals, and seven pairs of every species of clean animals, with provisions for them all during the whole year. The insuperable difficulties connected with the belief that all the existing species of animals were provided for in the ark, are obviated by adopting the suggestion of Bishop Stillingfleet, approved by Matthew Poole, Pye Smith, Le Clerc, Rossenmüller, and others, that the Deluge did not extend beyond that region of the earth then inhabited, and that only the animals of that region were preserved in the Ark.—*See* DELUGE, and KITTO's *Biblical Cyclopedia.*

Arkansas, one of the Western United States, is bounded north by Missouri, east by the Mississippi River, separating it from Tennessee and Mississippi, south by Louisiana, and west by the Indian Territory. It is between 33° and 36° 30′ N. lat., and between 89° 30′ and 94° 30′ W. long., and between 12° 30′ and 17° 30′ W. long., from Washington. It is 240 miles long and 228 wide, containing 54,500 square miles, or 34,800,000 acres. The population in 1830, 30,388; in 1840, 97,574; in 1850, 209,639. It is divided into 51 counties. The capital is Little Rock, situated on the right bank of Arkansas river, 300 miles from its entrance into the Mississippi. The other principal towns are Helena, Columbia, Van Buren, Fort Smith, Washington, Batesville, Fayetteville, El Dorado, etc.

The eastern part of the State, for the distance of 100 miles from the Mississippi, is low, and much of it is subject to be overflowed at certain seasons; but this has been in a great measure obviated by an extensive embankment or *levee* along the Mississippi, Arkansas, and White Rivers. The central part of the State is uneven and broken, and in the west it is hilly and mountainous. There are some extensive prairies, and some heavily timbered lands. On the margin of the rivers the soil is exceedingly fertile. The Ozark Mountains, rising sometimes to the height of from 1000 to 2000 feet, cross its northwest part. A range of hills, called the Black Mountains, runs between the Arkansas and White Rivers, extending west from near White River to the west border of the State. A little southwest of the centre of the State are boiling springs, the temperature of which at times rises nearly to the boiling point, though subject to much variation. Near these springs are ridges of hills, which rise into elevated peaks known as the Poteau and Washita Mountains, whose highest elevations are west of the State in the Indian Territory. Wild animals, as the deer, elk, bear and wolf; and wild fowls, as the wild goose, turkey, and quail, are found in abundance. Its mineral productions are extensive, consisting of iron ore, lead, zinc, and copper, gypsum, coal, and salt. The country is well adapted to the raising of cattle.

There were in this State, in 1850, 781,531 acres of land improved, and 1,816,684 of unimproved land in farms; cash value of farms, $15,265,245; value of implements and machinery, $1,601,296.

Live Stock.—Horses, 60,197; asses and mules, 11,559; milch cows, 93,151; working oxen, 34,239; other cattle, 165,320; sheep, 91,256; swine, 836,727; value of live stock, $6,647,969.

Agricultural Products, etc.—Wheat, 199,639 bushels produced; rye, 8,047; Indian corn, 8,893,939; oats, 656,183; barley, 177; buckwheat, 175; peas and beans, 285,738; potatoes, 193,832; sweet potatoes, 788,149; rice, 63,179 pounds; value of products of the orchard, $40,141; produce of market gardens, $17,150; pounds of butter made, 1,854,239; of cheese, 30,088; maple sugar, 9,330 pounds; molasses, 18 gallons; beeswax and honey, 192,338 pounds; wool, 182,595 pounds produced; cotton, 65,344; flax, 12,291; hemp, 15 tons; silk cocoons, 38 pounds; hops, 157; tobacco, 218,936; hay (tons of), 3976; clover seed, 90 bushels; other grass seeds, 436; flax seed, 321; and there were made 35 gallons of wine; value of home-made manufactures, $638,217; of slaughtered animals, $1,162,913.

In the eastern part, particularly on the borders of the rivers, the climate is generally moist and unhealthy, but in the middle and western parts it is salubrious. Its rivers afford great facilities for commerce. The Mississippi flows along its eastern border for the distance of nearly 400 miles. The Arkansas River, which gives name to the State, flows through it in a southeastwardly direction; is a broad and deep stream, and is navigable for steamboats 300 miles to Little Rock, and in the spring floods 350 miles farther to Port Gibson, beyond the western border of the State. White River rises in Ozark Mountains, flows through a fertile and healthy country, abounding with springs and streams of pure water, and affords many mill seats. It flows into the Arkansas River, and is uncommonly circuitous in its course. The St. Francis River rises in Missouri, and flows south nearly parallel to the Mississippi, which it at last enters. It is boatable for 300 miles. The Washita waters its southern, and the Red River, a majestic stream, its southwestern part.

The internal improvements are in embryo, but when carried out will form an excellent system. The rivers are numerous, and would give good facilities for commerce, but for the rafts of sunken wood which obstruct nearly all. Congress has made appropriations for the clearance of some, including the Red River, but to such a limited extent as not to remove the obstructions entirely. The railroad system needs but development to give prosperity to the State. Congress has granted lands to all the principal roads in progress; one of which, from Memphis to Little Rock, will be important as a part of the trunk line to California.

Manufactures.—There were in the State in 1850, 3 cotton factories, with a capital invested of $16,500, employing 13 males and 18 females, producing sheetings and 81,250 pounds of yarn, valued at $16,637; 28 flouring and grist mills, 57 saw mills, 51 tanneries, 9 newspapers, including periodicals, published. Capital invested in manufactures, $324,055.

Arkwright, Sir Richard, famous for his inventions in cotton-spinning, was born at Preston, in Lancashire, in 1732, of parents in humble circumstances. He was the youngest of thirteen children, received but a very indifferent education, and was bred to the trade of a barber. But the *res angusta domi* could not repress the native vigor of his mind, or extinguish the desire he felt to emerge from his low situation. In the year 1760 he had established himself in Bolton-le-Moor, where he exchanged the trade of a barber for that of an itinerant hair-merchant; and having discovered a valuable chemical process for dyeing hair, he was in consequence enabled to amass a little property. It is unfortunate that very little is known of the steps by which he was led to those inventions that raised him to distinction, and have immortalized his name. His residence in a district where a considerable manufacture of linen goods, and of linen and cotton mixed, was carried on, must have given him ample opportunities of becoming acquainted with the various processes that were in use in the cotton manufacture, and of the attempts that had been made and were then making to improve them. His attention was thus naturally drawn to this peculiar department; and, while he saw reason to conclude that it was likely to prove the most advantageous in which he could engage, he had sagacity and good fortune to invent and improve those extraordinary machines by which, unlike most inventors, he amassed vast wealth, at the same time that he added prodigiously to the demand for labor, and to the riches and comfort of the civilized world.

The *spinning-jenny*, invented in 1767 by Hargraves, a carpenter at Blackburn, in Lancashire, gave the means of spinning twenty or thirty threads at once with no more labor than had previously been required to spin a single thread. The thread spun by the jenny could not, however, be used, except as weft, being destitute of the firmness or hardness required in the longitudinal threads or warp. But Mr. Arkwright supplied this deficiency by the invention of the *spinning-frame* —that wonderful piece of machinery, which spins a vast number of threads of any degree of fineness and hardness, leaving to man merely to feed the machine with cotton, and to join the threads when they happen to break. It is not difficult to understand the principle on which this machine is constructed, and the mode of its operation. It consists of two pairs of rollers, turned by means of machinery. The lower roller of each pair is furrowed or fluted longitudinally, and the upper one is covered with leather, to make them take a hold of the cotton. If there were only one pair of rollers, it is clear that a carding of cotton, passed between them, would be drawn forward by the revolution of the rollers; but it would merely undergo a certain degree of compression from their action. No sooner, however, has the carding, or *roving* as it is technically termed, begun to pass through the first pair of rollers, than it is received by the second pair, which are made to revolve with (as the case may be) three, four, or five times the volocity of the first pair. By this admirable contrivance, the roving is drawn out into a thread of the desired degree of tenuity, a twist being given to it by the adaptation of the spindle and fly of the common flax wheel to the machinery.

Such is the principle on which Mr. Arkwright constructed his famous spinning-frame. It is obvious that it is radically different from the previous methods of spinning either by the common hand wheel or distaff, or by the jenny, which is only a modification of the common wheel. Spinning by rollers was an entirely original idea; and it is difficult to determine which is most worthy of admiration—the genius which led to so great a discovery, or the consummate skill and address by which it was so speedily perfected and reduced to practice. Mr. Arkwright stated that he accidentally derived the first hint of his great invention from seeing a red-hot iron bar elongated by being made to pass between rollers; and though there is no mechanical analogy between that operation and his process of spinning, it is not difficult to imagine that by reflecting upon it, and placing the subject in different points of view, it might lead him to his invention. The precise era of the discovery is not known; but it is most probable that the felicitous idea of spinning by rollers had occurred to his mind as early as the period when Hargraves was engaged in the invention of the jenny, or almost immediately after. Not being a practical mechanic, Arkwright employed a person of the name of John Kay, a watch-maker at Warrington, to whom we shall afterward have to refer, to assist him in the preparation of the parts of his machine. Having made some progress toward the completion of his inventions, he applied in 1767 to Mr. Atherton, of Liverpool, for pecuniary assistance to enable him to carry them into effect; but this gentleman declined embarking his property in what appeared so hazardous a speculation, though he is said to have sent him some workmen to assist in the construction of his machine; the first model of which was set up in the parlor of the house belonging to the free grammar school at Preston.

His inventions being at length brought into a pretty advanced state, Arkwright, accompanied by Kay, and a Mr. Smalley, of Preston, removed to Nottingham in 1768, in order to avoid the attacks of the same lawless rabble that had driven Hargraves out of Lancashire. Here his operations were at first greatly fettered by a want of capital. But Mr. Strutt, of Derby, a gentleman of great mechanical skill, and largely engaged in the stocking manufacture, having seen Arkwright's inventions, and satisfied himself of their extraordinary value, immediately entered, conjointly with his partner Mr. Need, into partnership with him. The command of the necessary funds being thus obtained, Mr. Arkwright erected his first mill, which was driven by horses, at Nottingham, and took out a patent for spinning by rollers, in 1769. But as the mode of working the machinery by horse-power was found too expensive, he built a second factory, on a much larger scale, at Cromford, in Derbyshire, in 1771, the machinery of which was turned by a water-wheel, after the manner of the famous silk-mill erected by Sir Thomas Lombe. Having made several additional discoveries and improvements in the processes of carding, roving, and spinning, he took out a fresh patent for the whole in 1775; and thus completed a series of machinery so various and complicated, yet so admirably combined, and well adapted to produce the intended effect, in its most perfect form, as to excite the astonishment and admiration of every one capable of appreciating the ingenuity displayed and the difficulties overcome.—E. B.

Armada, a Spanish term, signifying a fleet of war. The armada which attempted to invade England in the time of Queen Elizabeth is famous in history.

Armed Neutrality. The confederacy, so called, of the Northern powers, against England, was commenced by the Empress of Russia in 1780; but its objects were defeated in 1781. The pretension was renewed, and a treaty ratified in order to cause their flags to be respected by the belligerent powers, December 16, 1800. The principle that neutral flags protect neutral bottoms being contrary to the maritime system of England, the British cabinet remonstrated, and Nelson and Parker destroyed the fleet of Denmark before Copenhagen, April 2, 1801. That power, in consequence, was obliged to secede from the alliance, and acknowledge the claim of England to the empire of the sea; and the Armed Neutrality was soon after dissolved.—HAYDN.

Arms. *See* FIRE-ARMS.

Arrack, or **Rack** (Fr. *Arac;* Germ. *Arrack, Rack;* Du. *Arak, Rak;* It. *Araco;* Sp. *Arak;* Port. *Araco;* Russ. *Arak*), a spirituous liquor manufactured at different places in the East.

Arrack is a term applied in most parts of India, and the Indian islands, to designate every sort of spirituous liquors; a circumstance which accounts for the discrepancy in the statements as to the materials used in making it, and the mode of its manufacture. The arrack of Goa and Batavia is in high estimation; that of Columbo or Ceylon has been said to be inferior to the former; but this is doubtful. Goa and Columbo arrack is invariably made from the vegetable juice, *toddy*, which flows by incision from the cocoa-nut tree (*Kocos nucifera*). After the juice is fermented, it is distilled and rectified. It usually yields about an *eighth* part of pure spirit. Batavia or Java arrack is obtained by distillation from molasses and rice, with only a small admixture of toddy. When well prepared, arrack is clear and transparent; generally, however, it is slightly straw-colored. Its flavor is peculiar; but it differs considerably, no doubt in consequence of the various articles of which it is prepared, and the unequal care taken in its manufacture. In England, arrack is seldom used except to give flavor to punch; formerly the imports were quite inconsiderable; but they have recently been a good deal greater, though, as they are mixed up in the official returns with rum from India, it is impossible to state their exact amount. The duty on rack from a British possession is 8*s.* 2*d.* a gallon, and on that from a foreign country, 15*s.* per gallon. In the East its consumption is immense. It is issued to the soldiers in India as part of the established rations; and it is supplied, instead of rum, to the seamen of the royal navy employed in the Indian seas. It is one of the principal products of Ceylon. Its prime cost in that island varies from 8*d.* to 10*d.* a gallon; and large quantities are exported to India and elsewhere. It is sold in Ceylon by the legger of 150, and in Java by the legger of 160 gallons. In 1841 the exports from the latter amounted to 4672 leggers, or 747,520 gallons, valued at 286,313 florins. Batavia arrack sold in bond in London, in September, 1853, at from 1*s.* 6*d.* to 2*s.* per gallon.

Pariah-arrack is a phrase used to designate a spirit distilled in the peninsula of India, which is said to be often rendered unwholesome by an admixture of *ganga*

(*Cannabis sativa*), and a species of *Datura*, in the view of increasing its intoxicating power. But it is not clear whether the term pariah-arrack be meant to imply that it is an inferior spirit, or an adulterated compound. This liquor is sometimes distilled from cocoa-nut toddy, and sometimes from a mixture of jaggery, water, and the barks of various trees.—*See* MILBURN's *Orient. Com.*; and MR. MARSHALL's *valuable Essay on the Cocoa-nut Tree*, p. 18.

Arrow-root, the pith or starch of the root *Maranta arundinacea*. It has received its common name from its being supposed to be an antidote to the poisoned arrows of the Indians. The powder is prepared from roots of a year old. It is reckoned a very wholesome, nutritious food: it is often adulterated, when in the shops, with the starch or flour of potatoes. It is a native of South America; but has been long introduced into the West Indies, where it forms a pretty important article of cultivation. An excellent kind of arrow-root, if it may be so called, is now prepared in India from the root of the *Curcuma angustifolia*. The plant is abundant on the Malabar coast, where the powder is made in such quantities as to be a considerable object of trade. Some of it has been brought to England. The *Maranta arundinacea* has been carried from the West Indies to Ceylon, where it thrives extremely well, and where arrow-root of the finest quality has been manufactured from it.—AINSLIE's *Mat. Indica*.

Arrowsmith, Aaron, an eminent geographer and hydrographer, born at London in 1750. He published, in 1817, a new General Atlas, 4to, and produced a great number of maps and charts. His map of the world on Mercator's projection is much esteemed. He died in 1823.

Arsenal (from the Romaunt *arthenal*, a citadel), originally denoted exclusively a magazine of naval stores and warlike apparatus, giving probability to the etymology which derives the word from the Latin *arx navalis*, a naval citadel. Now, however, the term is applied to a repository of warlike stores, whether for land or sea service. The naval arsenals are, however, still the more numerous, and will be found described at length under the article DOCK-YARDS.

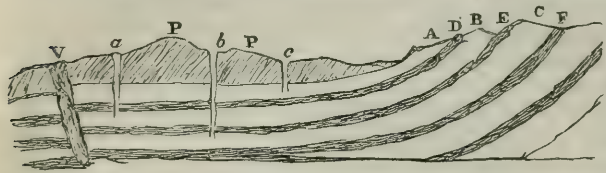
The great arsenal of Britain (if we except the Tower) is that of Woolwich, where all warlike stores and apparatus are not only preserved, but manufactured in the immense buildings devoted to the purpose. At Woolwich, Deptford, Chatham, Sheerness, Portsmouth, and Plymouth, are the great naval arsenals. In France, there are military arsenals at Paris, Strasburg, Metz, Lille, etc.; and five great maritime arsenals, the chief of which are those of Brest, Toulon, and Rochefort; next to them L'Orient and Cherbourg. There are also inferior arsenals at Dunkirk, Havre, Saint Servan, Nantes, Bordeaux, and Bayonne. The other principal naval arsenals in Europe are, those of Russia, at St. Petersburg, Cronstadt, and Sebastopol; of Holland, at Anvers, Flushing, Helvoetsluys, and the Texel; of Prussia, at Dantzig; of Hamburg; of Denmark, at Copenhagen; of Turkey, at Constantinople; of Italy, at Genoa, Villafranca, Livorno, Spezzia, Civita Vecchia, Naples, Ancona, Venice, and Trieste; of Spain, at Cadiz, Carthagena, and Barcelona, and the British one at Gibraltar; of Portugal, at Lisbon; of Britain, at Malta and Corfu.—E. B. The principal naval arsenals of the United States are at New York, Boston, and Norfolk. The military arsenals of the United States are at Kennebec, Maine; Watertown, Massachusetts; Watervliet, New York; New York city; Alleghany and Frankford, Pennsylvania; Pikesville, Indiana; Washington, District of Columbia; Fort Monroe, Virginia; Augusta, Georgia; St. Louis, Mobile; Baton Rouge, Louisiana; Mount Vernon, Alabama; Detroit, Michigan; Fayetteville, North Carolina; Charleston, South Carolina; Little Rock, Arkansas; San Antonio, Texas; Benicia, California; of Brazil, at Rio Janeiro and Bahia; of La Plata, at Buenos Ayres and Monte Video; of Chili, at Valparaiso; and of Mexico, at Vera Cruz.

Arsenic (Germ. *Arsenik*; Fr. *Arsenic*; It. and Sp. *Arsenico*; Russ. *Muschjak*; Lat. *Arsenicum*). This metal has a bluish white color not unlike that of steel, and a good deal of brilliancy. It has no sensible smell while cold, but when heated it emits a strong odor of garlic, which is very characteristic. It is the softest of all the metallic bodies, and so brittle that it may be easily reduced to a very fine powder by trituration in a mortar. Its specific gravity is 5·76.—THOMSON's *Chemistry*. Metallic arsenic is not used in the arts, and is not, therefore, extracted from the ore, except for the purposes of experiment or curiosity. The arsenic of commerce is the white oxide, or *arsenious acid* of chemists. It is a white, brittle, compact substance, of a glassy appearance; is inodorous; has an acrid taste, leaving on the tongue a sweetish impression; and is highly corrosive. In its metallic state arsenic exerts no action on the animal system; but when oxidized, it is a most virulent poison. The arsenic of the shops is sometimes adulterated with white sand, chalk, or gypsum; the fraud may be detected by heating a small portion of the suspected powder, when the arsenic is dissipated, leaving the impurities, if there be any, behind. Though the most violent of all the mineral poisons, the white oxide of arsenic, or the arsenic of the shops, is yet, when judiciously administered, a medicine of great efficacy. It is also used for various purposes in the arts. It is principally imported from Saxony and Bohemia.—THOMSON's *Chemistry*; A. T. THOMSON's *Dispensatory*.

Arsura, a term used in ancient times for the melting of gold or silver, either to refine them or to examine their value. The method of doing this is explained in the Black Book of the Exchequer, ascribed to Gervaise, in the chapter *De Officio Militis Argentarii*, being in those days of great use, on account of the various places and different manners in which the king's money was paid. Arsura is also used for the loss or diminution of the metal in the trial. In this sense a pound was said *tot ardere denarios*, to lose so many pennyweights. Arsura is likewise used for the dust and sweepings of silversmiths, and others who work in silver melted down.

Artesian Wells, the name applied to artificial springs, produced by boring a small hole through strata destitute of water, into lower beds in which water is percolating in considerable quantity. On making such perforation, the water often rises forcibly to the surface, and is conveyed to a convenient receptacle by a pipe introduced by the perforation into the strata affording the water. The first place in Europe where such artificial fountains were extensively formed was in the French province of Artois, anciently *Artesium*. But there is reason to believe that the art was long before practiced by the Chinese, who are very expert in the formation of such wells. They are extensively used in the Milanese, in several parts of Germany, and have also been for several years employed in the south of England, on the coast of Lincolnshire, and more lately in the vicinity of London.

An artesian well was sunk at Sheerness in 1781, to the depth of 330 feet.—*Philosophical Transactions*, 1784. It was carried through a thick bed of *London clay*, and water, which rose nearly to the surface, was found on reaching the subjacent sand-beds. Two of better construction were carried to the same depth through similar materials at Portsmouth docks in 1828 and 1829. The soil of the district on the coast of Lincoln, between Lowth and the sea, rests on a thick bed of clay, which precludes the possibility of springs; but by penetrating through this, water was found in abundance in the chalk on which the clay reposed; and artesian wells there now afford a plentiful supply of this necessary element, that rises with such force through the pipes as to have obtained the local name of *blow-wells.* The theory of artesian wells is founded on the fact that water derived from a higher level may percolate through certain strata, or pass in seams between them, and be prevented from reaching the surface by the superposition of other beds or strata impervious to water. In such circumstances a perforation through the latter allows the water, by hydrostatic pressure, to reach the surface; and it will overflow, or even gush out, with a force proportional to the difference of level of the different parts of the water-bearing strata, especially if the free course of the subterranean sheet of water be interrupted by what are termed *faults* in the strata, or the occurrence of veins of stony bodies intersecting them. Thus, in the diagram of a supposed section of a country, let P P represent a thick bed of plastic clay, A B C strata affording water, alternating with strata D E F, impervious to water, and let V represent a vein of trap rock traversing these strata, and producing a *shift* or fault; by sinking the pipes *a b c* into the strata A B C respectively, we shall obtain the water derived from the more elevated portions of these strata at such artesian fountains.



The same principles are applicable to the sinking of common wells. It has sometimes happened that a well has been lost in attempts to increase its flow by a deeper excavation. Thus, if the bottom of the well was a bed of clay resting on sand, a perforation made through that clay has occasionally lost all the water; because the stratum of clay had prevented the water from escaping to a lower level, and conducted it toward the surface. The direction of the strata, as well as their nature, are essential elements for the successful formation of either common or artesian wells; which last are of great consequence in champaign countries, where natural springs are less common.

Artesian wells have been also sunk for the purpose of obtaining *warm* water. It is well ascertained that in the interior of our earth there is a source of heat, which may be reached by deep artesian perforations, so as to bring warm water to the surface. Thus Von Bruckmann, of Würtemburg, heated a paper manufactory at Heilbronn by water from a deep artesian well; and by the same means prevented the freezing of the water in winter round the wheels of mills. In the artesian well at Rochelle, at the depth of 370 feet, the water has a temperature 13° higher than that of the atmosphere. M. Arago was the chief promoter of the artesian well in the plain of Grenelle at Paris, which, at the depth of upward of 1900 feet, affords water at 92° Fahrenheit. In the deepest artesian well yet made, that at Kissengen, the temperature of the water is also very considerable.

The instrument now used in making artesian perforations to great depths is not the old machine employed in boring for coal, etc., a series of iron rods screwed together, and forced down by repeated blows with a mallet. That was a costly and tedious operation: a Chinese instrument has lately been introduced with great effect. It consists of a heavy bar of cast iron, six feet long and four inches in diameter, armed at its lower end with a cutting chisel, surrounded by a cylindrical chamber, which, by means of simple valves, receives and retains the abraded portions of the rock. The instrument is suspended by a rope passing over a wheel. As it is wrought up and down, the torsion of the rope gives a circular movement to the bar of iron, sufficient to vary the position of the chisel at each stroke of the instrument; and when the chamber is full of the debris of the rock, it is drawn up and discharged. This mode of working has greatly diminished the labor and expense of such operations; and is applicable to many processes in mining, blasting in quarries, and the like.

An ingenious German engineer, M. Sellow, has by a similar instrument of greater size, succeeded in ventilating the mines at Saarbrück, by perforations 18 inches in diameter, and several hundred feet in depth.

The importance of artesian wells can scarcely be overestimated. They are capable of rendering districts now scantily supplied with or destitute of potable water, convenient domiciles for man; and under an enlightened government might render habitable no small portions of the arid wastes of Africa and Arabia. In the latter, recent observations show that there are abundant subterranean sources of water, and possibly a series of artesian wells might diminish the perils of the passage of the Great Sahara.—E. B. The United States Government has recently authorized a series of experiments for the construction of a number of artesian wells on the plains of Western Texas, on or near the military and emigrant roads leading toward New Mexico and California, for the relief of emigrant parties. An expedition for this purpose left Texas in January, 1855, under the command of Captain Pope, United States army, and had not completed their operations in December, 1856.—*See* Hericat de Thury, *Considerations sur la cause du Jaillissement des Eaux des Puits-forés*, Paris, 1829; Von Bruckmann, *Ueber Artesische Brunnen*, Heilb. 1833; M. Arago, *Notices Scientifiques, Annuaire du Bur. des Long. pour Annes plus.*

Artificer, a person who works in iron, brass, wood, etc.—such as smiths, brasiers, carpenters, etc. The Roman artificers had their peculiar temples, where they assembled and chose their own patron to defend their causes; and they were exempted from all personal services. Taruntenus Paternus reckons 32 species of artificers, and Constantine 35, who enjoyed this privilege. The artificers were incorporated into divers colleges or companies, each of which had their tutelar gods, to whom they offered their worship. Several of these, when they quitted their profession, hung up their tools, as votive offerings to their gods. Artificers were held a degree below merchants and *argentarii*, or money-changers, and their employment more sordid. Some deny that in the earliest ages of the Roman State artificers were ranked in the number of citizens; others, who assert their citizenship, allow that they were held in contempt, as being unfit for war, and so poor that they could scarcely pay any taxes; for which reason they were not entered among the citizens in the censor's books; the design of the census being only to see what number of persons were yearly fit to bear arms and to pay taxes toward the support of the state. It may be added, that much of the artificers' business at Rome was done by slaves and foreigners.

Artificial Horizon, a contrivance of great utility for enabling an observer to determine the altitude of a heavenly body, or of a terrestrial object, above the horizon of any place, when the sensible horizon is ill defined. The surface of a fluid not easily disturbed by the air, such as quicksilver, or some viscid, opaque fluid, is usually employed for this purpose, as they will adjust themselves to a plane parallel to the rational horizon. To prevent the influence of winds in the open air, the surface is usually covered by a plate of ground-glass with parallel surfaces. In fixed observations this is not necessary; and the mercury is contained in an oblong trough; for locomotive observations, a cup of three inches in diameter is the containing vessel. But as carrying about mercury is inconvenient, some have employed polished metallic or glass mirrors, adjusted by screws at the corners, and a spirit-level, to horizontality; though this is less accurate than the fluid surface. The surface of the quicksilver, or mirror so adjusted, is a plane touching the surface of the earth where the observation is made, and parallel to the rational horizon; therefore, a ray of light passing from the object to the surface of the instrument, forms an angle with that surface equal to the angular elevation of that object above the true horizon of the place, when it is corrected for parallax and refraction. —E. B.

As, in *Antiquity*, a weight, consisting of 12 ounces, being the same with *libra*, or the Roman pound. The word is derived from the Greek *ἄις*, which, in the Doric dialect, is used for *ἕις*, *one*, q. d. an entire thing; or, according to others, from *æs*, because made of brass. It was also the name of a Roman coin, which was of different weight and material in different ages of the commonwealth. Under Numa Pompilius, according to Eusebius, the Roman money was either of wood, leather, or shells. In the time of Tullus Hostilius it was of brass, and called *as libra*, *libella*, or *pondo*, because actually weighing a pound, or 12 ounces. The first Punic war, 420 years later, having exhausted the treasury, the *as* was reduced to two ounces. In the second Punic war it was again reduced to half its weight, viz., to one ounce. And, lastly, by the Papirian law it was still further reduced to the diminutive weight of half an ounce; and it is generally thought that it continued the same during the commonwealth, and even to the reign of Vespasian. The *as*, therefore, was of four different weights in the commonwealth. Its original stamp was that of a sheep, ox, or sow; but from the time of the emperors it had on one side a Janus with two faces, and on the reverse the rostrum or prow of a ship. *As* also denoted any integer or whole; whence the English word *ace*. Thus *as* signified the whole inheritance; whence *hæres ex asse*, the heir to the whole estate.

Asafœtida (Ger. *Teufelsdreck*; Du. *Duivelsdreck*: Fr. *Assa-fœtida*; Sp. *Asa-fetida*; Lat. *Asa-fœtida*; Per. *Ungoozeh*), a gum resin, consisting of the inspissated juice of a large umbelliferous plant, the *Ferula asafœtida*. It is produced in the southern provinces of Persia, and in the territory of Sinde, or country lying at the mouth of the Indus. It is exported from the Persian Gulf to Bombay and Calcutta, whence it is sent to Europe. It has a nauseous, somewhat bitter, biting taste, and an excessively strong, fetid, alliaceous smell: the newer it is, it possesses its smell and other peculiar properties in the greater perfection. It is imported, packed in irregular masses, in mats, casks, and cases; the last being, in general, the best. It should be chosen clean, fresh, strong-scented, of a pale reddish color, variegated with a number of fine, white tears: when broken, it should somewhat resemble marble in appearance; and, after being exposed to the air, should turn of a violet red color. That which is soft, black, and foul, should be rejected. The packages should be carefully examined, and ought to be tight, to prevent the smell from injuring any other article. Neither the imports nor the quantities cleared for consumption are considerable, though the latter are probably greater than might have been expected, amounting to about 9000 lbs. a year. The duty in England is 1*s*. a cwt. In England it is used only in the materia medica. In France it is used both in that way, and, to some extent, also as a condiment. It is worth, in bond, in the London market, from 25*s*. to £5 per cwt.—MILBURN's *Orient. Com.*; *Parl. Papers*; and private information.

Ash, Common, the *Fraxinus excelsior* of botanists, a forest tree of which there are many varieties. It is abundant in England, and is of the greatest utility. The ash is of very rapid growth; and, unlike most other trees, its value is rather increased than diminished by this circumstance. Like the chestnut, the wood of young trees is most esteemed. It grows on a great variety of soils, but is best where the growth has been most vigorous. It is inferior to the oak in stiffness, and is more easily split; but in toughness and elasticity it is far superior to the oak, or to any other species of timber. Hence its universal employment in all those parts of machinery which have to sustain sudden shocks, such as the circumference, teeth, and spokes of wheels, ship-blocks, etc., and in the manufacture of agricultural implements; in the latter, indeed, it is almost exclusively made use of. The want of prolonged durability is its greatest defect; and it is too flexible to be employed in building. The wood of old trees is of a dark brown color, sometimes beautifully figured; the wood of young trees is brownish white, with a shade of green. The texture is alternately compact and porous: where the growth has been vigorous, the compact part of the several layers bears a great proportion to the spongy, and the timber is comparatively tough, elastic, and durable. It has neither taste nor smell, and, when young, is difficult to work. The mountain ash (*Pyrus aucuparia*) is quite a different tree from the common ash, and its timber is far less valuable.—TREDGOLD's *Principles of Carpentry*; *Timber Trees and Fruits*, in *Library of Entertaining Knowledge*, *etc.*

Ashes (Fr. *Vedasse*; Ger. *Waidasche*; Du. *Weedas*; Da. *Veedashe*; It. *Feccia bruciata*; Sp. *Alumbre de hez*; Russ. *Weldasch*; Lat. *Cineres infectorii*), the residuum, or earthy part, of any substance after it has been burned. In commerce, the term is applied to the ashes of vegetable substances; from which are extracted the alkaline salts called potash, pearlash, barilla, kelp, etc.; which see.

Asia. This division of the globe is distinguished by its vast extent; by the striking character of its interior geography; above all, by the stupendous revolutions of which it has been the scene; and, lastly, by the high antiquity of its civilization, of which we can still faintly trace the precious remains. Stretching from the southern hemisphere into the northern regions of perpetual winter, it comprises within its bounds the opposite extremes of heat and cold; all the varieties, consequently, of the animal and vegetable tribes; and that still more interesting variety which the irresistible law of climate impresses on the human species. The surface of Asia, towering to its height far above the regions of perpetual snow, presents, when superficially examined, a confused mass of lofty mountains, diverging into an endless variety of inferior ridges, apparently without plan or system. But a more attentive survey discloses, amidst the bold irregularities of nature, the same order and unity of design in the structure of this great continent as in all the other works of creation.

Asia was the earliest abode of the human race; and, when all the other parts of the world were either uninhabited or sunk in barbarism, it was the seat of great empires, and of flourishing and splendid cities, of commerce, of literature, and of all the arts of civilized life. But its early prosperity was blighted by the ruthless devastations of war; its populous cities were utterly destroyed, so that the spot on which many of them stood is now only marked by masses of ruins; their arts and literature have perished; and in such fragments of their writing as still survive, the meaning is buried under the almost impenetrable veil of an ancient and unknown character. In touching on the various topics which are comprehended under the designation of Asia, it must be remembered that in the following article we are to confine our attention to such general views of its geography, history, institutions, policy, and manners, as will not supersede a more particular description of its various states under their respective designations.

Asia contains a larger area than any of the other divisions of the globe, viz., including its islands, 12,960,000 square geographical miles; the area of America being 10,600,000, that of Africa 8,550,000, and that of Europe 2,560,000.

The islands of Asia are: in the Arctic Ocean, Nova Zembla, consisting of two large islands, and New Siberia, consisting of three islands of considerable extent discovered in the course of this century. Along the east coast: the volcanic group of the Kuriles; the Japanese Islands, of which Nipon is the principal; the Lu-ku group to the south of Japan; the large islands of Formosa and Hainan, on the coast of China. Saghalia, opposite the coast of Mantchuria, was long believed to be an island, but is a peninsula extending over 8 degrees of latitude, and connected with the continent by a low, narrow, and sandy isthmus, a little to the south of the mouth of the River Amur. In the southeast and south: the Philippines, among which Luzon and Magindanao are the largest, and half a dozen others have areas surpassing or approaching those of Cyprus and Candia; the great islands of Borneo, Sumatra, Java, and Celebes; the Moluccas or Spice Islands, among which Gilolo, Ceram, Buro, and Amboyna, between Celebes and New Guinea; Nias, Batu, the two Pora, etc., on the west coast, and Battam, Linga, Banka, and Billiton, on the east coast of Sumatra; and, finally, the Sunda and Banda islands, a vast latitudinal Archipelago, extending from the east point of Java toward Australia and New Guinea, and composed of myriads of islands, among which the principal are in a direction from west to east; Madura, Bali, Lambok, Sumbava, Sandelbosh or Tshindana, Flores, Timor (250 miles long), Timor Laut, and Aru, which form a bridge, as it were, between Asia and Australia. In the Indian Ocean: the Nicobar and Andama Archipelagos, between the northwest point of Sumatra and the mouths of the Irawaddy; the large island of Ceylon; and, on both sides of the 70th meridian east, stretching due north from south lat. 8° nearly as far as the latitude of Goa, the Archipelagos of the Tshagos, Maldives, and Lakkadives, all three composed of myriads of mostly very small islands of coral formation. In the Persian Gulf: Ormuzd, Kishm, and Bahrein. In the Red Sea: Perim, Arish (erroneously called Harnish), Farsan, and Dhalak. In the Mediterranean: Cyprus, Rhodes, Chios, etc.

The surface of this vast continent is exceedingly varied. In some places it towers in stupendous mountains, forming four great chains, with subordinate branches, of different names. It often exhibits vast plateaux or elevated table-lands, of prodigious extent; in other points it stretches in plains little elevated above the level of the ocean; while in certain points it presents enormous hollows or depressions that are lower than the surface of the Black Sea. Humboldt computes the superficies of all Asia at 1,346,000 geographical square leagues. Of this a large proportion is mountainous, or raised in elevated plains. The same eminent authority estimates these as follows:

	Sq. leagues.
The mountainous parts of Arabia, Beluchistan, or the plateau of Kelat, Kandahar, with the mountain ridges of India	240,000
The mountainous parts of China	54,400
The plateau of Gobi or Sha-mo	42,000
The plateau of Thibet and Ladak, between the Himalaya and Kuen-lun Mountains	41,000
The plateau of Persia	27,000
The Taurus of Asia Minor, Ararat, and the Hindoo Koosh	81,300
Of which that of Ararat alone is	3,500
The Caucasus, from Baku to Anapa	2,700
The Oural and Altai groups	3,400

The northern portion of Asia consists of a series of plains divided by mountains of small elevation, forming the comparatively low land of Siberia, intersected by several large rivers, and occupied often by extensive swamps. This region is estimated at about 400,000 square leagues. The central part of Asia, still imperfectly known to Europe, was till lately conceived to be one vast table-land, of irregular form, buttressed on every side by lofty mountains; but it now appears, on the contrary, to be traversed by long mountain chains.

Asia presents to the eye such a compactness of conformation, and its outlines are at the same time so diversified by deep indentures of the sea, forming gulfs and peninsulas of every shape and dimension, that neither Africa can be called more compact, nor North America more diversified. Every prominent feature of this vast continent is on a gigantic scale; and the aggregate of its mountains and rivers, its low plains and its elevated plateaux, surpasses those of the other divisions, not only in magnitude, but also by its contrasting variety.* Its mere steppe rivers approach the size of the Don and Dnieper; and the second of its salt lakes, the Aral, is still larger, by 6400 square geographical miles, than Lake Superior, the largest sheet of water in America; while the combined superficies of all the American lakes would not suffice to cover the area of the Caspian. Its Indian Archipelago forms a world by itself, with which the West Indian Islands can be compared neither for extent nor importance; its mountains rise higher into the regions of eternal snow than the far-famed Chimborazo; it has its deserts of burning sand and of frozen swamps, alike destructive to the human race. Nowhere is there such an exuberance of animal and vegetable life, not only spread over the whole continent, but also displaying itself within the narrowest limits, as the traveler rapidly descends from the crest of the Himalaya into the plain of Bengal. The same variety, the same contrasts, appear in its history. Asia, the cradle of mankind, the mother of religion, the nurse of civilization, where arts and letters were cultivated in the remotest times, contains within her inaccessible mountain forests numerous descendants of her primitive inhabitants, who still continue that brutish life which their forefathers led when the first vine was planted, the first hieroglyphic character carved in the rock.

Of the domestic animals, the elephant claims the pre-eminence, being unequaled by any other animal for the purposes of draught. This animal is confined to the southern countries of India, where the climate is hot, being seldom seen in the mountainous tracts toward the north. The camel is used for domestic purposes over a far wider extent of country than the elephant. This animal is of two species, the one with two humps, and the common camel with only one hump. The latter is the camel of Arabia, Syria, Persia, India, and Northern Africa. A lighter variety of this species is the dromedary, used only for riding, and differs from the camel of burden as the racer does from the draught-horse. The two-humped camel is the Bactrian species, and is so rare, even in Western Asia and India, that Captain Lynch states, that in a caravan of 5000 camels there were not above eight or ten of this Bactrian species. In Mongolia, however, they are very numerous. The dromedary is chiefly used for traveling, and its valuable quality is swiftness, by which, joined to its capacity of enduring hardship, it is qualified to travel at an incredible rate for many successive days. In all the low countries, especially in the dry and sandy tracts, such as Arabia, Syria, etc., the common camel is employed. The two-humped camel is a native of the high countries in the neighborhood of the Oxus and the Jaxartes, where it is still chiefly used. So large a portion of Asia is occupied by vast plains and wastes of sand, that its interior intercourse must be maintained by land journeys. But without the aid of the camel, it would be impossible to traverse extensive deserts destitute both of food and water; and in those arid countries such an animal, which has been truly called the *ship* of the desert, is the most valuable gift which Providence could bestow.

---

* According to Berghaus, there are 10 rivers in America, and 12 in Asia, the basin of each of which contains upward of 10,500 German, or 168,000 geographical square miles. The united area of the former, the first of which is the Amazon, and the last the Rio Negro, is 324,500 German, or 5,192,000 geographical square miles; of which the basin of the Amazon occupies not less than 2,018,400. That of the latter, the Obi standing at the head with 924,800 geographical square miles, and the Tarim being the last, is 363,738 German, or 5,820,000 geographical square miles; giving a difference of 628,000 geographical square miles in favor of Asia. The total length of the 10 American rivers, windings included, is 76,640 geographical miles; that of the Asiatic, 98,448 geographical miles: difference in favor of the latter, 21,808 geographical miles. Yet the system of the Marañon in the former stands unequaled by any in the world.

Animals.—The other domestic animals of Southern and Western Asia are horses, mules, asses, buffaloes, black cattle, sheep, goats, etc. Arabia may be considered the native country of the horse, in which he arrives at perfection, and combines all the most estimable qualities of symmetry, form, fineness of skin, fire, docility of temper, fleetness, and hardiness. It is chiefly from the Arabian breed that the horses in other parts of the world have been improved. In Persia the horses are neither so graceful nor so swift as those of Arabia, being high, with long legs, spare carcasses, and large heads; but they are highly prized by the inhabitants for their extraordinary capacity of enduring fatigue. To the east of Persia, at Herat, the breed of horses is fine; also on the banks of the Indus and its tributaries; and in the higher regions of Balk and Bokhara they are excellent and numerous, and are exported in great numbers to Hindostan. The mule and the ass, all over India, are miserable animals. The mules are of better quality in the Punjaub, on the upper course of the Indus, and they improve still more farther west. In the countries west of the Indus, they are superior to those in Hindostan, and in Persia there is a still finer breed. But the mule of the East is inferior to that of Europe. The ass partakes of a similar improvement in his progress westward, and is a far finer animal in Western Asia than in Europe. In Syria, Palestine, and generally in Asia Minor, he is distinguished by agility, fire, and patience of fatigue, and ranks in the first class of domestic animals. Buffaloes are found in the hot plains of Asia, as well as in the mountainous tracts; and the oxen which are used in the plow have all a hump on their backs. The wealth of the pastoral tribes, who rove about in the western plains of Khorassan, and in the hilly tracts of Afghanistan, consists chiefly in sheep, which have tails a foot broad, and composed entirely of fat, but in other respects resemble the English sheep, being better and handsomer than those of India. Goats are common all over Asia, especially in the mountains, where there are some breeds with curiously-twisted horns; and they are by no means scarce in the plains.

In the northern parts of Asia, and in the high mountain tracts, a different class of animals is to be found. These cold regions are not distinguished by the same profusion of animal life as the tropical countries. The beasts of the forest decrease in numbers, size, and fierceness; and the wolf, the bear, the glutton, and the wild boar, are the only ferocious animals which thrive in these northern climates. In advancing on the desolate plains of Siberia to about the 60th degree of north latitude, we find the cold still taking effect on the animal as on the vegetable creation, and the living creatures, as well as the plants and trees, stunted in their full proportions. Beyond this limit a different order of animals appears, protected against the severity of the climate by a thick covering of fur, which is sought after as a rich article of dress in more opulent countries. These animals are accordingly hunted for their skins, which constitute the great staple article of trade in Northern Asia. In the Arctic regions the bear seems to form the only exception to the diminished grandeur of the animal creation. This animal, nourished in the regions of Northern Asia, acquires a larger size, and far greater power and fierceness, than in southern climates. The domestic animals of the northern and mountainous countries of Asia are of a less imposing appearance, and not nearly of the same strength as those in the lower valleys of the south and west. In the high and cold plains of Central Asia the camel is no longer used as a beast of burden, nor in the northern parts of the continent. Thibet and Central Asia, till beyond the Altaï Mountains, are inhabited by Mongolish and Turkish tribes, whose wealth consists in their cattle, which not only furnish them with food, clothing, and shelter, but are also used as beasts of burden, and in the labors of agriculture. The yak of Tartary, or the bushy-tailed bull of Thibet, seems to supply the place of the camel in these mountainous countries. This animal is about the size of a small bull, of great strength, and is reckoned a valuable property among the itinerant hordes of Tartars, to whom it affords the means of easy conveyance, of clothing, and shelter for their tents, from the prodigious quantity of long, flowing, glossy hair on its tail, and, finally, of subsistence from its milk and flesh. In those mountains is also found the musk-deer, which delights in the most intense cold, and of which the musk, a secretion by the male, affords a revenue to the government, as well as a valuable article of trade. Here, also, on the highest mountains, amidst ice and snow, is the Cashmere goat, the wool of which affords the materials of the finest shawls. Wild horses are seen in the high plains of Thibet; and the breed of sheep, a peculiar species of which is indigenous to the climate, is of great value. They are nourished on the short and dry herbage of these exposed plains, and serve for subsistence to the inhabitants, as well as for beasts of burden. The wild and extensive plains of Tartarў are inhabited by pastoral tribes, who depend in like manner on their herds. On the southern side of the Altaï Mountains we find the same tribes of wanderers, most of them the scattered remnants of the Tartar nations who had formerly so deep a share in the great revolutions of Asia. All these tribes subsist chiefly by pasturage. Near the Ural Mountains some live chiefly by hunting or ensnaring the elk and other wild animals for their furs. Among those who are shepherds, sheep and horned cattle are found; while the hunting tribes have scarcely any domestic animals. In all these countries the wolf and the bear are known to abound. In the rigorous climate farther to the north, where the cattle are stunted in size, and can scarcely subsist, their place is supplied by the reindeer, a species peculiar to a rigorous climate, and most valuable for all domestic purposes, whether for draught or for subsistence. During part of the year the inhabitants of those desolate countries subsist upon its flesh or milk; its skin furnishes them with the chief part of their dress, and its horns with such domestic utensils as they require. The dog is also trained to draw the sledge.

Birds.—The feathered race in Asia includes almost every known species. In the southern parts are found all the tropical birds, distinguished by beautiful plumage, and some of them uttering sounds that have a resemblance to the human voice. Here are also found some of the largest and rarest birds—the ostrich, the cassowary, and, in the Himalaya Mountains, the gypaëte, one of which, shot by a British officer, is stated by Bishop Heber to have measured from the extremity of one wing to another the enormous length of 14 feet. The other birds are eagles, kites, vultures, magpies in the higher countries, hawks, crows, wild geese and ducks, flamingos, herons, bustards, florikens, rock pigeons, lapwings, storks, plovers, snipes, quails, partridges, different species of *fringillidæ*, and almost all the other small birds to be found in similar climates. In Northern Asia the feathered creation is nearly the same as in Europe.

Early Commerce.—Asia, notwithstanding the wars by which it has been desolated, was from an early period the seat of commerce and of wealth. The eastern countries of Hindostan and China preceded Europe in civilization and industry, and, independent of that diversity of natural productions which is the foundation of trade, they had cultivated many arts and manufactures which were unknown in the Western World. Asia, accordingly, abounded in many precious commodities which could not be produced by the ruder industry of Europe. Thus China had its silk and porcelain; Hindostan its muslins, cotton, precious stones, and aromatics of all sorts; costus, bdellium, spikenard, ivory, tortoise-shell, pepper, etc. These were in general demand throughout Europe, where they could not be produced; and they were procured in exchange chiefly for bullion, which then, as in later times, was the great article of export to India; also for woolen cloths, wine, brass, lead and tin, glass, coral, female slaves, etc., all which commodities met with a ready sale in the markets of Hindostan. The staple commodity of China was silk; and the mode of producing this esteemed luxury being unknown in Europe, it was brought in large quantities, either by the caravans or by the annual fleets, to Alexandria, at that time the great commercial mart of the East, and was thence sent to supply the demand at Rome, where it sold at one time for its weight in gold; but, owing to the high profit, caravans began to travel so regularly to China, that the supply increased with the demand, and the price was reduced. Between the sixth and the seventh centuries, Eastern Asia was robbed of this precious monopoly by the art of two Persian monks, who contrived, in a hollow cane, to transport the eggs of the silk-worm from China to Europe, where they were hatched by means of heat, and the race quickly propagated; and one great link of commerce between China and Europe was in this manner broken. The trade of Asia was interrupted by the irruption of the barbarians, who invaded and finally subverted the Roman empire; but the moment the storm was past commerce resumed its quiet course. Constantinople, the eastern capital of the empire, was still the centre of luxury and trade; as were also such parts of the Roman territory as had not been swept by barbarian invasion; and with those places the caravans still traded, shaping their course as they best could to avoid the distractions of the interior. Farther to the east, the califs who reigned at Bagdad encouraged science, commerce, and the arts; and the extensive country through which the Oxus and the Jaxartes flowed was the seat of a flourishing commerce, and of many opulent cities. Besides Bokhara, still a great city, Balk, Samarcand, Cosh, and others in the valley of the Oxus and the Jaxartes, numerous splendid cities are enumerated which are scarcely known to Europeans. To the east of the great range of mountains, which takes a direction from the main Himalaya ridge, the country of Cashgar contained Cashgar, its capital, and Khoten, which were both large, populous, and wealthy. Those countries served as the connecting link between India and Europe, and the resting-place of the caravans, which there collected in great force, and prepared for their journey to China across the great eastern desert, or for a more southerly course, through the country of Thibet. The armies of Zinghis Khan in the thirteenth, and of Tamerlane in the beginning of the fifteenth century, laid waste this highly cultivated and flourishing region. But those conquerors were not the enemies of commerce, and the surplus produce of India still reached Europe, though by a route rendered more difficult and dangerous from the desolation of the intervening countries. But the effect produced on the trade of Asia in the East by the encroachments of barbarism, and by the disorders in the interior, was more than counterbalanced by the growing civilization of Europe. About the beginning of the fourteenth century, the darkness which had so long covered the Western World began to dispel, and the Italian cities of Venice, Genoa, and others, had already made advances in letters, science, and commerce. The costly articles of Asia, her rich stuffs and precious aromatics, were now required to answer the growing demands of luxury and wealth; and the produce of India, imported into Alexandria through the Red Sea, was thence brought into Italy by the nobles of Venice and Genoa, who were all engaged in trade, and was diffused in smaller quantities all over Europe. The Italian States were enriched by this lucrative traffic, which only ceased with the discovery of the maritime route to India by the Cape of Good Hope. From this period the trade between Asia and Europe took a different direction. The commodities of India and China were transported to Europe directly by sea; and neither Alexandria nor the other ports of the Red Sea or of Italy were any longer the depositories of the Eastern trade. The Portuguese, always distinguished by their ardor for maritime discovery, were the first adventurers in the Asiatic seas. In the course of the sixteenth century the English and Dutch appeared as their competitors; and with the growing wealth of those countries the trade to the East rapidly increased. The commerce of Asia may therefore be distinguished into the following branches: 1st. The inland trade of China, Hindostan, Burmah, etc, with Turkey, the eastern countries of Europe, and with the intervening countries of Persia, Balk, Bokhara, and the regions of the Oxus; also, by a different route, the trade with Russia and the north of Asia. 2d. The maritime trade, including the coasting trade and the trade to the Eastern Archipelago, and the great trade to Europe and America, in which, from the progress of wealth and luxury, there is a great consumption of Asiatic produce.

Caravans.—The inland trade is carried on by caravans, or bodies of merchants, who travel together for the sake of security through those parts of the country which are disturbed by predatory tribes. It is only from the southern countries of Asia, such as Hindostan, China, the Burmese countries, Thibet, and the western countries of Persia, Afghanistan, Bokhara, and the regions of the Oxus and the Jaxartes, that Europe can derive any supply of valuable commodities; and all this trade, from whatever quarter it comes, must flow in its progress to Europe through the countries that lie between the Persian Gulf and the Caspian Sea; as the caravans could not, without inconvenience and danger from wandering tribes, pass to the north of this sea or the Sea of Aral; and accordingly, though an annual caravan is sent from Astracan to Khyvah and the countries on the Oxus, the chief trade with Russia is by sea to the port of Mangalshuck, and thence to Khyvah and Bokhara. The Russians have also begun to trade with Persia from the Caucasian province of Georgia, of which Tiflis, the capital, has, from a wretched collection of wooden huts, been rapidly improved, under the protecting influence of a European government, into a respectable and wealthy town, the future emporium, as may be anticipated, of this growing trade. The caravans from Constantinople and Syria proceed through Asia Minor and the northern or southern provinces of Persia, according as their ulterior route is through Afghanistan and the Punjaub into Hindostan, or to Thibet and China, or the more northern districts of Balk, Bokhara, and the country of the Oxus and the Jaxartes. Bokhara, though reduced to desolation by Zinghis Khan, is still one of the largest towns of the East, its population being estimated by Burnes at 160,000. It is also a great commercial mart; and the caravans which come from the West, passing along the southern shore of the Caspian Sea, through the Persian province of Astrabad, a most luxuriant and fertile country, arrive successively at Balfroosh, Ashruff, Astrabad, Mushed, Serrukhs, Merve, formerly the capital of the Seljook sovereigns, but now surrounded by deserts, and at Bokhara. From this great centre of commerce they proceed northeastward about 400 or 500 miles to Khojend and Kokaun, the former a large city, said to contain 30,000 houses; and crossing the Bolor range of the Himalaya Mountains, they arrive in the Mohammedan States of Kashgar and Yarkund, 600 miles east of Kokaun, passing some towns on the way, of which Ush is the most important, being a trading and populous town. Those two latter States lie within the precincts of the Chinese authority, where the most exact order is enforced; and they are fertile, rich, and well cultivated. The town of Cashgar is said to contain 20,000 houses, and to be thronged with strangers from all parts of Asia. Yarkund is also wealthy and populous. So strict a police is maintained by the Chinese authority, that, according to the information given to Fraser, a single traveler may traverse the whole territory as safely as a large caravan. From Kashgar there is a constant intercourse through Chinese Tartary, along the edge of the great central desert, with China, though we know little of the intervening countries beyond what we learn from the accounts of the early missionaries. Besides this eastern trade, and the trade westward along the southern shore of the Caspian, two caravans, consisting of 4000 or 5000 camels each, proceed to Astracan by Khyvah, round the northern shore of the Caspian Sea. The imports from Russia into Bokhara are, iron, steel, copper, brass, quicksilver, vermilion, coral, hardware, plated goods, gold and silver embroidery, copper wire; furs, the broadcloths and cotton manufactured goods of Britain, Germany, and France; refined sugar, cochineal, paper, and a variety of rich goods, which, from this great commercial dépôt, are diffused far and wide over Central Asia. Russia receives in exchange black lamb skins, certain manufactures of cotton and silk imported from Persia, antique gems and coins, lapis lazuli, rubies, and turquoises, which are received from the southern country of Buducksha, where there are famous mines of these precious stones. From Cashgar, Yarkund, and the side of China, Bokhara receives large quantities of tea, the great modern staple of the China trade, porcelain and China ware, and the various manufactures of China; and in return sends turquoises, coral, sheep, lamb, and fox skins, and furs, etc. From Persia shawls are imported, and woolen goods from Kerman; silk stuffs from the cities of Yezd and Ispahan; gold and silver embroidery, copper ware, loaf, candy, and raw sugar; Hamadan leather; and turquoises, of which there are mines in Persia; and, in return, black sheep and lamb skins are sent, which are in great request, to be manufactured into black-caps; camblet made of camel's hair, coarse colored silk handkerchiefs, lapis lazuli, indigo from India, cochineal, tobacco, chintzes from Masulipatam, and cotton manufactures. Slaves form a staple article in the commerce of Bokhara, and also of Khyvah. These are made prisoners by the disorderly tribes of Asia, the Koords, Turkomans, etc., in the course of the wars in which they are constantly engaged; and they are carried to the great slave markets of Bokhara and Khyvah, where they are exposed for sale like cattle. The balance of trade is always in favor of Bokhara. Money is consequently in great plenty, and can not be imported with a profit into this trading city. The Russian caravans, as they journey round the northern shore of the Caspian Sea, are frequently attacked by the Kirgeesh and Cossack tribes, and prisoners are carried off and sold into slavery. Fraser was assured that the number of Persian slaves in Khyvah and its dependencies exceeded the male population of these countries, and amounted to 150,000; and that, according to inquiries set on foot by the Empress Catherine, there were in Bokhara no less than 60,000 Russian slaves.

The commerce of the west with the southern countries of Asia—namely, Kaubul of Afghanistan, Cashmere, and India—passes through Persia by a different and more southerly route, namely, by Cashan, Yezd, which is the seat of rich silk manufactures, a great entrepôt of commerce, and a convenient resting-place for all the caravans, both from the East and other quarters; through Furrah and Herat, on the frontiers of Persia, famed for its rich manufactures of silk stuffs, a great channel of communication between the East and the West, and also an entrepôt of all the richest productions from Kabul, Cashmere, and India on the one side, and from Bokhara, Persia, Arabia, Turkey, and even Europe, on the other. From Herat the route continues through Furrah and across the River Helmund and the ranges of the Paropamisan Mountains, to Candahar, a journey of about 800 miles; thence to Kabul, Peshawur, and the countries on the Indus, and across extensive sandy deserts to the rich valley of the Ganges, whence by this river there is an easy access to Bengal and to Central India. There are various other routes by which the commerce of Asia, concentrated within the comparatively narrow boundaries of the Caspian Sea and the Persian Gulf, diverges in its progress eastward to the north, as well as to the south. From Bokhara there is a mountainous route into Little Thibet, and thence through Thibet into China; besides other more sequestered and difficult roads, through glens and mountains, where the only mode of transport is on the backs of asses and mules.

Persia.—Persia, from its central situation between the East and the West, is not only a great entrepôt of trade, but, though on the whole rather a poor country, it still contributes some valuable productions to the commerce of the East. It has long been famed for its abundant produce of raw silk, of cotton, and of wool—that of the province of Kerman especially being so valuable for shawls that it rivals in some respects that of Cashmere; of fruits, turquoises, tobacco, grain, etc. Almost all the principal towns of Persia, such as Kashan, Ispahan, Yezd, Tabreez, Kerman, Herat, etc., excel in the manufacture of silks, cottons, woolens, fine carpets, etc.; Kerman also in the manufacture of shawls; and others in that of cutlery, arms, etc. These are its chief exports to other countries, in exchange for their manufactures or produce. To India Persia sends raw silk, carpets, Kerman shawls, dried fruits, tobacco, horses—in which there is considerable traffic, swords, etc., and specie to make up the deficient balance. The imports from India are cotton goods, as chintzes, sent from Masulipatam by sea to Bushire, whence they reach the interior of Persia, and are thence carried eastward into Kabul and the countries on the Indus; the same article from Moultan, Lucknow, Delhi, etc.; some muslins, indigo, spices, sugar, and sugar-candy, in large quantities; gold and silver stuffs and brocades from Benares; precious stones, Cashmere shawls, iron, lead, copper, etc. Many of these articles, namely, Cashmere shawls, spices, indigo, muslins, etc., are carried through Asia Minor by a long land carriage to their final destination in European Turkey, and are found, with the lamb skins of the no less distant Bokhara, in the bazars of Bagdad and Constantinople. To those countries Persia exports also every article of her own rude and manufactured produce; coarse fabrics, both of silk and cotton, for the consumption of Asia Minor; and many heavy articles, such as grain, rice, tobacco, salt, coffee, cotton, etc.; besides fine silks, brocades, and prints, which are exchanged in Turkey for European goods brought through the countries of the Levant, namely, broad and narrow cloths, cassimeres, cotton goods, chintzes, muslins, veils, silks, satins, French brocades and embroidered goods, imitation shawls, cutlery of all sorts, glass, etc., and a considerable quantity of gold and silver bullion. Persia imports coffee and pearls from Arabia, in exchange for wheat, dried fruits, and cloaks. The mountainous country of Afghanistan, on the southern declivity of the Himalaya ridge, and the country on the head streams of the Indus, export to India horses and ponies bred in Tartary, fur, shawls, Moultan chintz, madder, asafœtida, tobacco, and dried and other fruits, such as almonds and pistachio nuts. The imports from India are, coarse cotton cloths, worn by the common people of this country, and also in Tartary; muslins and other fine manufactures, silken cloth and brocade, indigo in great quantities, ivory, chalk, bamboos, wax, tin, sandal-wood, almost all the sugar which is used in the country, and spices from the Malabar coast, through Kurrachee and other parts of Sinde, and thence to Kabul and Candahar. The Indian cloths, shawls, chintzes, and also the indigo, are exported to Bokhara, from which are imported the broadcloths, cutlery, and hardware of Europe, received from the Russians, and finally consumed in Kabul and the countries of the Indus, loaded with the expenses of a land journey across nearly half the globe.

China.—In the east, China has from the earliest times been the seat of wealth and of an extensive trade. The Chinese have been always noted for their industrious habits, and the country has from time immemorial abounded in the most valuable produce and manufactures. These were sent westward in the caravans to Asia Minor and into Europe, or they were transported by sea to India, and carried thence by the European fleets to the Red Sea. The same commerce is still continued, and China exports its produce of woollens, silk, and satin; tea in small boxes of thin lead; china; porcelain, raw silk, cochineal, crystal, gold dust, golden ingots, and silver with the Chinese stamp. These are sent through Chinese Tartary into the countries on the Oxus, and also to Cashmere, Kabul, and the countries situated on the southern declivity of the Himalaya Mountains. Regular caravans of horses and ponies—no other animal being fit to travel through those mountainous districts—set out from Cashmere, and from Peshawur, the capital of the Afghan country of Kabul, and a considerable commercial resort, to make their way through Chinese Tartary with goods imported from India and Persia. China carries on also an interior trade to a considerable extent with Russia, by the frontier town of Maimatchin, in which European goods and furs are received in exchange for tea, silk, aud other articles of Chinese produce and manufacture.

Foreign Commerce. — In addition to her internal trade, Asia maintains an extensive intercourse by sea with Europe, America, Egypt and the Mediterrranean. A great trade is also carried on from Hindostan and China to the Asiatic Archipelago, and the trade of the Asiatic islands with each other is of great importance. It appears that those islands were at a very early period the seat of commerce; and the learned researches of Europeans have brought to light, in some of them, the monuments of ancient civilization. Sumatra was the seat of the Malay empire, Java of a Hindoo State; and the Celebes were inhabited by the Bugis, a race of expert navigators and merchants. The productions of these islands, and of the Moluccas and Borneo, namely, spices, aromatics, and gold, entered into the commerce of the ancient world, and were imported into Rome through Egypt. In later times, about the ninth century, the Asiatic Archipelago was visited by the Arabs and the Chinese, while the adventurous Malays frequented the coasts of Asia, and even of Africa, and particularly the African island of Madagascar. When these islands were visited by Europeans, about the fifteenth century, Malacca, Acheen, and Bantam were the great marts of the Eastern Archipelago, where the rich produce of Sumatra, Borneo, and the Moluccas, conveyed in the small trading craft of the country, was exchanged for that of India and China. The Portuguese fixed on Goa, on the Malabar coast, as the capital of their Eastern settlements; and they afterward selected Malacca as a central station for protecting and extending their intercourse with the neighboring nations. The Dutch chose Bantam, and afterward Batavia, situated midway between Hindostan and China, as the centre of their commercial settlements. The situation was most advantageous, and the port was soon frequented by vessels from China and Japan, Tunkin, Malacca, Cochin China, and the island of Celebes. But the great and flourishing trade of Java was crushed under the colonial monopoly of the Dutch, and under what Sir Stamford Raffles terms "the short-sighted tyranny of a mercantile administration." The conquest of Java by the British in 1812 put an end to this thraldom, and the great trade of the Asiatic Archipelago began to centre in Batavia, which was fast rising into a great commercial emporium; all the articles which were the exclusive produce of the Eastern islands being collected at its principal ports for re-exportation to India, China, and Europe. Since Java was restored to the Dutch, the free port of Singapore, established by the British, is the centre of a great trade, and is frequented by the Chinese in their junks, and by all the other navigators of those seas with the produce of their respective islands. The Chinese take back with them the nests of a certain species of bird, which are esteemed a great luxury at their tables, and sell, it is said, for their weight in silver; biche-de-mer or tripang, a dried sea-slug, also used in Chinese dishes; Malayan camphor, the exclusive produce of Sumatra and Borneo; the tin of Banca, the spices of the Moluccas, opium, indigo imported from Hindostan; gold and silver, the first collected in Sumatra, Borneo, and some of the other islands. The maritime country trade of the Asiatic islands is carried on chiefly by the Chinese in their junks and brigs, by the Arabs in square-rigged vessels, and by the Bugis, the inhabitants of Celebes, who are all bold and expert navigators.

Products. — The annual fleet of Chinese junks arrives with the favorable monsoon among these islands, from Canton, Amoy, and other provinces, with cargoes of teas, raw silk, silk, piece goods, and innumerable minor articles, for the use of the Chinese, who are settled in great numbers here, and are distinguished by their shrewd, intelligent, and industrious habits. The Chinese extend their voyages to Sumatra, the Straits of Malacca, and eastward as far as the Moluccas and Timor, collecting edible bird-nests, biche-de-mer, and other articles of which Java is the great entrepôt. Java is also a great dépôt of European goods; and the people being rather industrious cultivators of their fertile island than mariners or traders, it exports rice, a variety of vetches, salt, oil, tobacco, timber, brass-wire, and its own cloths, and a considerable quantity of European, Indian, and Chinese goods, in exchange for gold dust, diamonds, camphor, benjamin, and other drugs; edible bird-nests, biche-de-mer, rattans, beeswax, tortoise-shell, and dyeing woods from Borneo and Sumatra. The rice and other productions of Java are exchanged for spices and pungent oils of the Moluccas, and for the tin of Banca. The natives of Celebes are famed for the manufacture of a particular species of fine cloths, of a very strong texture, which are in great request, and, along with spices, wax, and sandal-wood, are exchanged for the produce of Sumatra, Borneo, and Java, whence they are exported to China. The Bugis have a large share of the carrying trade of the Asiatic Archipelago; and they bring the produce of the Moluccas, and of Borneo and Sumatra, to Java and the other islands, and receive in exchange tobacco, rice, and salt, from Java, besides opium, iron, steel, European chintzes, and broadcloths and Indian piece goods, with which they return eastward during the southwest monsoon.*

The eastern countries of Asia, viz., India and China, as we have already stated, have from time immemorial been famed for certain manufactures, such as silks, cambrics, muslins, etc., as well as for other products peculiar to the climate; viz., spices, precious aromatics, medicinal herbs, etc. These were always in great demand in Europe, while the produce of Europe was not wanted in Asia. From the rude state of industry among the Western nations, they had nothing to offer in exchange for the finer manufactures of India, and still less could the soil of Europe yield any equivalent for the more genial produce of Eastern climes. Hence the great article of export in those times from Europe to Asia was always bullion, the instrument of exchange all over the world. Bullion could only be procured by an exportation of European produce or manufactures at such low prices as to insure a sale; and the loss on such transactions must have been made up to the merchant by the high price of Asiatic goods. The ancient monopoly of silk secured to Asia a favorable balance of trade with Europe, bullion being the only article with which it could be purchased. Notwithstanding the introduction of the silk manufacture into Europe about the sixth or seventh century, the commercial pre-eminence of Asia still continued, and bullion was the chief article of export to the East. Throughout the interior of Asia this superiority remains to the present day; and a continual stream of bullion flows from the Bosphorus eastward, through Asia Minor and Persia, into Hindostan, and is finally dispersed in the great ocean of the Chinese currency. Bullion is also the principal article sent from Arabia to India in exchange for Indian goods.

---

* Raffles' *History of Java*; Marsden's *Sumatra.*

But a great revolution has taken place in the trade between Asia and Europe, and especially with Great Britain. Europe is now in a condition to offer an equivalent in manufactures for the produce of Asia; goods of various kinds are sent in exchange for those of India; and from Great Britain remittances in bullion have nearly ceased. So prodigiously has the price of goods been lowered by the use of machinery, that the cotton wool of India is now imported into Britain, and, after being manufactured, is re-exported to the place of its growth, and sold at a lower price than the same goods from the loom of the India workman, though it is loaded with the expense of a double voyage across half the globe. The goods of the European manufacturers are poured into Asia through all its sea-ports, and reaching the interior on the backs of mules and asses, often after a journey of several thousand miles over deserts and mountains covered with perpetual snow, they are sold cheaper than the same articles by the native workmen. The woolen manufactures of Yorkshire, the cotton goods of Manchester and Glasgow, French cloths, and German linens, are dispersed all over India, and even partially in China; they are found in the bazars of Bokhara, Samarcand, and Cashgar, and are carried eastward by the caravans into the wilds of Tartary. The natural productions of Asia, namely, spices, rich aromatics, dyes, and other rare luxuries of tropical climates, will always be in demand in Europe; and the monopoly of tea by the Chinese gives them the command of the European markets. Tea has now almost become one of the necessaries of life, and it travels for a market across half the globe. It is the great commercial link between Europe and China, from which, like the precious produce of silk in ancient times, it can only be procured. But the improved industry of Europe supplies, as is already observed, an equivalent in woolen and cotton goods for this highly-prized luxury. Since the expiration of the East India Company's charter, in 1834, the trade has been thrown open to all classes of British subjects, and their merchants can now freely trade to all places accessible to Europeans to the east of the Straits of Malacca. During the short time that has elapsed since then, the increase of the exports and imports has fully realized the expectations held out by those who opposed the company's monopoly.—E. B. *See* HINDOSTAN.

Asphaltum, Bitumen Judaicum, or **Jews-pitch,** is a light, solid bitumen, of a dusky color on the outside, and a deep shining black within: of very little taste, and having scarcely any smell unless heated, when it emits a strong pitchy odor. It is found in a soft or liquid state on the surface of the Dead Sea, and by age grows dry and hard. The same kind of bitumen is met with likewise in the earth in other places of the world—in China, America, and in some places of Europe; as the Carpathian Hills, France, Neufchatel, etc.—E. B.

Aspinwall (formerly **Colon**), a town, province of Panama, dépôt Ismo, New Granada, Central America. Situated on Navy Bay, lat. 9° 21′ N., lon. 79° 59′ W., 50 miles by railroad from Panama. It is built on Manzanilla Island, which is connected with the shore by the Panama railroad. Population, 3000. The buildings, 200 in number, are mostly of wood, and all recently erected. The railroad company have handsome and extensive dépôts, warehouses, machine-shops, etc., and ample wharfs and piers, alongside which steamers and vessels lay, and the harbor has safe anchorage. The streets are graded, and many of them lined with shops and hotels, affording every convenience for travelers. The vicinity of the place is rather low and swampy, making it somewhat unhealthy for strangers. The foreign consuls, who formerly resided at Chagres, distant nine miles, now reside here. The American and British Mail Steamers regularly touch here. There is a hospital here, and a lighthouse, built at the expense of the railroad company. A newspaper is published tri-weekly. By a government act, it is necessary to date all papers of business made here *Colon*, otherwise they have no legal force in the local courts.

Assay, Essay, or **Say,** in *Metallurgy*, the proof or trial of the goodness, purity, value, etc., of metals and metalline substances. In ancient statutes this is called *touch*, and those who had the care of it *keepers of the touch*.—E. B.

Assaying, taken in its general acceptation, is a chemical process by which any ore, or other metallic compound, is analyzed, and its constituent parts determined. But the term more particularly denotes the peculiar art by which gold and silver are examined, and their qualities ascertained, in relation to their state of purity. By the former the whole contents of the substance under examination are separated and collected; by the latter it is only necessary in practice to find, by the destruction or separation of the alloys, the amount of pure metal contained in the specimen operated on, so that a value may be given, by computation, to the whole mass. To this specific branch we purpose to confine ourselves in the following observations.

The art of assaying the precious metals must be esteemed of considerable importance in many points of view, but more especially to commercial nations trading extensively in these commodities. For although the ultimate destination of these metals be their conversion into coin, plate, or other articles of use and ornament, still there are vast treasures of bullion consigned to the stores of different countries merely as commodities, as convenient representatives of value, or in security for nominal wealth, the marketable value of which is determined solely by the skill and accuracy of the assayer. Every one having experience of such matters knows that, unlike other things of a mercantile nature, bullion can not be valued by its bulk, weight, or any simple external characteristic, but by ascertaining in some way the amount of fine metal contained in a given quantity. And implicit confidence being placed in the honesty, accuracy, and fidelity of the assayer, who, by examining a small portion only, gives a certificate of its quality upon which the whole is estimated, merchants are enabled to buy and sell bullion without risk of loss, and with the most perfect assurance of the value being maintained. By means of the art of assaying, as applicable to small as to large things, we also possess a certain safeguard against fraud in the manufacture of plate and other articles of personal or domestic use, which must be regarded as of some importance in a country rich and affluent like Great Britain, where gold and silver have become so common among the middle classes as scarcely to be esteemed luxuries. We could only wish that the laws which prevail in reference to plate were more generally extended in their application to the manufacture of jewelry, and other personal ornaments; for in these things the public have no guarantee against fraud and knavery beyond the character or assurance of the dealer.

If the art of assaying be deemed valuable and important as regards bullion and plate, securing a certain and reliable test of value, as well as a sufficient check upon fraudulent designs, we can not surely question its even greater importance in reference to the metallic currency of a country, the standard accuracy of which affects materially the interests of all, and so far tends to promote the welfare of mankind. Whatever this standard be, it is obvious the value of all property in exchange must be regulated and determined by it, whether in land, houses, commodities, or the wages of labor; and if we had no reliance on the integrity of our coin as a measure of value, we could enjoy no security in our property. In all countries, therefore, claiming a character for honesty, the integrity of the standard should be a fundamental principle. Any the slightest deviation from it will instantly be discovered, followed by a loss of credit, and violent fluctuations in the exchange, which of all things are most injurious to trading communities. For the exchange between one country and another is not determined by coin merely as a circulating medium, but, in reality, by the exact amount of fine metal contained in the coin; and, therefore, it is necessary to know that the proportion is maintained called *the standard*, which, in our gold currency, consists of eleven-twelfths of pure metal and one-twelfth of alloy. This fact can only be ascertained by the process of assay. But when nations acquire a character for honesty and integrity, the currency will freely circulate all over the world without suspicion, at its reputed value, and the currency of one be easily converted into the currency of another. But we should fail to secure this great advantage, this implicit confidence, without the assayer's skill and check, by which the due proportions of metal are guaranteed, and any depreciation detected.

We need now no longer apprehend any of those capricious and dishonorable changes in the currency, not unknown to our history before the reign of Elizabeth, which enriched the monarch at the expense of his subjects, created sudden and violent changes in the value of property, and often spread dismay and poverty among all classes, without any clear knowledge of the cause. That patriotic and sagacious queen, of whom England is justly proud, among other great and durable merits, is honorably distinguished by the restoration of our currency to purity, and by fixing our present standard of value, from which, happily, no deviation can be notified in succeeding ages. In this respect science and knowledge, if not always the handmaids of integrity, are the best guarantees against fraud and evil designs; and we can scarcely believe it possible, in these times, to suffer from a dishonorable depreciation of the currency, while any vague apprehension of error is instantly dissipated by the numerous checks, public and private, on the purity of our coin.

Trial of the Pyx.—Among these we may briefly instance the ancient ceremony called the *Trial of the Pyx*, which, in the most public manner, secures an impartial examination of the coinage, and a verdict, as public, of its legal or standard purity. In no other country have we been able to discover an institution analogous to this, which, after all intermediate tests have been tried in the process of manufacture, affords an ultimate and judicious appeal for the public satisfaction. And it may be added, to the credit of the officers of the Mint, that, whatever may happen in future times, amidst the sudden and hasty revolutions in public affairs, during the past, we are unable to adduce any instance of this ordeal being passed without honor and integrity; and instead of the allowance or remedy by law for errors, unavoidable in manufacture, being taken advantage of, as a protection to carelessness, we may pronounce that the coinage has always been proved to be as nigh to the legal standard as is possible, the deviation being on the average scarcely worth notification.

The *Trial of the Pyx*, in England, takes place once in about every three years, but no specified period is fixed by law. It is so denominated from the pyx, or chest, in which the specimen coins are deposited in the Mint for future examination; these coins being supposed a fair representation of the whole money coined within a certain period. Out of each bag of coin, whether gold or silver, two pieces are taken, one for the trial by assay within the Mint, the other for the general pyx; and these are carefully sealed up in paper by three officers, and deposited in the chest. It should be remarked, that previously to the issue of coin to the public, a minor pyx takes place within the Mint, intended for the examination of the coined money by appointed officers, as regards both weight and fineness, and no coin is permitted to be delivered before it has passed this necessary ordeal.

It having been notified to the government that a trial of the pyx is called for, the Lord Chancellor issues his warrant to summon a jury of goldsmiths, who, on the appointed day, proceed to the exchequer office, Whitehall, and there, in presence of several privy-counselors and the officers of the Mint, receive the solemn charge of the Lord Chancellor, who directs them in their important functions, and requests them to deliver to him a verdict of their finding. A piece of gold and silver, cut from the *trial-plates* deposited in the Exchequer, supposed to be of the exact legal standard, are delivered to the foreman of the jury, who is required to declare to what degree the coin under examination deviates from them. This being done, the jury proceed to Goldsmith's Hall, London, where assaying apparatus, and all other necessary appliances, are in daily use for the trial of gold and silver plate; and sealed packets of the specimen coins being delivered to them by the officers of the Mint, they are first tried by weight, and then a certain number are taken from the whole and melted into a bar, from which the assay trials are subsequently taken.

The verdict of the jury, founded on the results of these proceedings, proving favorable, the Master of the Mint and subordinate officers are released from all further responsibility, while the country receives, by the publicity of the verdict, an attestation of the standard purity of the coinage.

In times of comparative ignorance, the art of assaying was esteemed a mystery, and, like some other crafts, the practice of it was retained in few hands. There were supposed secrets in the conduct of the processes, which none but the initiated were permitted to know; but now it is admitted that those secrets are nothing but the knowledge acquired by long experience, amounting in reality to certain allowances or adjustments in the results of the operations. The uncertain tests and appliances employed in ancient times, which afforded only a wide approximation to truth, and exposed the public to extortion and fraud, have in more scientific times been superseded by chemical processes as accurate as they are delicate and beautiful. The exquisite and varied laws of nature, in connection with metals and their transformations, are made instrumental to the use and knowledge of mankind; and science, so called, enables man to nicely balance and estimate the vast treasures found in the bowels of the earth, and constitute them measures of value more unchanging than any other product of nature. As science has progressed, so has the art of assaying improved, while in modern times new fields have been opened up for its use and application. Along with increased accuracy, it has become more varied and extensive in its practice. The amount of the precious metals have not only increased immeasurably, thereby magnifying the importance of the art, but in recent times changes in the mode of refining or separating these metals have created a new branch of business little practiced in former ages. The application of sulphuric acid to separate gold from silver, and silver from gold, by which the operation is effected with great economy, and nearly all the contents recovered at comparatively little cost, has led to an extensive business in *parting* assays, which did not formerly exist. In this manner the holder of bullion, of a mixed character, has a higher value put upon his metal by reason of the gold or silver contained in it; and in the market he is able to realize the whole value by assay, less the deduction made to cover the charge of refining. The *parting* assay is different from the simple assay in this, that it declares upon the certificate of a gold assay the amount of silver combined with it, and of a silver assay the number of grains of fine gold contained in each pound.

The bullion to be valued having been melted into ingots or bars, small pieces are cut from each and folded separately in slips of paper with a corresponding mark or number of the bar, so as to preserve the identification of the assay reports with the bars. On these slips of paper the assayer writes his report, which declares the quality of the gold and silver, and this is the certificate upon which the bullion is bought and sold in the market. The Bank of England, however, and the Mint, in order to guard against any surreptitious change or fraud, require the assays upon which they receive bullion to be cut off in presence of appointed officers. The assayer reports gold by *carats*, and silver by pennyweights. In the one case the Troy pound is divided into 24 parts or carats, and British standard being 11-12ths fine gold and 1-12th alloy, the carat will thus represent 10 dwts. Troy, the standard being therefore 22 carats fine and 2 carats alloy. In the other the Troy pound is divided into 240 dwts., and the standard of silver being 222 dwts. fine and 18 dwts. of alloy, the pennyweight will represent the 1-240th of the pound.

Carats are subdivided into four carat grains, = 60 Troy grains each, and these are again further subdivided into eighths of a carat grain, = 7½ grains Troy. The lowest trade report of gold is one-eighth of a carat grain, and of silver half a pennyweight. In reporting gold, the practice in general use is to take 2 carats as the representative of fine gold for bullion *better* than standard, and 24 carats for bullion *worse* than standard. Thus a bar reported *better* 1 3¾, or one carat, three carat grains, and three-quarters of a grain, is within one-quarter of a carat grain of purity, or 15 grains Troy. But if a bar were found to contain only one-half of fine gold, the report would not be one carat worse, but *worse* 12 carats, or 12-24ths. We may observe, however, that this complex mode of enumeration, so great a mystery to the uninitiated, will probably in a few years be entirely superseded by the decimal system of notation in general use on the continent. Already it is partially adopted by assayers in England, who are now required to append the decimal report to the ordinary one on the certificate. Instead of carats and pennyweights, the numeral 1000 will represent fine gold and silver, and any deviation in purity from this will be expressed by a decimal instead of a vulgar fraction.

It has been already remarked that the lowest denomination of the trade report is ⅛th of a carat grain, or 7½ grains Troy, as respects gold, and half a pennyweight, or 12 grains, as respects silver; but practically an assayer can arrive at a much nearer approximation to the truth. As in the Royal Mint, in making the combination for standard coin, he can report to a single grain, or 1-5760th, in each case; but in buying and selling bullion some protection to the purchaser is deemed necessary as an indemnity against errors and irregular mixture of the alloy, and hence arises the above latitude in the assay report. It is probable, however, that the general use of decimal notation will eventually cause a more accurate report, and deprive the bullion dealer of a share of that advantage which obviously is greater than is necessary.

An ordinary assay report of gold and silver expresses the variation from the standard, and not the fine metal contained in it; and it is, therefore, marked as either better or worse than standard. The standard of gold being 22 carats fine and 2 alloy, or 11-12ths fine, an ingot of gold found to contain only 21 carats pure gold would be reported *worse* 1 carat; if it contained 23½ carats, it would then be reported *better* 1 carat, 3 grains, and half a grain. The standard of silver being 11 oz. 2 dwts. fine, and 18 dwts. alloy, an ingot of silver found to contain only 11 oz. of fine would be reported *worse* 2 dwts., but if it contained 11 oz. 4½, the report would then be *better* 2½ dwts.

In buying or selling, the *betterness* or *worseness* of the bar is added or deducted from the gross weight; and the value is computed on this, the standard weight, at the market price of the day.

When the assay required is a *parting* assay, or an assay of gold containing silver, a report is given of the weight of fine silver in the pound; and when the silver exceeds 15 dwts. per pound, all above that is usually added to the value of the gold, that being an allowance made by general agreement for the cost of separation or refining. So likewise with an assay of silver holding good. The report declares the number of grains of fine gold in the pound, and all above 3 or 4 grains is added to the computed value of the silver.

In these delicate operations we need scarcely impress upon the reader how important an instrument an accurate balance must be in securing a certain and uniform result. The specimen taken by an assayer is no more than 12 or 15 grains of the mass, and if 12 grains, each grain would represent an ounce, or 1-430th. In the Royal Mint, the fine balances in use are sensible to the 1-1000th of a grain.

The principle of assaying gold and silver is very simple theoretically, but in practice great experience is necessary to insure accuracy; and there is no branch of business which demands more personal and undivided attention. The result is liable to the influence of so many contingencies, that no assayer who regards his reputation will delegate the principal processes to one not equally skilled with himself. Besides the result ascertainable by weight, there are allowances and compensations to be made which are known only to an experienced assayer, and if these were disregarded, as might be the case with the mere novice, the report would be wide from the truth.—E. B.

Assessor, a person appointed to assess property, and particularly to determine the value of property for taxation.

Assets, in *Commerce*, a termed used to designate the stock in trade, and the entire property of all sorts, belonging to a merchant or to a trading association. It is also applied to goods or property placed, for the discharge of some particular trust or obligation, in the hands of executors, assignees, etc.

Assiento, a Spanish word signifying a contract. In commercial history, it means the contract or agreement by which the Spanish government ceded first to a company of French, and afterward (by the treaty of Utrecht) to a company of English merchants, the right to import, under certain conditions, a specified number of slaves into the Spanish colonies. For full particulars with respect to this contract, see Mr. Bandinel's valuable work on the Slave-trade.

Assignat, the name given to a peculiar species of paper money issued during the first French Revolution. The influence of the system, operating along with the other attempts to regulate trade, form a prominent feature in the calamitous history of the epoch. The share borne in it by the assignats is at the same time a memorable instance, for the use of the economist and financier, of the hopelessness of projects for creating or preserving national wealth by an issue of paper money, not the representative of available wealth and real business transactions. The first issue of assignats was made in the security of the forfeited ecclesiastical property, and was adopted as a preferable alternative to throwing the forfeited lands on the market, which it was no doubt judiciously believed that so large an amount of property would glut. The holder of the assignats might use them as money, or claim the land which they represented. As more forfeitures occurred, the issue of assignats was increased. But it soon ceased to be measured by property, and was enlarged according to the exigencies of the revolutionary government. The paper money fell to half, then to a sixth part of the value of the same denomination in silver, and sinking rapidly through successive grades of decrease, silver held at last the value of 150 times its denomination in paper. In August of 1773, 3776 millions of francs were thus put in circulation: and virtually the assignats became worthless. The establishment of the maximum, and the other tyrannical interferences with trade by which revolutionary governments endeavor to support credit, have their proper place, along with the account of the condition of the country during the depreciation of the assignats, under the head of France.—E. B.

Assignee, a person appointed by competent authority to do, act, or transact some business, or exercise some particular privilege or power, for or on account of some specified individual or individuals. Assignees may be created by deed, or by law: by deed, where the lessee of a farm assigns the same to another; by law, where the law makes an assignee, without any appointment of the person entitled, as an executor is assignee in law to the testator, and an administrator to an intestate. The term is most commonly applied to the official assignees appointed to manage bankrupt estates.—*See* Bankrupt.

Assignment, Assignation, Assignee, are of frequent technical use in law. To assign is to make over, and the term is generally used to express a transference by writing, in contradistinction to a transference by actual delivery. In England the usual expression is assignment, in Scotland it is assignation. The person making over is called *assignerer*, *assigner*, or *cedent;* the recipient, *assignee.* This last term is of important application in the law of bankruptcy in England and Ireland, as expressing persons of two classes, the official assignees and the trade assignees, to whom the realization and distribution of the bankrupt estate is committed.—E. B. *See* Bankruptcy.

Assize. *See* Bread.

Association (from the Latin *associare*, to join in fellowship), the act of associating or constituting a society or partnership, in order to carry on some scheme or business with more advantage. The reader is referred to the *Encyclopedia Britannica*, articles Societies and Agitation, in reference to the influence of association upon workmen and employers, and as a political engine.

Assumption, the capital of the province of Paraguay, in South America. It is situated on an obtuse angle formed by the eastern bank of the River Paraguay, 18 miles above the junction of the first mouth of the Pilcomayo, and 48 above that of the second. It was originally a small fort, but, from the convenience of its situation, in a few years it became a city, and in 1547 was erected into a bishopric. The adjacent territory is rich and fertile in a high degree, and abounds in a great variety of fruits. The air is temperate and the climate salubrious; the trees are perpetually green, and the rich pastures in the neighborhood feed numerous flocks of cattle. The city is inhabited by Spaniards, Indians, and Mestizoes, who trade in hides, tobacco, and sugar. The Paraguay affords a channel of communication with Buenos Ayres; but the passage is long, owing to the rapid flow of the waters of that river: this, however, is considerably obviated by the favorable winds which blow from the south for a great part of the year. Population, 12,000. Long. 57° 37′ W.; lat. 25° 16′ S.—E. B.

Assurance. *See* Insurance.

Astern, a sea phrase, used to signify any thing at some distance behind the ship; being the opposite of Ahead, which signifies the space before her.

Astringents, a class of medicines used for binding or contracting the several parts, external or internal, of the human system, for restraining profuse discharges, coagulating the fluids, condensing and strengthening the solids. The principal astringents are the mineral acids, alum, lime-water, chalk, several preparations of copper, zinc, iron, etc., catechu, kino, oak-bark, galls, and all vegetable substances containing tannin.—E. B.

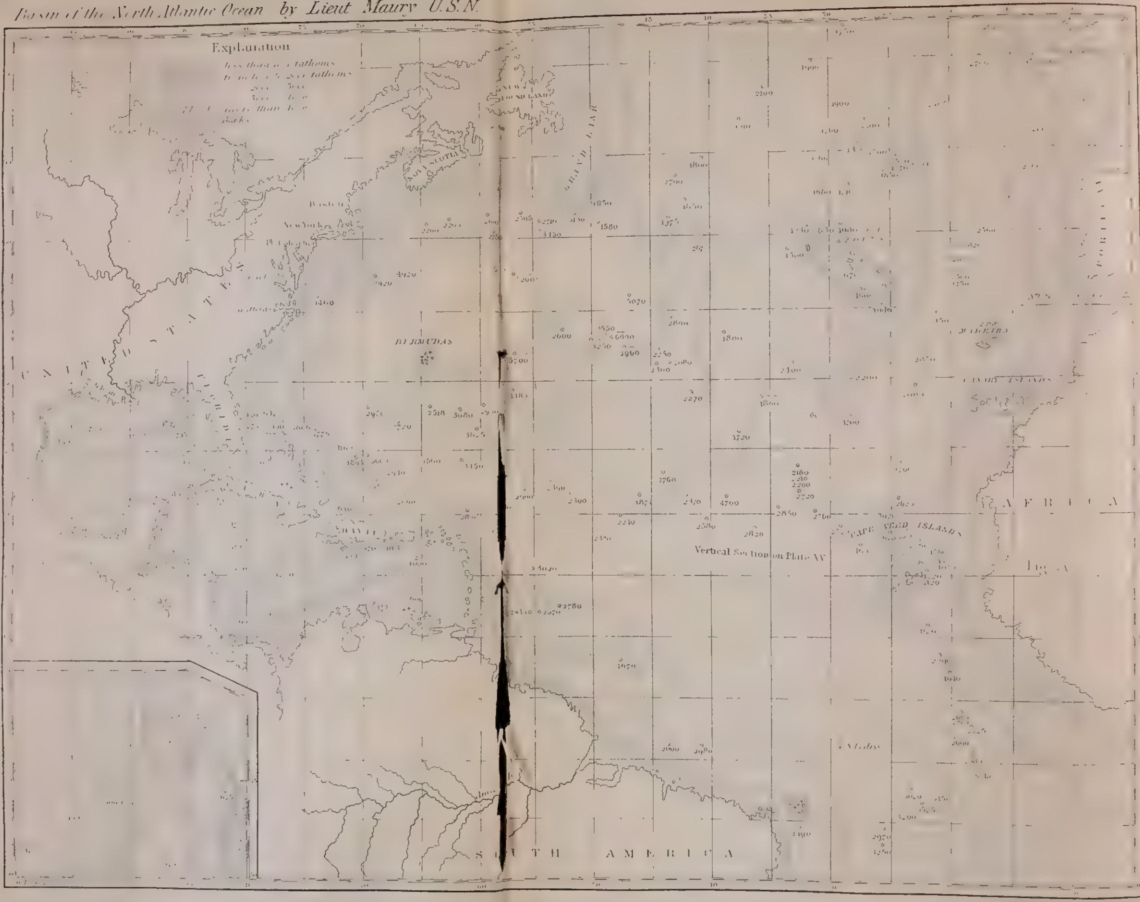
Astronomy. The earliest accounts we have of this science are those of Babylon, about 2234 B.C.—Blair. The study of astronomy was much advanced in Chaldea under Nabonassur: it was known to the Chinese about 1100 B.C.; some say many centuries before. Lunar eclipses were observed at Babylon with exceeding accuracy, 720 B.C. Spherical form of the earth, and the true cause of lunar eclipses, taught by *Thales*, 640 B.C. Further discoveries by *Pythagoras*, who taught the doctrine of celestial motions, and believed in the plurality of habitable worlds, 500 B.C. *Hipparchus* began his observations at Rhodes, 167 B.C.; began his new cycle of the moon in 143; and made great advances in the science, 140 B.C. The precession of the equinoxes confirmed, and the places and distances of the planets discovered, by *Ptolemy*, A.D. 130. After the lapse of nearly seven centuries, during which time astronomy was neglected, it was resumed by the Arabs about 800; and was afterward brought into Europe by the Moors of Barbary and Spain, but not sooner than 1201, when they also introduced geography.

	A.D.
The Alphonsine tables were composed	1284
Clocks first used in astronomy about	1500
True doctrine of the motions of the planetary bodies revived by Copernicus	1530
The science greatly advanced by Tycho Brahe about	1582
True laws of the planetary motions, by Kepler	1619
Telescopes and other instruments used in astronomy about	1627
The discoveries of Galileo were made about	1631
The transit of Venus over the sun's disk first observed by Horrox, November 24	1639
Cassini draws his meridian line, after Dante	1655
The aberration of the light of the fixed stars discovered by Horrebow	1659
Discoveries of Picart	1669
Map of the moon constructed by Hevelius	1670
Motion of the sun round its own axis proved by Halley	1676
Discoveries of Huygens	1686
Newton's *Principia* published, and the system as now taught incontrovertibly established	1687
Catalogue of the stars made by Flamstead	1688
Satellites of Saturn, etc., discovered by Cassini	1701
Aberration of the stars clearly explained by Dr. Bradley	1737
Celestial inequalities found by La Grange	1780
Uranus and satellites discovered by Herschel, March 13	1781
Mécanique Celeste, published by La Place	1796
Ceres discovered by Piazzi, January 1	1801
Pallas, by Dr. Olbers, March 28	1802
Juno, by Harding, September 1	1804
Vesta, by Olbers	1807
Neptune, by Le Verrier	1846
United States astronomical expedition to the South Hemisphere, under Lieutenant Gilliss, left Baltimore July 18	1849

The distance of the fixed stars is supposed to be 400,000 times greater from us than we are from the sun, that is to say, 38 millions of millions of miles; so that a

Plate I

Basin of the North Atlantic Ocean by Lieut Maury U.S.N.



cannon-ball would take near nine millions of years to reach one of them, supposing there were nothing to hinder it from pursuing its course thither. As light takes about eight minutes and a quarter to reach us from the sun, it would be about six years in coming from one of those stars; but the calculations of later astronomers prove some stars to be so distant, that their light must take centuries before it can reach us; and that every particle of light which enters our eyes left the star it comes from three or four hundred years ago.—HAYDN.

Atlantic Ocean (*Atlanticus Oceanus*), one of the five great hydrographical divisions of the globe, occupies an immense valley, and extends from the Arctic circle on the north to the Antartic circle on the south, bounded west by the coast of America to Cape Horn, and thence by a line continued on the same meridian to the Antarctic circle, and east by the shores of Europe and Africa to the Cape of Good Hope, and thence prolonged on the meridian of Cape Agulhas till it meets the Antartic circle. Its extreme breadth is about 5000 miles, and its area is computed at 25,000,000 square miles. It is naturally divided into three portions: 1st, the north; 2d, the south; and, 3d, the intertropical Atlantic. The North Sea, or German Ocean, the Caribbean Sea, and the Irish Sea, form portions of the Atlantic; but the Baltic and the Mediterranean, which communicate with the North Sea by narrow channels, are properly considered separate seas. The principal gulfs of the Atlantic are, in Europe, the Bay of Biscay, or Golfe de Gascogne; in Africa, the Gulf of Guinea; in America, the Gulf of Mexico and the Gulf of St. Lawrence. The chief islands are, in Europe, the British Isles and Iceland; in Africa, the Azores, Madeira, and Canary islands, and the Archipelago of the Gulf of Guinea; in America, the Antilles, Newfoundland, and the islands of the Gulf of St. Lawrence. The Atlantic, with its branches, drains nearly the whole of Europe west of the basin of the Volga; all North America east of the Rocky Mountains and the Sierra Madre of Mexico; and the whole of South America east of the Andes. Its chief affluents are, in Europe, the Rhine, Loire, and Tagus; in Africa, the Senegal, Niger, and Congo; and in North America, the St. Lawrence and Mississippi; in South America, the Orinoco, Amazon, and La Plata. The bed of the Atlantic is very unequal in elevation, in some places rising in immense sand banks to within a few fathoms of the surface, and in others sinking to great depths. In 1853, Lieutenant Berryman, of the United States navy, ran a line of deep sea soundings from the neighborhood of Newfoundland to Ireland, to test the practicability of finding a base for a submarine telegraph between America and Europe. Average depth, 12,000 feet. But farther south, Lieutenant Berryman made a sounding (lat. 52° 55′ N., 47° 58′ W. long.) 39,600 feet in depth, equal to a little over 7½ miles. The most extensive banks are those of Newfoundland, the Dogger Bank in the German Ocean, and the Agulhas Bank off the south point of Africa. The minimum depth on the Bank of Newfoundland is 60 feet. The German Ocean varies in depth from 66 to 500 feet.

"From the top of Chimborazo to the bottom of the Atlantic, at the deepest place yet reached by the plummet in the North Atlantic, the distance, in a vertical line, is nine miles. In its entire length, the basin of this sea is a long trough, separating the Old World from the New, and extending probably from pole to pole. Could the waters of the Atlantic be drawn off, so as to expose to view this great sea-gash, which separates continents, and extends from the Arctic to the Antartic, it would present a scene the most rugged, grand, and imposing. The very ribs of the solid earth, with the foundations of the sea, would be brought to light, and we should have presented to us at one view, in the empty cradle of the ocean, 'a thousand fearful wrecks,' with that dreadful array of dead men's skulls, great anchors, heaps of pearl, and inestimable stones, which, in the poet's eye, lie scattered in the bottom of the sea, making it hideous with sights of ugly death. There is at the bottom of this sea, between Cape Race in Newfoundland and Cape Clear in Ireland, a remarkable steppe, which is now known as the telegraphic plateau. A company is now engaged with the project of a submarine telegraph across the Atlantic. It is proposed to carry the wires along this plateau from the eastern shores of Newfoundland to the western shores of Ireland. The great-circle distance between these two shore-lines is one thousand six hundred miles, and the sea along the route is probably nowhere more than two thousand feet deep."—MAURY'S *Geography of the Sea*.

One attempt has been made to lay a cable from Port au Basque, Newfoundland, to Cape North, the extremest point of Cape Breton Island, but owing to continued storm the cables had to be parted, and it was given up. Preparations are now being made for another trial.

The trade-winds blow regularly in the intertropical portion of the Atlantic; beyond these limits the winds are variable. The principal currents of the Atlantic are, the equatorial current, which flows from the coast of Africa to the Caribbean Sea, with a velocity of from 30 to 70 miles a day, and the Gulf Stream, which, leaving the Gulf of Mexico, flows through the Strait of Florida, with a velocity of 80 miles a day, and a temperature of 86° Fahrenheit, and extends with a gradually decreasing velocity and diminished temperature to the Azores. Immense numbers of fish are found in the Atlantic, and herring and cod fishing are important branches of industry in the northern portion. A great part of the surface of the Atlantic, between lat. 16° and 45′ N., and long. 35° and 75° W., is covered with a species of weed (*Fucus Natans*) of a beautiful green color, from which circumstance it is called the Sargazo Sea—the sea of duck-weed, or the grassy sea. In the higher latitudes of the North and South Atlantic, navigation is impeded by immense icebergs, which are floated from the polar regions, and although these are generally melted before reaching the frequented parts of the ocean, they have occasionally been met with as far south as lat. 40° 45′ in the North Atlantic, and in the vicinity of the Cape of Good Hope in the South Atlantic Ocean. For extensive information on the navigation and currents of the Atlantic, *see* MAURY'S *Wind and Current Charts of the Atlantic Ocean*.

Plate I., from MAURY'S *Geography of the Sea*, "presents a map of the depths of the ocean according to recent soundings. "It relates exclusively to the bottom of that part of the Atlantic Ocean which lies north of 10° south. It is stippled with four shades; the darkest (that which is nearest the shore-line) shows where the water is less than 6000 feet deep; the next, where it is less than 12,000 feet; the third, where it is less than 18,000; and the fourth, and lightest, where it is not over 24,000 feet deep. The blank space south of Nova Scotia and the Grand Banks includes a district within which very deep water has been reported, but from casts of the deep-sea lead which upon discussion do not appear satisfactory. The deepest part of the North Atlantic is probably somewhere between the Bermudas and the Grand Banks, but how deep it may be yet remains for the cannon-ball and the sounding-line to determine."—MAURY.

The Atlantic, according to Humboldt, presents all the indications of a valley, as if a flow of eddying waters had been directed from toward the northeast, then toward the northwest, and back again to the northeast. The parallelism of the coast north of 10° south latitude, the projecting and receding angles, the convexity of Brazil opposite to the Gulf of Guinea, that of Africa under the same parallel with the Gulf of the Antilles, all favor this apparently speculative view. In this Atlantic valley, as is almost every where the case in the configuration of large continental masses, coasts deeply indented and rich in islands are situated opposite to those possessing a different character. The depth of this ocean is extremely various; and is enormous, both to the north and south of the equator. Thus, Captain Sir Edward Belcher, R.N., in lat. 0° 4′ N. long., 10° 6′ W., *sounded* to the depth of 3065 fathoms = 18,390 feet; Captain Barnett, R.N., in lat. 41° 2′ N. long. 44° 3′ W., sounded to the depth of 3700 fathoms, or 22,200 feet; Captain Sir James Ross, R.N., in 1840, to 2677 fathoms, or 16,062 feet; and afterward, in lat. 33° 3′ S., long. 9° 1′ E., to 4600 fathoms, or 27,600 feet; and Captain H. M. Denham, H.M.S. *Herald*, has obtained soundings at the vast depth of 7706 fathoms = 46,236 feet, or about 8¾ English miles. This, which is the deepest sounding ever yet taken, occurred on 30th October, 1852, in lat. 36° 49′ S., long. 37° 6′ W. Two American captains have also obtained soundings at the depth of 3100 and 3500 fathoms.

The intertropical part of the Atlantic is under the influence of the trade-winds, which frequently extend to the 32d degree of north or south latitude. The winds blow almost invariably in the same direction, from east to west, occasionally varying a few points to the north or south, on the north and south sides of the equator. A region of calms, varying from 3 to 10 degrees of latitude, according to the season of the year, separates the two trade-winds. It is, however, daily agitated by a squall, which begins about two o'clock in the afternoon, and continues about an hour. This region does not always occupy the same part, but its central line may be placed about the 5th degree of north latitude. In some tracts the influence of the trade-winds extends to the shores, but in general it does not come within 200 miles of the coasts.

The current of this ocean first known to mariners, is called the equinoctial, and is within the tropics, especially flowing from the coast of Senegal to the Caribbean Sea. Its direction is constantly from east to west, with a mean rapidity of 9 or 10 miles in 24 hours. This current is attributed to the impulse which is given to the surface of the sea by the trade-winds. "In the channel," says Humboldt, "which the Atlantic has dug between Guiana and Guinea on the meridian of 20 or 23 degrees, and from the 8th or 9th to the 2d or 3d degrees of north latitude, where the trade-winds are often interrupted by winds blowing from the south or south-southwest, the equinoctial current is more inconstant in its direction. The equinoctial current is felt, though feebly, even beyond the tropic of Cancer, in the 26th and 28th degrees of latitude. In the vast basin of the Atlantic, at 600 or 700 leagues from the coasts of Africa, vessels from Europe bound to the West Indies find their sailing accelerated before they reach the torrid zone." In the Caribbean Sea, the motion of this current is much accelerated by the action of another current. The Mozambique current, flowing from north to south, between Madagascar and the eastern coast of Africa, bends to the north of the Lagullas bank, round the southern point of Africa, and advances with much violence along its western coast beyond the equator to the island of St. Thomas. It gives a northwesterly direction to a portion of the waters of the South Atlantic, causing them to strike Cape St. Augustin, and to follow the shores of Guiana beyond the mouth of the Orinoco, the Boca del Drago, and the coast of Paria. The coast of America presenting a barrier to the equinoctial current, its waters are driven with velocity through the strait formed by Cape Catoche and Cape St. Antonio, into the Gulf of Mexico; and, after following the bendings of the coast, force their way back into the open sea north of the Straits of Bahama, where it forms a warm rapid current, known as the Gulf Stream. At first its rapidity is sometimes as great as five miles an hour, but it decreases as it proceeds toward the north, at the same time that its breadth increases and its waters become cool. Between Cayo Biscaino and the bank of Bahama the breadth is only 15 leagues, while in the latitude of 28½ degrees it is 17; and in the parallel of Charleston, opposite Cape Henlopen, from forty to fifty leagues. "The waters of the Mexican Gulf forcibly drawn to northeast preserve their warm temperature to such a point, that in 40 and 41 degrees of latitude I found them at 22·5° cent. (=72·4° Fahrenheit), when out of the current the heat of the ocean at its surface was scarcely 17·5° (=63·5° Fahrenheit). In the parallel of New York and Oporto, the temperature of the Gulf Stream is consequently equal to that of the seas of the tropics in the 18th degree of latitude; as, for instance, in the parallel of Porto Rico and the islands of Cape Verd."—HUMBOLDT. In lat. 41° 25′ and long. 67°, where it is nearly 80 leagues broad, it turns suddenly to the east, and almost touches the southern edge of the Great Newfoundland Bank, from whence it continues its course east and east-southeast to the Azores. On the meridian of Corvo and Flores, the most westerly islands of the Azores group, the breadth of the current is 180 leagues. From the Azores it turns toward the Straits of Gibraltar, the island of Madeira, and the Canary group. There are several other minor currents in the vast ocean, as the branch sent off by the Gulf Stream before reaching the Western Azores, which at certain seasons of the year flows toward Ireland and Norway. The experiments of Sir James Ross and Captain Denham show that, after the depth of 200 or 300 fathoms, the temperature of the Atlantic waters is stationary at 40° Fahrenheit, whatever be the temperature at the surface. This uniformity of temperature in the waters of great oceans renders them the means of mitigating the extremes of tropical and polar regions.—E. B. *See* GULF STREAM. *See also* RENNELL'S *Investigation of the Currents of the Atlantic Ocean; HUMBOLDT'S Cosmos, personal narrative; and* MAURY'S *Physical Geography of the Sea.*

Atlas, in *Literature*, a collection of maps, charts, or other tables; so called from the fabulous king of that name, who is sometimes represented as supporting the world on his shoulders. The term was first used in this sense by the celebrated geographer Mercator, in the 16th century.

Atmometer (from *ἀτμος*, *vapor*, and *μετρόν*, *a measure*), an instrument contrived by Professor Leslie for measuring the quantity of moisture exhaled from any humid surface in a given time. It consists of a very thin ball of porous earthen-ware, from one to three inches in diameter, having a small neck firmly cemented to a long and rather wide tube of glass, to which is adapted a brass cap, with a narrow collar of leather to fit close. Being filled with distilled or pure water, the waste and descent of this column serves to indicate the quantity of evaporation from the external surface of the ball. The tube is marked downward, through its whole length, by the point of a diamond, with divisions across it, amounting to from 200 to 500, each of which corresponds to a ring of fluid, that, spread over the whole exhaling surface, would form a film only one thousandth part of an inch in thickness. This graduation is performed by previously sealing one of the ends of the tube with wax, and introducing successive portions of quicksilver, to mark every 20, 50, or 100 of those divisions; being calculated of equal bulk to disks of water, that have the surface of the ball (exclusive of the neck) for their base, and so many thousand parts of an inch for their altitude.

Atmosphere, is the name applied to the invisible elastic medium which surrounds the globe of the earth to an unknown height. The fluid of which it is composed is usually known by the name of *air*.

Attachment, in *English Law*, is a process from a court of record, awarded by the justices at their discretion, on a bare suggestion, or on their own knowledge; and is properly grantable in cases of contempt. It differs from arrest, in that he who arrests a man carries him to a person of higher power to be forthwith disposed of; but he that attaches keeps the party attached, and presents him in court at the day assigned, as appears by the words of the writ. Another difference is, that arrest is only upon the body of a man, whereas an attachment is often upon his goods. It is distinguished from distress in not extending to lands, as the latter does; nor does a distress touch the body, as an attachment does. Every court of record has power to fine and imprison for contempt of its authority.—E. B.

Attar, or **Otto of Roses,** a well-known perfume of great strength, is an essential oil prepared in several parts of Asia and in Egypt from the *Rosa moschata* and *Rosa Damascena*. It is said that 100,000 roses yield but 180 grains of attar. This oil is at first of a palish green color, which by keeping becomes darker, and presents various tints of green, yellow, and red.

Attorney-at-law is one who is put in the place, stead, or *turn* of another (*attornatus*), to manage or conduct his law proceedings or affairs. The term is used in England to denote the class of legal practitioners whose functions are preparatory to those of the barrister or advocate.

Auction, a well-known mode of selling property, in open competition, to the highest offerer, by means of an agent or auctioneer. When the property is of considerable value, a person is sometimes appointed to superintend the sale, who is denominated judge of the roup, and acts as an arbiter in settling any disputes that may arise. The terms of the sale may be regulated at the will of the exposer, provided they are distinctly announced to the public beforehand. The party offering the highest price is declared the purchaser. When formal articles of sale are employed, they commonly regulate how much each offer shall exceed the previous one; whether the exposer shall be allowed to make an offer, or to withdraw the subject, if the highest offer does not amount to a given sum; and sometimes it is declared that an installment of the price shall be payable instantly, or that security shall be found within a stipulated period; failing which the immediately preceding offerer is preferred. Secret contrivances, either to raise or depreciate the price, are unlawful. The seller must not attempt to practice any imposition on the public; neither are the bidders permitted to adopt any unfair means to prevent the natural operation of free competition. Where any such thing is detected, not only is the sale vitiated, but reparation is due to the injured party. For example, the secret employment by the seller of a friend to raise the price by making a fictitious offer is fraudulent, and entitles the highest offerer, on detecting it, to repudiate the transaction, or (in case he has been outbidden by such fictitious party) to demand the property at the price which he fairly offered. On the other hand, the obligation on the part of the public to act fairly is equally stringent. Accordingly, if two or more individuals combine to withhold their biddings that one of their number may purchase cheaply in order to divide among them the expected profit, or if a bidder were to give money to others to induce them to refrain from bidding, the exposer is entitled to have the sale declared void, on the ground that such a secret combination or paction obviously deprived him of the advantage which he expected from that competition which a public sale is intended to secure.—E. B.

Of Sales at Auction.—"An auctioneer has not only possession of the goods which he is employed to sell, but he has an interest coupled with that possession. He has a special property in the goods, and a lien upon them for the charges of the sale, and his commission, and the auction duty. He may sue the buyer for the purchase-money, and if he gives credit to the vender, and makes delivery without payment, it is at his own risk. If the auctioneer has notice that the property he is about to sell does not belong to his principal, and he sells notwithstanding the notice, he will be held responsible to the owner for the amount of the sale. So, if the auctioneer does not disclose the name of his principal at the time of the sale, the purchaser is entitled to look to him personally for the completion of the contract, and for damages on its non-performance.

"In the sale of real property at auction, care should be taken that the description of it be accurate, or the purchaser will not be held to a performance of the contract. But if the description be substantially true, and be defective or inaccurate in a slight degree only, the purchaser will be required to perform the contract, if the sale be fair and the title good. Some care and diligence must be exacted of the purchaser. If every nice and critical objection be admissible, and sufficient to defeat the sale, it would greatly impair the efficacy and value of public judicial sales; and, therefore, if the purchaser gets substantially the thing for which he bargained, he may generally be held to abide by the purchase, with the allowance of some deduction from the price, by way of compensation for any small deficiency in value by reason of the variation.

"A bidding at an auction may be retracted before the hammer is down. Every bidding is nothing more than an offer on one side, which is not binding on either side until it is assented to, and that assent is signified, on the part of the seller, by knocking down the hammer.

"If the owner employs puffers to bid for him at an auction, it has been held to be a fraud upon the real bidders. He must not enhance the price by a person privately employed by him for that purpose. It would be contrary to good faith, as persons resort to an auction under a confidence that the articles set up for sale will be disposed of to the highest real bidder. A secret puffer employed by the owner is not fair bidding, and is a fraud upon the public, nor can the owner privately bid upon his own goods; or secret dealing on the part of the seller is deemed fraudulent. If he be unwilling that his goods shall be sold at an under price, he may order them to be set up at his own price and not lower, or he may previously declare, as a condition of the sale, that he reserves a bid for himself." —KENT'S *Comm.*, vol. ii. Lect. XXXIX.

Auctioneer, a person who conducts sales by auction. It is his duty to state the conditions of sale, to declare the respective biddings, and to terminate the sale by *knocking down* the thing sold to the highest bidder. An auctioneer is held to be lawfully authorized by the purchaser to sign a contract for him, whether it be for lands or goods; and his writing down the name of the highest bidder in his book is sufficient to bind any other person for whom the highest bidder purchased, even though such person be present, provided he do not object *before entry*. An auctioneer who declines to disclose the name of his principal at the time of sale makes himself responsible. But if he disclose the name of his principal, he ceases to be responsible, either for the soundness of or title to the thing sold, unless he have expressly warranted it on his *own* responsibility. If an auctioneer pay over the produce of a sale to his employer, after receiving notice that the goods were not the property of such employer, the real owner of the goods may recover the amount from the auctioneer. It has long been a common practice at certain auctions (called for that reason *mock* auctions) to employ *puffers*, or mock bidders, to raise the value of the articles sold by their apparent competition, and many questions have grown out of it. It was long ago decided that if the owner of an estate put up to sale by auction employ puffers to bid for him, it is a fraud on the real bidder, and the highest bidder can not be compelled to complete his contract.—6 *T. Rep.* p. 642. But it would seem as if the mere employment of puffers under any circumstances were now held to be illegal. "The inclination of the courts at the present time is, that a sale by auction should be conducted in the most open and public manner possible; that there should be no reserve on the part of the seller, and no collusion on the part of the buyers.

Puffing is illegal, according to a late case, even though there be only one puffer; and it was then decided that the recognized practice at auctions, of employing such persons to bid upon the sale of horses, could not be sustained."—WOOLRYCH *on Commercial Law*, p. 262. A party bidding at an auction may retract his offer at any time before the hammer is down. Another clearly established principle is, that verbal declarations by an auctioneer are not to be suffered to control the printed conditions of sale; and these, when pasted up under the box of the auctioneer, are held to be sufficiently notified to purchasers. Auctioneers, like all other agents, should carefully observe their instructions. Should those who employ them sustain any damage through their carelessness or inattention, they will be responsible. They must also answer for the consequences, if they sell the property intrusted to their care for less than the price set upon it by the owners, or in a way contrary to order.

Auditor, in *English Law*, is an officer who, by examining yearly the accounts of the under officers, makes up a general book, which shows the difference between their receipts and charges, and their several allowances.—E. B.

Auncel Weight, an ancient balance, prohibited by several statutes, on account of the deceits practiced by it. It consisted of scales hanging on hooks, fastened at each end of a beam, which were lifted up by the hand. In many parts of England auncel weight signifies meat sold by the hand, without scales.—E. B.

Aureus, the standard gold coin of Rome, first struck A.U.C. 546; current value = 25 denarii, or 100 sestertii, equivalent to 17*s.* 8½*d.* Forty aurei were made from a pound of gold; but their value was gradually diminished, till, under Nero, 45 were made from a pound, and under Constantine, 72.—HUSSEY, *on Ancient Weights and Money*.—E. B.

Australasia, in *modern Geography*, the *fifth* great division of the earth's surface. The learned and intelligent President de Brosses was the first writer who suggested that all the lands and islands in the Austral world should be divided into three portions, corresponding with the three great oceans, the Indian or Ethiopic, the Atlantic, and the Pacific; those in the Indian Ocean and to the south of Asia to be named *Australasia;* those in the two Pacifics, from the multitude of islands, *Polynesia* (a name first used, we believe, by De Barros); and those in the Atlantic to the south of Cape Horn and the Cape of Good Hope, *Magellanica.* The last, however, became unnecessary, as soon as it was ascertained that the *Terra Australis incognita* had no existence.

The two divisions of Australasia and Polynesia will be found to comprehend, with sufficient convenience, all those islands that can not with propriety be referred to any of the four continents of the globe. Nor is there any difficulty in drawing a line of separation between these two divisions; though it is not quite so easy to mark the distinct boundary between the Australasian and the Asiatic islands, where they melt into each other, about the equator, at the northwest extremity of Papua or New Guinea. In a geographical view, the small islands of Waygiou, Salwatty, Batanta, Mysol, and Timorlaut, ought strictly to belong to Australasia; but peopled as they are by Asiatics of the Malay tribe, and under the influence of the Dutch settlements, it may perhaps be more proper, in a moral and political point of view, to consider them as belonging to the Asiatic Islands; more particularly as we shall then have all the Australasian population, with very few exceptions, marked with more or less of the African or Negro character. But, in fact, all geographical divisions are and must be, to a certain degree, arbitrary.

If, then, we take the equator as the northern boundary from the 132° to the 176° of east longitude: continue a line on the latter meridian to the 55th parallel (bending a little to take in New Zealand) for the eastern; another line along the same parallel to the 65th degree of east longitude for the southern; and a slanting line to the point on the equator from which we set out, so as to include Kerguelen's Land, and pass on the eastern sides of Timorlaut, Ceram, Mysol, and Salwatty, for the western boundary; those lines will circumscribe the whole of the Australasian islands. We have included the uninhabited islands of Kerguelen and St. Paul and Amsterdam, because they can not properly be considered as African islands, though arranged, we believe, under that division by Pinkerton; they are of less importance to geography than to geology.

Australasia, then, may be subdivided into the following groups and islands: 1. Australia, or New Holland; 2. Van Diemen's Land, or Tasmania; 3. New Guinea, and the Louisiade Archipelago; 4. New Britian, New Ireland, and neighboring islands; 5. Solomon's Islands; 6. New Hebrides; 7. New Caledonia; 8. New Zealand, and isles to the southward; 9. Kerguelen's Islands, or Islands of Desolation; 10. St. Paul and Amsterdam; 11. Numerous reefs and islets of coral scattered over the Australasian Sea.

The first attempt to explore New Holland, which, from its size, may be considered as the fifth continent of the earth, is unquestionably due to the Dutch; for although some part of the northern coast may have been seen by the early navigators of Spain and Portugal, there is no direct testimony in favor of such a discovery. There are two charts in the British Museum which belonged to the *Harleian Collection;* one French, without date, which was probably the original; and the other English, apparently a copy: the latter is dedicated to the King of England, and bears date 1542. In both of these charts is marked down an extensive tract of country to the southward of the Moluccas, under the name of *Great Java*, agreeing more nearly with the position and extent of New Holland than any other land. The form given to the northwest part of the coast in these charts approaches nearest to the truth; a part, indeed, which may have been seen by those early navigators who visited the Moluccas long before the date of the English chart. It is a singular coincidence in geographical nomenclature, that, on the east coast of the French chart, something like a *Botany Bay* should be designated under the name of *Coste des Herbaiges.* The Abbé Prévost, in the *Histoire Générale des Voyages*, and the President de Brosses, in his *Histoire des Navigations aux Terres Australes*, are not very happy in advancing a claim in favor of Paulovier de Gonneville, a French captain, to the discovery of this *Terra Australis* in 1504. It was the coast of Madagascar upon which Gonneville was driven, as is evident by their own accounts.—E. B.

Australia, or **New Holland,** the largest island on the globe, is situated in the southern hemisphere; and, as described in the preceding article, forms the main land around which are clustered those groups of islands which, in modern geography, constitute the *fifth* great division of the earth's surface. Wilson Promontory, its most southern angle, is in lat. 39° 11′ S., and Cape York, its northernmost headland, in lat. 10° 43′ S. Its greatest breadth from north to south is thus 1708 geographical miles, or 1965 statute miles. Cape Byron, the eastern limit, is in long. 153° 37′ E., and Cape Inscription, in 112° 55′ E., forms its westernmost point; making the extreme length of the island from east to west about 2603 British miles, by an average breadth of 1200 miles—a tract of land well entitled to be called a continent, by which name it is frequently designated by geographers. Its superficies approximates to 2,690,810 square miles. That of the continent of Europe being 3,684,841 square miles, we can form some idea of its extent by comparison.

The nomenclature and geographical subdivisions of this island-continent have undergone many alterations from time to time, as the territory has become colonized. Before any settlement had been effected by the British government upon its shores, the entire island was designated New Holland, not only by the Dutch—from whom it received its name—but on our own charts and maps. The east coast, first discovered and explored by Captain Cook in 1770, was named by him New South Wales. The middle portion of the north coast bore the name of Arnhem Land, after the ship of its discoverer, Zeachen, in 1618. The west and southwest coasts were named in like manner by their discoverers, the Dutch navigators, in the seventeenth century, De Witt's Land, Endraght's Land, Edel's Land, Leeuwin's Land, and Nuyt's Land. That of Van Diemen's Land was given by Tasman to what he supposed was the southern peninsula of New Holland, but which was afterward discovered by Bass to be an island. The colonists have been anxious to name it after its discoverer, but the government still retain the first title.

Since this great territory has become the undisputed possession of Britain, other names, with the exception just mentioned, have, according to the law of nations, been substituted for the old Dutch titles. New South Wales is only applied now to about one-half the east coast territory. The name of the entire island also is changed from New Holland to the more appropriate designation of Australia, by which it is now universally recognized and described. The subdivisions South, North, and Western Australia would be equally proper if their boundaries were defined according to the ordinary rules of geographical dissection. But while the first section, South Australia, is only the middle portion of the south coast, trending inland to the central region; and the second, North Australia, embraces all to the north of New South Wales; the third section, Western Australia, nearly bisects the island, leaving a small tract of land between it and South Australia with no name at all. A better division would be to draw a line right across from east to west in lat. 26° S.; thus bisecting the island near its intertropical parallel; for although this line would be 3½ degrees south of the tropic of Capricorn, still the influence of the tropical rains and winds ascend even higher than this parallel. At all events, this would be sufficient for us to designate the northern section *Tropical Australia*, and the southern *Temperate Australia*. Besides these two great meteorological divisions, they could conveniently be subdivided into four political sections by drawing another line from south to north in the meridian of 133° 30′. Each of these sections might then be designated, according to its direction from the centre, Southwestern and Northwestern Australia, Northeastern and Southeastern Australia. And these, again, might be subdivided into provinces, as the last-named section includes the three colonies of New South Wales, Victoria, and South Australia. This arrangement would tend to simplify an important section of geography which at present is very much confused.

If, for the better elucidation of our subject, we suppose these lines and boundaries to exist on the map, the northern or tropical division has little to do with the history of British colonization in Australia. It is within the temperate zone that our colonies have been planted and successfully nurtured. And this tract, again, separated by the meridian line suggested, confines to a still smaller compass the subject of our description. The group of colonies which absorb the attention of the statesman and merchant in that far-off land are comprised within the last-named section, Southeastern Australia. On the west it is bounded by a line drawn from the south coast, in long. 132° E., meeting another line drawn at a right angle from the east coast, in lat. 26° S.; the southern and eastern boundaries being formed by the coast line; which, by following the sinuosities of the gulfs and bays, comprehends a sea-board of nearly 2000 miles. Again, if a line be traced on the map, commencing about 150 miles inland from the head of Gulf St. Vincent, and continued more or less (within half a degree) the same distance from the coast until it reaches the northern boundary-line, the intermediate space will give a fair average of the extent of country at present colonized, which may be estimated in round numbers at 1500 miles long by 150 miles broad, or 225,000 square miles; or nearly three times the superficies of England.

From a letter written by Mr. Edward Hammond Hargraves to the colonial secretary, dated the 3d April, 1851, we learn that on the 12th of February previous he had discovered the existence of gold among the alluvium of the surface rocks over a large area of crown lands within the settled districts of the colony; which subsequently turned out to be from 20 to 30 miles beyond the town of Bathurst, an inland town 125 miles from Sydney. He was led to prosecute a search for the precious metal in that locality, from the similarity of that mountainous section of New South Wales to the auriferous regions of California, where he had successfully worked as a gold-digger. Governor Fitzroy was doubtful of the discovery, from the circumstance of a similar statement having been made to him two years before, by a Mr. Smith, of Berrima, who allowed the matter to drop on the governor's refusing to pay him a large fixed sum for the discovery. At the same time, Sir Roderick Impey Murchison, president of the Royal Geographical Society, and other eminent geologists in the colony and in England, had predicted the discovery of gold in the Australian mountain ranges, from their presenting similar characters, both geographically and geologically, to the gold-bearing mountains in Russia. Partly from these representations, and partly from the general claims of the colony to have its mineral wealth scientifically investigated, the government had just recently appointed Mr. Samuel Stutchbury as geological surveyor; and that gentleman at this period was prosecuting his *stereotyped* researches not very zealously in the mountain ranges at a short distance from Mr. Hargraves. It is worthy of notice that gold had been found in its native state from time to time some twenty years previous, by a Scotch shepherd, who was known to have sold a large quantity to the jewelers in Sydney; having kept the secret so long from a fear, as he stated, that, if any one dogged him to the spot, they might murder him. Notwithstanding these and other evidences which need not be specified, no one had prosecuted the search systematically before Mr. Hargraves, who demonstrated the fact publicly and without delay. To him, therefore, is due all the honor of the discovery.

After having intimated to the government that he was satisfied to leave to their liberal consideration any reward or remuneration they chose to offer him for his discovery, he posted off to Bathurst, and announced to the astounded inhabitants that they were living within a day's journey of the richest gold mines in the world. Followed by a number of the enterprising inhabitants, he led the way to Summer-hill Creek, and there, in a romantic vale, surrounded by hills, where this streamlet wound its course round a picturesque point of land, they dug the auriferous earth from the adjacent bank, washed it in the stream, and found that the soil was mixed with grains of gold. These gold pioneers, who thronged to the first "diggings," reminded of the resemblance between their country and the rich gold mines mentioned in Scripture, called this spot the Valley of Ophir.

This was in May, 1851, and it became the signal for the colonists in other parts of the territory to be up and doing. "Ascertaining the nature and description of the rocks occurring in the vicinity of the gold deposits, they immediately set to work in their own localities to search for the hidden treasure, instead of flocking with the multitude to the Bathurst mountains, concluding wisely that these comprised only a small section of the great mountain chain where it existed. Like the industrious tenants of an Australian ant-hill suddenly roused, the whole community of bushmen became alive among the rocks and valleys of the colony. Stock-whips and shepherd's crooks were thrown aside for pickaxes and shovels, with which these adventurous men might be seen exploring the gold regions, and with what success is now well known to the world." The Turon River, Muckerwa Creek, Louisa Creek, Meroo Creek, Frederick's Valley, Abercrombie River, and Araluen Vale, had their hidden treasures exhumed by the industrious diggers; and in three months after the workings at Bathurst had been set in operation, the newly-erected province of Victoria, within seven weeks from the time of her separation from New South Wales, disclosed her treasures at Ballarat; and before the close of the year, the Mount Alexander gold region gave forth that astounding yield of the precious metal, to which no record of ancient or modern times can furnish a parallel. The result of the latter discovery not only arrested the departure of the Victoria colonists who were flocking to the Bathurst Mountains, but afterward turned the tide of adventurers from the parent colony to the greater attractions of the Mount Alexander gold fields, which threatened at one time to decimate the populalations of Sydney and the surrounding townships.

The gold was not merely found in the scales or grains which at first came from the stream-washings at Ophir, but it was now dug up in large masses, varying from several ounces to many pounds in weight, which were familiarly called "nuggets" by the diggers, after the Californian name given to these *pepitas* or nodules; and in one instance, at Louisa Creek, 106 lb. weight of pure gold was found by an aboriginal shepherd imbedded in the quartz matrix, which formed one solid block of about 3 cwt. Neither was it found in the beginning at any great depth in the ground, but in many localities lay scattered among the surface soil, and hung to the roots of trees and shrubs. So easily and plentifully did it come to the hands of the gold-seekers, that it bore the aspect (and such was the belief of many of the less-informed diggers) of having only then sprung into existence from the earth, or having recently been scattered over the land by some mysterious agency, instead of carrying along with it the geological fact that its veins are coeval with the primary rocks. It was also discovered that the convicts had built a bridge across a small stream on the Bathurst road to Carcoar, above the gold formation, and that they had unconsciously paved the road with broken fragments of the gold quartz veins. Even in the streets of Bathurst and Melbourne, small particles of the precious metal were picked up by children in its natural bed; and several farmers and gardeners found that they had been plowing, digging, sowing, and planting their grain and trees in the auriferous soil. A knowledge of these facts industriously circulated by the colonial press throughout a community possessed of all the modern facilities of information, and keenly alive to the speculations of money-making, could not but fairly upset the minds of the people. Consequently, a gold mania seized every class of colonists, to the temporary suspension of all industrial pursuits.

Then followed a heterogeneous scramble for the coveted ore throughout the length and breadth of the land, which spread like wildfire to the neighboring colonies of South Australia, Van Diemen's Land, and New Zealand, threatening to depopulate them of their male adult inhabitants. Masons and bricklayers left unfinished buildings in the towns; shopmen left their counters, clerks their desks, sailors their ships; and artisans of every description threw up their employments, leaving their masters, and their wives and families, to take care of themselves. All other interests were absorbed in the search for gold; scarcely any other subject was talked of or thought of; and the mass of the people ran off to the "diggings," as this new occupation was termed. Nor did the mania confine itself to the laboring classes, for "these were soon followed by responsible tradesmen, farmers, captains of vessels, and not a few of the superior classes; some unable to withstand the mania and the force of the stream, or because they were really disposed to venture time and money on the chance; and others because they were, as employers of labor, left in the lurch and had no alternative. Cottages became deserted, houses to let, business was at a stand-still, and even schools were closed. In some of the suburbs not a man was left, and the women were known, for self-protection, to forget neighbors' jars, and to group together to keep house." The ships in the harbor, also, were in a great measure deserted; and instances were known where not only farmers and respectable agriculturists found that the only thing they could do, seeing that the people employed by them had deserted, was to leave their farms and join their men in the golden scramble; "but even masters of vessels, foreseeing the impossibility of maintaining any control over their men otherwise, agreed to make up parties among them, abandon their vessels, and proceed with their crews to the gold fields." The towns and their environs being thus drained of their laboring populations, the prices of provisions rapidly rose. The common necessaries of life reached famine prices, which fell heavily upon those depending upon salaries. This, coupled with the high wages demanded by domestic servants, forced the upper classes of society to dispense with their services, and the ladies had to perform the household drudgery. Clerks and others under government, and in public and private offices, finding it impossible to make both ends meet, threw up their appointments and rushed to the diggings, and even the constabulary force were leaving the towns unprotected. During this state of affairs the government was obliged to raise the salaries of their officers, in order to maintain a sufficient staff for the public service, and to preserve the public peace, which was becoming sadly disturbed. The banks and mercantile firms were obliged also to follow their example.

Meanwhile, the governments of New South Wales and Victoria—the two gold colonies—looked with apprehension upon the probable result of this gold-revolution among a pastoral population widely scattered over the country, a portion of which had but recently been reclaimed from the ranks of the felon. Therefore, how to regulate the prosecution of this new pursuit on crown lands became a matter of grave consideration. The crime and anarchy which had prevailed in California upon a similar discovery brought the worst fears to their recollection. Precautionary measures were promptly taken, and all the available military force—which was but slender—was called into requisition, assisted by the mounted police to maintain order and authority at the localities where the diggers were working; for at some places communities had assembled, and erected tents with the rapidity of a military encampment, in larger numbers than were to be found congregated within the ordinary townships scattered over the country. A proclamation was issued asserting the right of the queen's government to all gold or precious metals found on crown lands; and that every person digging therein in search of it, or any individuals trading or otherwise profitably employed at the diggings, must take out a monthly license and pay the sum of 30*s*. This measure was at once acceptable to the people, and gold commissioners were appointed to see that it was carried into effect. Notwithstanding the excitement which prevailed at the first blush of the discovery, and during the subsequent discoveries in other localities, which drew from time to time one half of the adult male population to the gold fields, to the honor of the people of New South Wales be it said, that no greater amount of crime existed in that colony during the following eighteen months than the usual average. "Every where," as stated in the dispatches of his excellency the governor general, "the gold-diggers were loyal, orderly, and obedient to the laws," and they cheerfully paid the fee of one shilling per diem for license to dig. The same flattering testimony can not be borne to Victoria, where a Californian state of anarchy at one time threatened the subversion of all law and order; the consideration of which will be reserved for our remarks on that colony. At the close of 1851, six months' experience had proved the most satisfactory results as to the extent and richness of the gold deposits. In New South Wales, upward of 20,000 licenses were issued; and the export sheet from the port of Sydney showed that 142,975 ounces, valued at upward of half a million sterling, had left the colony.

By this time also, hundreds, nay, thousands, had ascertained that they were morally and physically unfit for the hard labor and privations to be encountered in the search for gold. The consequences were, that not only did many clerks, shopmen, and artisans come back to their former occupations in the towns, but much distress was felt by those who had abandoned lucrative employments, which were shut against them on their return; in many instances impaired in health from exposure to the rigorous climate of the gold regions, which, it will be understood, were first worked in the winter season in Australia. The beneficial effects which accrued from this reaction in favor of the industrial pursuits, was the supply of labor to be had, although at exorbitant wages, for securing the wool-crop of the season. Not only was this evil result anticipated, among others, at the beginning of the gold discovery, but at many sheep and cattle stations in the far interior, the herds and flocks were abandoned by their keepers, and at that period nothing short of utter ruin to the pastoral interests of the colony hovered over the sheep-farmers and graziers. In one instance, an enterprising squatter drove 26,000 sheep into one flock, which he shepherded with four trusty shepherds on horseback. Here, as in other matters, the gentlemen settlers and capitalists in the colony proved themselves equal to the occasion; and much consideration is due to them for assisting to maintain the peace and prosperity of the community, by their untiring energy and support given to the government, under such an unlooked-for event. And where at first the squatters anticipated a ruinous reduction in the value of their stock, the demand for sheep and cattle to supply the diggers with food raised the prices 50 per cent., while the land-holders found new purchasers of land among the judicious and fortunate gold-diggers. So at the close of the year 1851, the prospects of New South Wales, on all sides, were most cheering, where the reverse was expected. The population had increased to 197,168 persons. The value of the imports was £1,563,931, and the exports £1,796,912. Thus the average of the former, for every man, woman, and child in the colony, would be at the rate of £8 per head, and of the latter about £9. The ordinary revenue = £277,728; and the crown revenue £208,969; the coin in the colony £560,766; and the paper currency £418,541. The wool exported = 15,269,317 lb., valued at £828,342; the tallow 86,460 cwt., value £114,168; and the gold 144,120 oz. 17 dwt., value £468,336. Shipping inwards 553 vessels, of 153,002 tons, having 7955 men on board; and the shipping outwards 563 vessels of 139,020 tons, having 7988 men.

From the circumstance of gold mines having been hitherto only worked by barbarous or despotic nations, who, from ignorance or policy, shrouded their operations in mystery, our information regarding the extent and character of gold-bearing rocks throughout the world was of a very meagre description. The "great fact," therefore, of gold regions being discovered, and worked within territories claimed by the Anglo-Saxon race in California and Australia, is not only an event of considerable interest in the history of the world, but has proved of the utmost benefit to science in determining this important question in auriferous geology. Not only was the gold found in the ordinary quartz matrix, but the reports of the geological surveyors of New South Wales have shown that it is found in granite at Araluen Creek; schistose or slaty rocks at the Turon; and in Frederick's Valley specimens were found of a ferruginous rock, beautifully dotted with globules of gold. It would seem, therefore, that gold is the most universally distributed of metals among the unstratified rocks, although found in greatest abundance in the quartz veins which intersect these rocks. However, the great bulk of the gold found in Australia has not been extracted from its matrices, but dug out of the gold alluvium formed by the disintegration of these rocks. Hence the gold mines in this region have received the familiar name of "diggings," from the practical-minded Americans and Australians. What are termed the "gold diggings," then, are spots where the miners have to dig pits from 10 to 15 feet deep before they arrive at the substratum of auriferous soil in which the particles of gold are found loosely imbedded. This subsoil is generally a stiff blue clay mixed with sand and gravel, and the pure metal appears in scales about the size and shape of bran or shellings; and in rounded grains and lumps varying from the size of a pin's head to the form and dimensions of flints as they occur in chalk, a specimen of which, when gilded, gives exactly the appearance presented by these gold nodules, or, as they are now universally called, "nuggets." This alluvium is collected and mixed freely with water in a tub, which is termed "puddling." After having undergone two or three washings, the residue is thrown into a cradle or wooden trough, with "cleets" or ribs fastened across the bottom, and a sieve at the head, which prevents large stones or lumps of gold from passing through. The cradle is then rocked and tilted to and fro, while water is poured over the auriferous sand or gravel. When sufficiently washed, the residue at the bottom of the cradle is examined carefully, the large pieces, if any, picked out, and the scales of gold separated from any foreign substance by further washing in a tin dish, until it is perfectly clean; after which a magnet is passed through it to extract small particles of iron-sand, which are frequently mingled with it. Upon reaching the "washing-stuff," as the "diggers" term the gold alluvium, they sometimes see the nuggets dotting the earth, and collected into heaps or "pockets," which they extract easily with the point of a knife. This pleasing operation to the fortunate digger is called "nuggeting." Again, a similar process is followed at some localities where the grains of gold lie on the surface of the ground, technically termed "forsicking."—E. B. *See* ADELAIDE.

Average, a term used in maritime commerce to signify damages or expenses resulting from the accidents of navigation. Average is either *general* or *particular*. General average arises when sacrifices have been advisedly made, or expenditures incurred, with a view to the preservation of the ship, cargo, and freight from the effects of some extraordinary peril; and it implies a subsequent contribution from all the parties concerned, in order to make good the loss which one or more of them may thus have sustained. Particular average signifies the damage or partial loss happening to the ship, goods, or freight, in consequence of some fortuitous or unavoidable accident; and it is borne by the individual owners of the articles damaged, or by their insurers.

It may be here remarked, that the term Average was originally used to signify what is now distinguished as General Average. The expression "Particular Average" is not strictly accurate, as it does not, in its current acceptation, imply the idea of an *equalizing contribution*, as originally signified by the word Average. It has, nevertheless, been generally adopted, and is now fully recognized as the distinctive expression for damage or partial loss falling on some one of the individuals interested in a sea adventure. Average is said by Cowell to be derived from the Latin word *averagium*, from the verb *averare*, to carry. He supposes it to have been introduced into commerce to show the proportion to be paid by every man according to his goods *carried*. Loccenius, on the other hand, derives it from the French *havre*, or the German **haben**, a port; it being a contribution paid for having goods *brought safely to port.—De Jure Maritimo*, lib. ii. cap. vii. sect. 1.

Petty Average consisted of certain small charges for pilotages, light-dues, etc., which were apportioned one-third to the ship and two-thirds to the cargo; but this is now superseded by the agreement that the freight payable for the cargo shall include all such expenses; and the term has, consequently, become obsolete.

Although nothing can be more simple than the fundamental principle of general average—which is, that a loss incurred by one party for the advantage of several shall be made good in equitable proportions by all who are benefited by it—yet the application of this principle to the varied and complicated cases which arise in the course of maritime commerce has occasioned many diversities of usage in different countries, and even in the same country at different periods. Without entering on so wide a field as the discussion of these diversities would open up, we shall endeavor to present a brief summary of the leading principles which have been established in Great Britain, by usage or by legal decisions, in connection with the subject.

All general average losses may be divided into two principal classes: 1. *Sacrifices* of part of the cargo and freight, or of part of the ship, for the general benefit; 2. *Extraordinary expenditures*, incurred with the same object. Under the first of these classes we shall begin by noticing the acts which involve sacrifices of *part of the cargo and freight*. When a part of the cargo is thrown overboard (or *jettisoned*, as it is termed) to save the ship from foundering in a storm, or to float her when stranded, or to facilitate her escape from an enemy, the loss of the goods and of the freight attached to them must be made good by average contribution. In like manner, if goods be damaged in the ship by opening the hatches in order to effect a jettison, or by being brought upon deck for that purpose, the damage forms a general average charge. But if goods jettisoned have been originally stowed *on deck*, no contribution can be demanded for them, unless they are so carried according to the common usage and course of trade on the voyage for which they were shipped.

If, instead of being thrown overboard, the goods are put into boats or lighters, and lost or damaged before reaching the shore, such loss is regarded as a virtual jettison, and gives a claim to average contribution. The same rule applies to damage occasioned by the goods being put ashore on muddy ground, as may sometimes happen, when there is no other place where they can be landed. But when the goods have been conveyed to a place of ordinary safety, they are no longer at the risk of the *general* interest; and should they be damaged by fire or other accidents, the loss must be borne by the *individual* proprietors or by their insurers. The loss of corn, salt, guano, or similar goods, arising from their being pumped up or bailed out with the water in the vessel, can not be recovered by average contribution. If, in consequence of there being no other means of raising money at a foreign port, a part of the cargo be sold for the purpose of repairing losses or defraying expenses which are themselves of the nature of general average, the loss arising from the sale gives a claim to contribution. But if the funds are required for the purpose of repairing particular average losses on the ship, or of defraying the ordinary expenses of the navigation, the loss must be borne by the ship-owner.

The damage done to the cargo by means of water thrown down the hatches to extinguish an accidental fire, or by scuttling the ship for that purpose, is excluded, *by usage*, from general average. This point seems to have never yet been settled by any legal decision; and the usage referred to is considered by several writers of high authority to be at variance with sound principle. It is sometimes defended on the ground that the damage in question is *secondary* and *incidental*, and not *primary* and *intentional*. But this reason seems somewhat fanciful for the purposes of equity, and is, besides, inconsistent with the analogy of certain other cases, where an opposite principle is practically recognized; as, for instance, in the case of goods incidentally damaged in effecting a jettison of other goods. The amount of compensation to be made for goods sacrificed by general average acts is determined by the net market price they would have produced on arrival at the port of destination had they not been sacrificed; but under deduction of the freight attaching to them (which is made good to the ship-owners), and of the charges for duties and landing expenses which are saved.

We now proceed to notice the general average acts which involve sacrifices of part of the *ship or her materials*. The same principles which regulate the case of goods thrown overboard apply also to the jettison of the ship's chains, anchors, hawsers, spars, boats, or other stores. But if water-casks are stowed on deck, or if chains and hawsers are carried on deck when the vessel is not near the land, so as to render it necessary that they should be so carried, the loss arising from the jettison of these articles falls on the ship-owner; and if boats are jettisoned in consequence of their having been broken adrift from their fastenings on deck by the force of the sea, they are excluded from general average, and are charged to particular average on the ship. The damage done to the ship by cutting holes to effect a jettison of the cargo, or to pour down water to extinguish a fire, or by scuttling her for that purpose, is allowed as a general average charge. The damage arising from cutting or knocking away a portion of the ship's bulwarks in order to prevent the deck from being flooded in a storm, is compensated in the same manner. When sails or masts are cut away in order to righten a ship which has been thrown on her beam-ends, or to prevent her from driving on a lee shore, the loss is made good by average contribution; but if the object in cutting away a sail or spar be merely to *save a mast*, the loss is not made good in general average.

It frequently happens that masts or yards are sprung and carried away by the force of the wind, and are left entangled in the rigging, or hanging over the ship's side in what is termed "a state of wreck:" in these circumstances it becomes necessary to cut them away, with the sails and rigging attached, and to throw the whole overboard, otherwise they would impede the navigation, and endanger the ship and cargo. On this ground it is held by some authorities that the loss caused by the act of cutting them away should be made good by average contribution. But this act is the direct consequence of the previous accident, which places these articles in a situation where it is impossible to save them without imperiling the ship, cargo, and lives. It would not be reasonable to imperil these for such a purpose; whence it follows that the displaced articles are already *virtually* irrecoverably lost by means of the original accident, before the loss is *actually* consummated by cutting them away. And as the *general* interest ought not to be endangered for the purpose of attempting to save these articles, so neither should it be implicated in the loss resulting from the only remaining alternative of clearing them away. This loss is accordingly excluded, by the usage of this country, from average contribution. On the same principle, no contribution can be demanded for any articles which are sacrificed as having themselves become, through previous accident, the immediate cause of danger to the whole interest.

The loss of sails or spars, in consequence of carrying a press of canvas to avoid a lee-shore, or to escape from an enemy, is not the subject of general average in this country; neither is the damage suffered by the ship from *straining*, under any such extraordinary press of sail. When anchors and cables are slipped from in order to work a vessel off a lee-shore, or to avoid collision with another ship, the loss is made good by average contribution; but if the cable is slipped in order that the vessel may join convoy, or because the anchor has become hooked to some object at the bottom and can not be raised, the loss is borne by the ship-owner. When sails, ropes, or other materials are cut up and used at sea for the purpose of stopping leaks or to rig jurymasts, or when the common benefit requires that they should be applied to some purpose for which they were not originally intended, the loss is made good in general average. The same rule applies to the case of hawsers, cables, anchors, sails, or boats, lost or damaged in attempting to force off a stranded vessel from the shore. The damage sustained in defending a ship against a pirate or an enemy is not the subject of general average; it is treated as particular average on the ship.

It has been much debated by writers on maritime law, whether the voluntary stranding of a ship, in order to prevent her from foundering, should be treated as a general or as a particular average loss. In the United States it has been settled, by judicial decision, that the loss in question constitutes a general average claim; but the opposite doctrine is acted upon in the usage of Great Britain, and the point has never been raised before the courts of law. It appears to us that the argument greatly preponderates against the rule adopted in the United States, and in favor of the usage established in Great Britain. The only reason for regarding this loss as the subject of general average is, that it originates in the intentional act of running the ship aground, for the preservation, as far as possible, of the whole interest concerned. But it can seldom be known beforehand how the different interests at stake will be specially affected by the act in question; whether, for instance, the damage to the cargo may not be more serious than the damage to the ship, or *vice versa*. Thus no particular part of the interest can be said to be intentionally sacrificed for the benefit of the whole; the intention, indeed, is not to sacrifice any one part, but to place the whole interest in a situation of less peril than it would otherwise have been in. What particular damages may thereafter ensue to either ship or cargo will depend, in each case, on a variety of circumstances entirely accidental in their character, and therefore in no proper sense the subject of previous intention. The same rule, therefore, which excludes from general average accidental damages in all other cases ought to exclude them in this case also. Moreover, when the alternatives are, either that the vessel be left to founder, or that she be run ashore with a chance of preservation, there can really be no room for choice, or, at all events, the elements of will and intention are entirely subordinate in the part they must play under the pressure of the existing circumstances; and in this view the stranding is as truly inevitable as if it had been caused by the force of the winds and waves alone.

But, even were these reasons less weighty than we hold them to be, a serious practical objection might be urged against the doctrine that voluntary stranding should be a general average loss, on the ground that it would in most cases be impossible to distinguish between the damages received by the ship and cargo prior to the stranding, and those sustained after or in consequence of it. It is needless to remark, that before a ship can be in such imminent danger of foundering as to render it necessary to run her ashore, she must be presumed to have sustained a very considerable amount of damage; and the probability is, that the cargo also will have suffered to a corresponding extent. Up to this point these damages are confessedly *particular* average; and were it held that the damages *after* the stranding were the subject of *general* average, it would, of course, be necessary to distinguish the separate damages that belonged to each. But in every case these different damages would exist in varying proportions, yet always so incorporated together that justice could never have a more perplexing task than that of discriminating between them. No general rule could be applied that would meet the widely different circumstances of each particular case; and the arbitrary method of adjustment that would alone be possible would doubtless give rise to endless dissatisfaction and dispute. On the ground of expediency, therefore, as well as on that of principle, the usage now established in Great Britain ought to be maintained, notwithstanding the high authorities by whom the opposite has been countenanced.

The amount of general average losses on the ship is compensated by allowing to the owners the cost of repairs, or of new materials in place of those sacrificed, subject to the deduction of one-third for the difference of value between old and new; but no deduction is made from the cost of new anchors, and only one-sixth is deducted from the cost of new chain cables. If the ship be on her first voyage (which is held to include the homeward as well as the outward passage), the repairs and new materials are allowed in full.

Extraordinary Expenditures.—When a ship is obliged to put into a port of refuge, in consequence of damage received in the course of the voyage, the usage in Great Britain is to allow as general average all the charges connected with the entrance of the vessel into the port, and with the landing and warehousing of the cargo, when this is necessary to admit of the ship being repaired. Thus the expenses of pilotage or other assistance into the port, the harbor dues and similar charges, the costs of the protest taken by the master and crew, and of the survey held to ascertain whether the cargo requires to be discharged, together with the charges for landing the cargo and conveying it to a warehouse or other place of safety, are all made good as general average. The costs of repairing the ship are charged to general average only in so far as the repairs may refer to damages which are themselves the proper subject of general contribution. If the damages are of the nature of particular average, as is more usually the case, they are charged accordingly; or if they proceed from "wear and tear," they are stated against the ship-owner.

The warehouse rent for the cargo at a port of refuge, and any expenses connected with its preservation, form special charges against that particular interest, and are borne by the proprietors of the goods, or by their insurers. When goods are insured "free from particular average, unless the ship be stranded," it is necessary, if the ship has not been stranded, to distinguish the charges for warehouse rent and fire insurance from those incurred in connection with the preservation of the goods from the effects of damage; the underwriters being liable for the former, but not for the latter. The expenses of reshipping the cargo, and the pilotage or other charges *outward*, are borne by the freight. If the entire cargo can not be taken on board again, from the want, at the port of refuge, of the usual facilities for stowing it, the loss or expenses resulting from the exclusion of part of it are not treated, in Great Britain, as the subject of general contribution. The wages and provisions of the master and crew during the period of detention at a port of refuge are not admitted as a charge against general average; it being held that the ship-owner is bound to keep a competent crew on board the ship from the commencement to the end of the voyage at his own expense.

The charges for agency at a port of refuge are brought against the general average, even though they may have been originally made in the form of separate charges against the ship and cargo respectively. Commissions on money advanced, maritime interest on bottomry and *respondentia*, and the loss on exchanges, etc., are apportioned relatively to the gross sums expended on behalf of the several interests concerned.

The expenses incurred in getting a stranded ship off the ground, the hire of extra hands to pump a ship which has sprung a leak, and the sums awarded for salvage or for other services rendered to the ship and cargo under any extraordinary emergencies, are compensated by average contribution. But this rule applies only to the *extraneous* assistance that may have been obtained; the crew being bound to do their utmost in the service of the ship on all occasions, without extra remuneration for what they might consider extraordinary exertions on their part. The costs of reclaiming the ship and cargo after having been captured, are allowed as general average charges; and although *ransom* to an enemy is prohibited in Great Britain by legal enactment, it seems that this does not apply to the case of money or goods given up by way of composition to pirates for the liberation of the ship and cargo, and that this would also form a subject of average contribution.

When the ship and cargo arrive at the port of destination, it is unnecessary, in ordinary cases, to distinguish, in the adjustment of the general average, between the losses which have arisen from *sacrifices*, and those which have resulted from *expenditures* for the common benefit. But if the ship and cargo should be lost before reaching their destination, no contribution is due for the goods or ship's materials which may have been *sacrificed* at a former stage of the voyage, the owners of these being in no worse position than any of their coadventurers. On the other hand, it is evident that when money has been *expended* for the common benefit, the subsequent loss of the ship and cargo should not affect the right of the party who has made the advance to recover it in full from all the parties for whose advantage it was originally made. Hence, while *sacrifices* are made good only in the event of the ship and cargo being ultimately saved, *expenditures* must be reimbursed whether the ship and cargo be eventually saved or lost; and the contribution for these expenditures must be regulated by the values of the ship, cargo, and freight, as they stood at the time when the advances were made.

If, however, the money required for average expenditures has been raised by means of bottomry, and the ship be lost before completing the voyage, there can be no claim for reimbursement; the risk being assumed by the bottomry lender in consideration of the premium he receives on the sum advanced. It is by no means clear that the average expenditures which have been advanced without any contract of bottomry form a specific insurable interest, according to the law of Great Britain, although in practice they are very frequently insured. When this has been done, and when the amount has been recovered on the subsequent loss of the ship, no claim can be *equitably* made against the individuals who would otherwise have been liable. But if the expenditures are not insured, either by a bottomry contract, or by a special policy, and if the ship and cargo be totally lost in the subsequent course of the voyage, the parties for whose benefit the expenditures were incurred must reimburse them on the principles already explained. These parties, however, have recourse on their original insurers, not only for the total loss of the interests insured, but also for the previous expenditures, although the insurers may thus be called on to pay a *larger sum* than the amount of the insurance.

The contribution for general average losses is regulated by the values of the respective interests for the benefit of which they were incurred. The practical rule adopted, in all ordinary cases, is to estimate the ship, cargo, and freight, and their *net* values to their owners, in the state in which they arrive at the port of destination, *but including in these values the sums made good for sacrifices*, and to assess the contribution accordingly. The necessity for including the amount of compensation made for sacrifices in the valuations on which the contribution is charged, arises from the principle that all the parties interested in the adventure should bear the ultimate loss in exact proportion to their respective interests, which would not be the case if the owners of the articles sacrificed were to recover their full value without being themselves assessed for the loss thereon in the same manner as their coadventurers.

The contributory value of the *ship* is accordingly her actual value to her owner in the state in which she arrives, whether damaged or otherwise, including the sum made good in the general average for any sacrifices which may have been made of part of the ship or her materials.

The value of the *cargo* for contribution is its net market value on arrival, after deducting the charges incurred for freight, duty, and landing expenses, but without deducting the costs of insurance or commission. If goods be damaged, they contribute only according to their deteriorated value; and if special charges have been incurred on the cargo at a port of refuge (as for warehouse rent, etc.), the amount of these charges is deducted. The sum charged to general average for goods sacrificed is of course added to the valuation. All goods carried in the ship for the purpose of traffic must be included in the valuation of the cargo; but the wearing apparel, or personal effects, of the passengers and crew are exempted from contribution.

The value of the *freight* for contribution is the sum received by the ship-owner on the completion of the voyage for the carriage of the cargo, after deducting from that sum the wages then due, the port charges at the place of destination, and the special charges against the freight which may have been incurred at a port of refuge, consisting of the costs of reshipping the cargo, and of outward pilotage, etc. The provisions for the voyage are not deducted, as these are held to have formed part of the original value of the *ship*. If the freight has been paid in advance, it forms part of the value of the *goods*, and, consequently, does not contribute as a separate interest. It has been decided that when a vessel has been originally chartered for a double voyage, the *whole* freight to be earned under the charter-party must contribute at its net value, after deducting the wages and other charges which must be incurred in earning it. The effect of this rule is to render the freight attaching to the *return* voyage, as well as that attaching to the voyage *outward*, liable to contribute for average losses arising in the course of the outward passage; a result the equity of which is not always very apparent.

An adjustment of general average made at any foreign port where the voyage may terminate, if proved to be in conformity with the law and usage of the country to which such foreign port belongs, is binding on all the parties interested as coadventurers, although they may be subjects of Great Britain, and although the adjustment may be made on principles different from those sanctioned by the laws or usages of Britain. The reason for this rule is, that the parties engaging in the adventure are held to assent to the known maritime usage according to which the general average is adjusted on the arrival of the ship and goods at the port of destination.

The subject of general average is only incidentally connected with that of marine insurance, being itself a distinct branch of maritime law. But the subject of particular average arises directly out of the contract of insurance, and will therefore be best considered in connection with it.—E. B. *See* INSURANCE, MARINE.

For further information with respect to the subject of average, the reader is referred to the famous work of M. Valin, *Commentaire sur l'Ordonnance de* 1681, tome ii. p. 147–198, ed. 1760; to Emerigon, *Traité des Assurances*, tome i. p. 598–674; Park *on Insurance*, chap. vii.; Marshall *on Insurance*, book i. chap. xii. sect. 7; Steven's *Essay on Average*; Benecke *on the Principles of Indemnity in Marine Insurance*; Lord Tenterden's excellent work on the *Law of Shipping*, part iii. chap. viii. etc.; Arnould *on Marine Insurance*; Baily *on General Average*; Kent's *Commentaries*, Lect. XLVII.

Avoirdupois, the name of a weight, derived from the French, *avoir du poise—to have weight.* Its pound contains 16 ounces, in distinction to the pound Troy, which has only 12. This weight is used for groceries and all other commodities, except the precious metals, gems, and medicines. The pound avoirdupois contains 7000 grains Troy, and is equal to 8532·5 Paris grains.—E. B. *See* Weights and Measures.

Azimuth, in *Astronomy*, an arc of the horizon intercepted between the meridian of the place and the vertical circle passing through the centre of the object. *Azimuth, Magnetical*, an arc of the horizon intercepted between the vertical circle passing through the centre of any heavenly body and the magnetical meridian. *Azimuth Compass*, an instrument for finding either the magnetical azimuth or amplitude of a heavenly object. *Azimuth Circles*, called also *azimuths* or *vertical circles*, are great circles of the sphere intersecting each other in the zenith and nadir, and cutting the horizon at right angles. On these are reckoned the height of the stars and that of the sun when not in the meridian.—E. B.

Azoga Ships (from the Spanish *azoque, mercury*), vessels which carried quicksilver to the Spanish West Indies, in order to extract the silver from the mines of Mexico and Peru. They carried no goods except for the king.—E. B.

B.

Bacon and **Hams**. The former is made from the sides and belly of the pig, and the latter from its hind legs. The process of curing may be effected indifferently by the employment of salt or sugar, or both; but the first is by far the most commonly used. After being impregnated with salt or sugar, and allowed to remain a certain time in the solution, the bacon and hams are taken out, dried, and smoked. In the States of Ohio, Indiana, Kentucky, Virginia, Maryland, etc., large quantities of bacon are put up yearly for domestic use and for export. The counties of England most celebrated for bacon and hams are York, Hants, Berks, and Wilts. Ireland produces great quantities of both; but they are coarse, not so well cured as the English, and much lower priced. Of the Scotch counties, Dumfries, Wigtown, and Kirkcudbright are celebrated for the excellence of their bacon and hams, of which they export large quantities, principally to the Liverpool and London markets.—*See* Pork Trade.

Baggage, in *Commercial Navigation*, the wearing apparel and other articles destined for the sole use or accommodation of the crews and passengers of ships.

Bahamas, or **Lucayas**, a chain of islands stretching in a northwesterly direction from the north coast of St. Domingo to that of East Florida, and lying between lat. 21° and 27° 30′ N., and long. 70° 30′ and 79° 5′ W. The group is composed of about twenty inhabited islands, and an immense number of islets and rocks. The principal islands in this group are New Providence, containing the capital, Nassau; Harbor Island; Abaco; Eleuthera; Heneagua, or Inagua; Mayaguana; St. Salvador; Andros Island; Great Bahama; Ragged Island; Rum Cay; Exuma; Long Island; Crooked Island; Long Cay; Watling's Island; the Caicos, the Turks, and the Berry Islands.

Most of these islands are situated on those remarkable flats called the Great and Little Bahama Banks, and some out of soundings in the ocean. The Great Bahama Bank is about 300 miles in length from northwest to southeast, and 100 in breadth; and the Little Bahama is about 130 miles long. The islands have, in general, a very flat appearance, and many of them consist of mere bleak and barren rocks. The soil in those that are under cultivation is thin, and generally light and sandy, but interspersed with occasional patches of rich mould. The substratum, so far as has been ascertained, consists of calcareous rocks, composed of coral, shells, madrepores, and marine deposits hardened into solid masses. The surface stratum is a combination of debris of the rock, exuviæ, and decayed vegetable matter. Though destitute of running streams, they possess numerous springs; and by digging wells down to the level of the sea, fresh water is obtained. The productions of the soil comprehend all the varieties of a tropical climate. Provisions—such as maize, yams, sweet potatoes, etc.; and fruits, as oranges, lemons, pine-apples, cocoa-nuts, etc.—are produced in abundance. There are also several species of valuable trees; as mahogany, fustic, lignum vitæ, cedars, pines, etc. Oxen, sheep, horses, poultry, and a great variety of live stock are reared; and wild hogs and agoutis are found in the woods. There are many varieties of birds, and the shores and creeks abound in turtle and excellent fish of various kinds. In the most southerly islands are salt ponds of great value.—E. B.

Bahia, or **St. Salvador**, a large city (formerly a capital) of Brazil, contiguous to Cape St. Antonio, which forms the right or eastern side of the entrance of the noble bay of Todos os Santos, or All-Saints, 170 miles southwest of Sergipe del Rey, and about 880 miles north-northeast of Rio Janeiro. Population 100,000, one-third of whom are whites, one-third mulattoes, and the rest blacks. According to the observations of M. Roussin, the light-house on the Cape is in lat. 13° 0′ 30″ S., long. 38° 30′ W. The opposite side of the entrance to the bay is formed by the island of Taporica, distant from Cape St. Antonio about 2½ leagues. But a bank along the shore of the island narrows the passage for large ships to about two-thirds this distance. Another bank runs south-southwest from Cape St. Antonio about 1½ leagues. Within, the bay expands into a capacious basin, having several islands and harbors, the depth of water varying from 8 and 10 to 40 fathoms, affording ample accommodation and secure anchorage for the largest fleets.

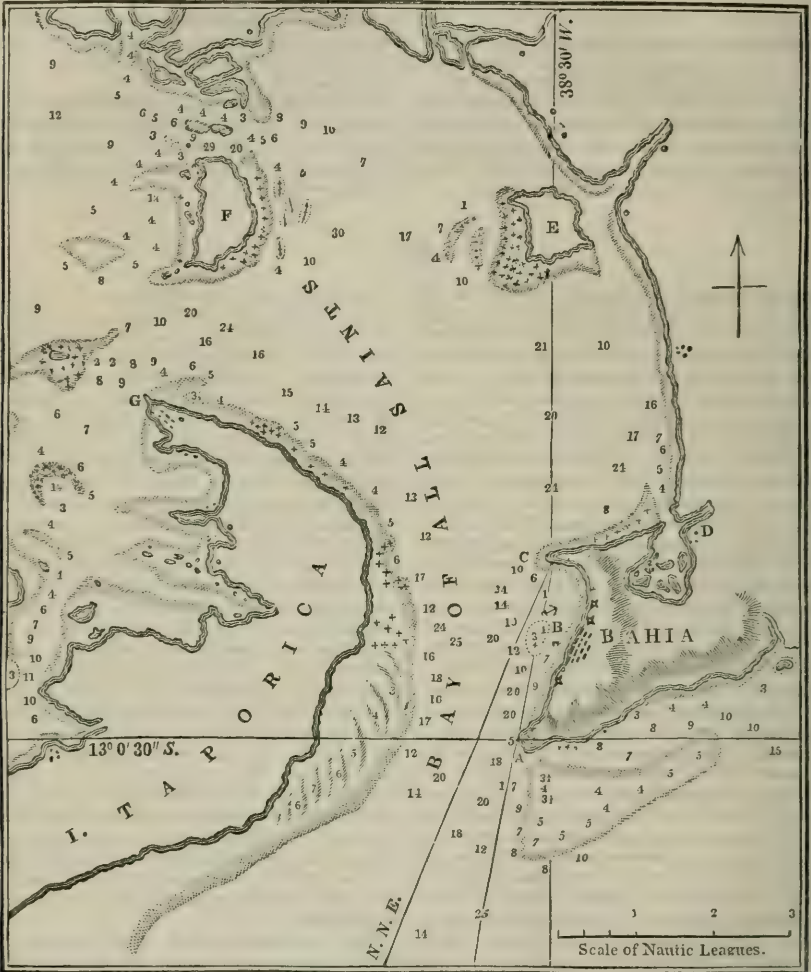
There is another entrance to the bay, partly exhibited in the annexed plan, on the west side of the island of Taporica; but it is narrow, intricate, and at its mouth has not more than 6 feet water. Several rivers have their embouchure in the bay, which generally occasions a current to set from the north end of the island by Cape St. Antonio; when the rivers are flooded, this current is sometimes very strong. The light-house at the extremity of the cape has no great elevation, and can not be seen at a distance of more than 3 or 3½ leagues. The usual place of anchorage is abreast of the city, north and south of Fort do Mar.

The city stands partly on a height, and partly along the shore of the bay. The lower town is dirty and badly laid out; but in the upper town and suburbs are several good streets, a rich cathedral, palaces of the archbishop and governor, town-hall, court of appeal, theatre, hospitals, and many religious houses. In the lower town are an exchange, arsenal, and imperial dock-yard; and about 3 miles northeastward are yards for the construction of mercantile shipping. Houses of the city mostly of stone, and often lofty; the city is defended by several forts, none of great strength.

Bahia, founded in 1549, by Thomas da Souza, first captain general of Brazil, is one of the most important commercial cities in America.

In 1853, the trade of Bahia was very extensive: about 60,000 tons sugar, 18,500 bags (182 pounds) cotton; 20,000 bags (160 pounds) coffee; with hides, tobacco, rice, dye and fancy woods, bullion, etc. The imports consist principally of cottons and other manufactured goods, provisions, flour, salt, salt-fish, soap, wines, etc.

Plan.—The subjoined wood-cut conveys a clearer and better idea of this celebrated bay than could be acquired from any description. It is copied, without any reduction, from a revised edition of a Portuguese chart published by Mr. Laurie, and exhibits the banks, soundings, anchorage, etc.



References to the Plan.—A, Cape, light-house, and fort of St. Antonio; B, Fort do Mar; C, Fort St. Philip; D, Tapagippe; E. Isla do Mar; F, Isla dos Frados; G, Fort Beaumont. The figures in the plan are the soundings in fathoms.

Bailiffs, or **Sheriffs,** are said to be of Saxon origin. London had its *shire-reve* prior to the Conquest, and this officer was generally appointed for counties in England in 1079. Sheriffs were appointed in Dublin, under the name of bailiffs, in 1308; and the name was changed to sheriff, 1548. There are still some places where the chief magistrate is called bailiff, as the high bailiff of Westminster. The term *Bum-bailiff* is a corruption of bound-bailiff, every bailiff being obliged to enter into bonds of security for his good behavior.—Blackstone.

Balachong, an article consisting of pounded or bruised fish. It consists principally of small fish, with prawns and shrimps. Though fetid and offensive to strangers, this substance, used as a condiment to rice, is largely consumed in all the countries to the east of Bengal, including the southern provinces of China, and the islands of the Eastern Archipelago. Its distribution gives rise to an extensive internal traffic.

Balance, a machine for ascertaining the weight of substances. There are several kinds of balances, as the common balance or scales, the steelyard, the Danish or Swedish balance, the Chinese balance, the hydrostatic balance, etc. The same name is also given to certain kinds of apparatus for measuring or comparing the intensities of very small forces, as the balance of torsion, the electric balance, etc.—E. B. *Balance,* in accounts, is the term used to express the difference between the debtor and creditor sides of an account.

Balance of Trade, in *Commerce,* is the term commonly used to express the difference between the value of the exports from and imports into a country. The balance is said to be favorable when the value of the exports exceeds that of the imports, and unfavorable when the value of the imports exceeds that of the exports. According to the custom-house returns, the official value of the exports from Great Britain, exclusive of foreign and commercial merchandise, during the year ending 5th of January, 1842, amounted to £102,180,517; and the official value of the imports during the year had increased to £64,377,962; leaving a favorable balance of £37,802,555. The attainment of a favorable balance was formerly regarded as an object of the greatest importance. The precious metals, in consequence of their being used as money, were long considered as the only real wealth that could be possessed either by individuals or nations. And as countries without mines could not obtain supplies of these metals except in exchange for exported products, it was concluded that if the value of the commodities exported exceeded that of those imported, the balance would have to be paid by the importation of an equivalent amount of the precious metals; and conversely. A very large proportion of the restraints imposed on the freedom of commerce during the last two centuries grew out of this notion. The importance of having a favorable balance being universally admitted, every effort was made to attain it; and nothing seemed so effectual for this purpose as the devising of schemes to facilitate exportation, and to hinder the importation of almost all products, except gold and silver, that were not intended for future exportation. But the gradual though slow growth of sounder opinions with respect to the nature and functions of money, showed the futility of a system of policy having such objects in view. It is now conceded on all hands that gold and silver are nothing but commodities, and that it is in no respect necessary to interfere, either to encourage their importation or to prevent their exportation. The truth is, however, that the theory of the balance of trade is not erroneous merely from the false notions which its advocates entertained with respect to money, but proceeds on radically mistaken views as to the nature of commerce. The mode in which the balance is usually estimated is, indeed, completely fallacious. Supposing, however, that it could be correctly ascertained, it would be found, in opposition to the common opinion, that the imports into every commercial country generally exceed the exports; and that when a balance is formed, it is only in certain cases, and those of rare occurrence, that it is canceled by a bullion payment.

The proper business of the wholesale merchant consists in carrying the various products of the different countries of the world from the places where their value is least to those where it is greatest; or, which is the same thing, in distributing them according to the effective demand. It is clear, however, that there could be no motive to export any species of produce, unless that which it was intended to import in its stead were of greater value. When an English merchant commissions a quantity of Polish wheat, he calculates on its selling for so much more than its price in Poland, as will be sufficient to pay the expense of freight, insurance, etc., and to yield, besides, the common and ordinary rate of profit on the capital employed. If the wheat did not sell for this much, its importation would obviously be a loss to the importer. It is plain, then, that no merchant ever did or ever will export, but in the view of importing something more valuable in return. And so far from an excess of exports over imports being any criterion of an advantageous commerce, it is directly the reverse; and the truth is, notwithstanding all that has been said and written to the contrary, that unless the value of the imports exceeded that of the exports, foreign trade could not be carried on. Were this not the case—that is, were the value of the exports always greater than the value of the imports—merchants would lose on every transaction with foreigners, and the trade with them would be speedily abandoned.

In England, the rates at which all articles of export and import are officially valued were fixed so far back as 1696. But the very great alteration that has since taken place, not only in the value of money, but also in the cost of most part of the commodities produced in this and other countries, has rendered this official valuation, though valuable as a means of determining their quantity, of no use whatever as a criterion of the true value of the exports and imports. In order to remedy this defect, an account of the *real* or *declared* value of the exports is annually prepared, from the declarations of the merchants, and laid before Parliament: there is, however, no such account of the imports; and, owing to the difficulties which high duties throw in the way, it is, perhaps, impossible to frame one with any thing like accuracy. It has also been alleged, and apparently with some probability, that merchants have not unfrequently been in the habit of exaggerating the value of articles entitled to drawbacks on exportation; but the recent extension and improvement of the warehousing system, and the diminution of the number of drawbacks, must materially lessen whatever fraud or inaccuracy may have arisen from this source. Most articles were formerly charged with an *ad valorem* duty of 10*s.* per cent. on exportation, so that, if any thing, their value was probably rather under than overrated; but now that this duty has been repealed (5 and 6 Vict. cap. 47, § 40), the presumption is that their declared value comes very near the truth; at least, sufficiently so for all practical purposes. Now the declared value of the exports of Great Britain in 1841 was £51,634,623, being only about half their official value, and nearly £13,000,000 under the official value of the imports. What the excess of the latter might be, had we the means of comparing their real value with that of the exports, it is impossible to say; but there can be no manner of doubt that, generally speaking, it would be very considerable. The value of an exported commodity is estimated at the moment of its being sent abroad, and *before* it is increased by the expense incurred in transporting it to the place of its destination; whereas the value of the commodity imported in its stead is estimated *after* it has arrived at its destination, and, consequently, after it has been enhanced by the cost of freight, insurance, importer's profits, etc.

In the United States, the value of the imports, as ascertained by the custom-house returns, always exceeds the value of the exports. And although practical politicians have been in the habit of considering the excess of the former as a certain proof of a disadvantageous commerce, "it is nevertheless true," says Mr. Pitkin, "that the real gain of the United States has *been nearly in proportion as their imports have exceeded their exports.*"—*Commerce of the United States*, 2d ed. p. 280. The great excess of American imports has in part been occasioned by the Americans generally exporting their own surplus produce, and, consequently, receiving from foreigners not only an equivalent for their exports, but also for the cost of conveying them to the foreign market. "In 1811," says the author just quoted, "flour sold in America for *nine dollars and a half* per barrel, and in Spain for *fifteen dollars*. The value of the cargo of a vessel carrying 5000 barrels of flour would, therefore, be estimated at the period of its exportation at 47,500 dollars; but as this flour would sell, when carried to Spain, for 75,000 dollars, the American merchant would be entitled to draw on his agent in Spain for 27,500 dollars more than the flour cost in America, or than the sum for which he could have drawn had the flour been exported in a vessel belonging to a Spanish merchant. But the transaction would not end here. The 75,000 dollars would be vested in some species of Spanish or other European goods fit for the American market; and the freight, insurance, etc., on account of the return cargo, would probably increase its value to 100,000 dollars, so that, in all, the American merchant might have imported goods worth 52,500 dollars more than the flour originally sent to Spain." It is as impossible to deny that such a transaction as this is advantageous, as it is to deny that its advantage consists entirely in the excess of the value of the goods imported over the value of those exported. And it is equally clear that America might have had the real balance of payments in her favor, though such transactions as the above had been multiplied to any conceivable extent.

The argument about the balance of payment is one of those that contradict and confute themselves. Had the apparent excess of exports over imports, as indicated by the British custom-house books for the last hundred years, been always paid in bullion, as the supporters of the old theory contend is the case, there should at this moment be about 450,000,000 or 500,000,000 of bullion in the country, instead of 50,000,000 or 60,000,000, which it is supposed to amount to! Nor is this all. If the theory of the balance be good for any thing—if it be not a mere idle delusion—it follows, as every country in the world, with the single exception of the United States, has its favorable balance, that they must be paid by an annual importation of bullion from the mines corresponding to their aggregate amount. But it is certain that the entire produce of the mines, though it were increased in a *tenfold* proportion, would be insufficient for this purpose! This *reductio ad absurdum* is decisive of the degree of credit that should be attached to conclusions respecting the flourishing state of the commerce of any country drawn from the excess of the exports over the imports! Not only, therefore, is the common theory with respect to the balance of trade erroneous, but the very reverse of that theory is true. In the *first* place, the value of the commodities imported by every country which carries on an advantageous commerce (and no other will be prosecuted for any considerable period) invariably exceeds the value of those which she exports. Unless such were the case, there would plainly be no fund whence the merchants and others engaged in foreign trade could derive either a profit on their capital, or a return for their outlay and trouble; and in the *second* place, whether the balance of debt be for or against a country, that balance will neither be paid nor received in bullion, unless it be at the time the commodity by the exportation or importation of which the account may be most profitably settled. Whatever the partisans of the doctrine as to the balance may say about money being a preferable product, or *marchandise par excellence*, it is certain it will never appear in the list of exports and imports, while there is any thing else with which to carry on trade, or cancel debts, that will yield a larger profit, or occasion a less expense to the debtors.

It is difficult to estimate the mischief which the absurd notions relative to the balance of trade have occasioned in almost every commercial country; in Great Britain they have been particularly injurious. It is principally to the prevalence of prejudices to which they have given rise that the restrictions on the trade between England and France are to be ascribed. The great, or rather the only argument insisted upon by those who prevailed on the Legislature, in the reign of William and Mary, to declare the trade with France a *nuisance*, was founded on the statement that the value of the imports from that kingdom considerably exceeded the value of the commodities Great Britain exported to it. The balance was regarded as a *tribute* paid by England to France; and it was sagaciously asked, What had we done, that we should be obliged to pay so much money to our natural enemy? It never occurred to those who so loudly abused the French trade, that no merchant would import any commodity from France, unless it brought a higher price in the country than the commodity exported to pay it; and that the profit of the merchant, or the national gain, would be in exact proportion to this excess of price. The very reason assigned by these persons for prohibiting the trade affords the best attainable proof of its having been a lucrative one; nor can there be any doubt that an unrestricted freedom of intercourse between the two countries would still be of the greatest service to both.—J. R. M.

The production of gold in the United States since the acquisition of California has been such as to stimulate trade throughout the country. The importations from Europe have been very large, more than commensurate with the export trade. Hence gold has been required to the extent of more than 170 millions during the five years 1851–1855 to discharge this accumulated debt or *balance of trade*. This is demonstrated by the following official table:

STATEMENT EXHIBITING THE AMOUNT OF COIN AND BULLION IMPORTED INTO AND EXPORTED FROM THE UNITED STATES ANNUALLY FROM 1821 TO 1855 INCLUSIVE; AND ALSO THE AMOUNT OF IMPORTATION OVER EXPORTATION, AND OF EXPORTATION OVER IMPORTATION, DURING THE SAME YEARS.

Years ending Sep.30	COIN AND BULLION.			
	Imported.	Exported.	Excess of Importation over Exportation.	Excess of Exportation over Importation.
1821	$8,064,890	$10,478,059		$2,413,169
1822	3,369,846	10,810,180		7,440,334
1823	5,097,896	6,372,987		1,275,091
1824	8,379,835	7,014,552	$1,365,283	
1825	6,150,765	8,932,034		2,781,269
1826	6,880,966	4,704,533	2,176,433	
1827	8,151,130	8,014,880	136,250	
1828	7,489,741	8,243,476		753,735
1829	7,403,612	4,924,020	2,479,592	
1830	8,155,964	2,178,773	5,977,191	
1831	7,305,945	9,014,931		1,708,986
1832	5,907,504	5,656,340	251,164	
1833	7,070,368	2,611,701	4,458,667	
1834	17,911,632	2,076,758	15,834,874	
1835	13,131,447	6,477,775	6,653,672	
1836	13,400,881	4,324,336	9,076,545	
1837	10,516,414	5,976,249	4,540,165	
1838	17,747,116	3,508,046	14,239,070	
1839	5,595,176	8,776,743		3,181,567
1840	8,882,813	8,417,014	465,799	
1841	4,988,633	10,034,332		5,045,699
1842	4,087,016	4,813,539		726,523
1843*	22,390,559	1,520,791	20,869,768	
1844	†5,830,429	5,454,214	376,215	
1845	4,070,242	8,606,495		4,536,253
1846	3,777,732	3,905,268		127,536
1847	24,121,289	1,907,024	22,214,265	
1848	6,360,224	15,841,616		9,481,392
1849	6,651,240	5,404,648	1,246,592	
1850	4,628,792	7,522,994		2,894,202
1851	5,453,592	29,472,752		24,019,160
1852	5,505,044	42,674,135		37,169,091
1853	4,201,382	27,486,875		23,285,493
1854	6,758,587	41,197,300		34,438,713
1855	3,659,812	56,247,343		52,587,531
	$289,098,514	$390,602,713	$112,361,545	$213,865,744

* Nine months. † 12 months ending June 30.

Bale, a pack, or certain quantity of goods or merchandise; as a *bale* of silk, cloth, etc. *Bales* are always marked and numbered, that the merchants to whom they belong may know them, and the marks and numbers correspond to those in the bills of lading, etc. Selling under the *bale*, or under the *cords*, is a term used in France and other countries for selling goods wholesale, without sample or pattern, and unopened.

Balks, large pieces of timber.

Ballast (Du. *Ballast;* Fr. *Lest;* Ger. *Ballast;* It. *Savorra;* Sp. *Lastre;* Sw. *Ballast*), a quantity of iron, stones, sand, gravel, or any other heavy material laid in a ship's hold, in order to sink her deeper in the water, and to render her capable of carrying sail without being overset. All ships clearing outward, having no goods on board other than the personal baggage of the passengers, are said to be in ballast. The quantity of ballast required to fit ships of equal burden for a voyage is often materially different; the proportion being always less or more, according to the sharpness or flatness of the ship's bottom, called by seamen the *floor*. The proper ballasting of a ship deserves peculiar attention, for, although it be known that ships in general will not carry sufficient sail till they are laden so that the surface of the water nearly glances on the extreme breadth midships, more than this general knowledge is required. If the ship have a great weight of heavy ballast, as lead, iron, etc., in the bottom, the centre of gravity will be too low in the hold; this no doubt will enable her to carry a press of sail, but it will, at the same time, make her sail heavily, and roll so violently as to run the risk of being dismasted. The object in ballasting a ship is, therefore, so to dispose of the ballast or cargo, that she may be duly poised, and maintain a proper equilibrium on the water, so as neither to be too *stiff* nor too *crank*, qualities equally pernicious. If too stiff, she may carry much sail, but her velocity will not be proportionally increased; while her masts are endangered by sudden jerks and excessive laboring. If too crank, she will be unfit to carry sail without the risk of oversetting.

Stiffness in ballasting is occasioned by disposing a too great quantity of heavy ballast, as lead, iron, etc., in the bottom, which throws the centre of gravity very near the keel; and this being the centre about which the vibrations are made, the lower it is placed, the more violent is the rolling. Crankness, on the other hand, is occasioned by having too little ballast, or by disposing the ship's lading so as to raise the centre of gravity too high: this also endangers the masts when it blows hard; for when they cease to be perpendicular, they strain on the shrouds in the nature of a lever, which increases as the sine of their obliquity; and it is superfluous to add, that a ship that loses her masts is in great danger of being lost. Hence the art of ballasting consists in placing the centre of gravity to correspond with the trim and shape of the vessel, so as to be neither too high nor too low; neither too far forward, nor too far aft; and to lade the ship so deep, that the surface of the water may nearly rise to the extreme breadth midships: she will then carry a good quantity of sail, incline but little, and ply well to windward.—*See* FALCONER'S *Marine Dictionary.*

The mischievous consequences of not attending to the circumstances now mentioned are often experienced by ships loading barilla, brimstone, and such heavy articles, on the coast of Sicily and Spain. The habit there is to cut large quantities of brushwood and fagots, and to spread them in the hold, to hinder the cargo from sinking the centre of gravity too low, and causing the ship to labor violently; but it very frequently happens that the pressure of the cargo on this sort of dunnage is so great as to squeeze it into a much smaller space than could at first have been supposed; so that ships after getting to sea are sometimes obliged to return to port to unload a part of their cargo, to prevent their foundering. In such cases, firm dunnage, such as oak staves, should, if possible, be always employed.—*See* JACKSON'S *Commerce of Mediterranean*, p. 125–128. Ships that have cargoes of light goods on board require a quantity of ballast; increasing, of course, according to the greater lightness of the goods.

Balloon. Galien of Avignon wrote on aerostation in 1755. Dr. Black gave the hint as to hydrogen in 1767. A balloon was constructed in France by MM. Montgolfier, in 1783, when Rozier and the Marquis d'Arlandes ascended at Paris. Pilâtre Desrozier and M. Romain perished in an attempted voyage from Boulogne to England, the balloon having taken fire, June 14, 1785. At the battle of Fleurus, the French made use of a balloon to reconnoitre the enemy's army, and convey the observations by telegraph, June 17, 1794. Garnerin ascended in a balloon to the height of 4000 feet, and descended by a parachute, September 21, 1802. Gay-Lussac ascended at Paris to the height of 23,000 feet, September 6, 1804. Madame Blanchard ascended from Tivoli at night, and the balloon, being surrounded by fire-works, exploded, and she was precipitated to the ground and killed, July 6, 1819.—HAYDN.

Balsam (Ger. *Balsam;* Du. *Balsem;* Fr. *Baume;* It. and Sp. *Balsamo;* Lat. *Balsamum*). Balsams are vegetable juices, either liquid, or which spontaneously become concrete, consisting of a substance of a resinous nature, combined with benzoic acid, or which are capable of affording benzoic acid by being heated alone, or with water. The liquid balsams are copaiva, opobalsam, balsam of Peru, storax, and Tolu; the concrete are benzoin, dragon's blood, and red or concrete storax.—URE. 1. *Copaiva* (Fr. *Baume de Copahu;* Ger. *Kopaiva Balsam;* Sp. *Copayva*), obtained from a tree (*Copaifera*) growing in South America and the West India islands. The largest quantity is furnished by the province of Para, in Brazil. It is imported in small casks, containing from 1 to 1½ cwt. Genuine, good copaiva, or copaiba balsam, has a peculiar but agreeable odor, and a bitterish, hot, nauseous taste. It is clear and transparent; its consistence is that of oil; but when exposed to the action of the air it becomes solid, dry, and brittle, like resin.—THOMSON'S *Dispensatory.*

2. *Opobalsam* (Fr. *Balsamier de la Mecque;* It. *Opobalsamo;* Lat. *Balsamum verum album, Ægyptiacum;* Egypt. *Balessan*), the most precious of all the balsams, commonly called Balm of Gilead. It is the produce of a tree (*Amyris Gileadensis*), indigenous to Arabia and Abyssinia, and transplanted at an early period to Judea. It is obtained by cutting the bark with an axe at the time that the juice is in the strongest circulation. The true balsam is of a pale yellowish color, clear and transparent, about the consistence of Venice turpentine, of a strong, penetrating, agreeable, aromatic smell, and a slightly bitterish pungent taste. By age it becomes yellower, browner, and thicker, losing by degrees, like volatile oils, some of its finer and more subtile parts. It is rarely, if ever, brought genuine into this country; dried Canada balsam being generally substituted for it. It was in high repute among the ancients, but is now principally used as a cosmetic by the Turkish ladies.—*Drs.* URE *and* THOMSON. The Canada balsam, now referred to, is merely *fine turpentine.* It is the produce of the *Pinus Balsamea*, and is imported in casks, each containing about 1 cwt. It has a strong, but not a disagreeable odor, and a bitterish taste; is transparent, whitish, and has the consistence of copaiva balsam.—*See* TURPENTINE. "Szafra and Beder are the only places in the Hedjaz where the balsam of Mecha, or Balessan, can be procured in a pure state. The tree from which it is collected grows in the neighboring mountains, but principally upon Djebel Sobh, and is called, by the Arabs, Beshem. I was informed that it is from 10 to 15 feet high, with a smooth trunk, and thin bark. In the middle of summer, small incisions are made in the bark; and the juice, which immediately issues, is taken off with the thumb nail and put into a vessel. The gum appears to be of two kinds, one of a white, and the other of a yellowish white color: the first is the most esteemed. I saw here some of the latter sort in a small sheep-skin, which the Bedouins use in bringing it to market: it had a strong turpentine smell, and its taste was bitter. The people of Szafra usually adulterate it with sesamum oil and tar. When they try its purity, they dip their finger into it and then set it on fire: if it burn without hurting or leaving a mark on the finger, they judge it to be of good quality; but if it burn the finger as soon as it is set on fire, they consider it to be adulterated. I remember to have read, in Bruce's Travels, an account of the mode of trying it, by letting a drop fall into a cup filled with water; the good balsam falling coagulated to the bottom, and the bad dissolving and swimming on the surface. I tried this experiment, which was unknown to the people here, and found the drop swim upon the water; I tried also their test by fire upon the finger of a Bedouin, who had to regret his temerity; I therefore regarded the balsam sold here as adulterated: it was of less density than

honey. I wished to purchase some; but neither my own baggage nor any of the shops of Szafra could furnish any thing like a bottle to hold it; the whole skin was too dear. The Bedouins, who bring it here, usually demand 2 or 3 dollars per pound for it when quite pure; and the Szafra Arabs resell it to the hadjeys of the great caravan at between 8 and 12 dollars per pound in an adulterated state. It is bought up principally by Persians."—BURCKHARDT'S *Travels in Arabia*, vol. ii. p. 123.

3. *Balsam of Peru* (Fr. *Baume de Peru;* Ger. *Peruvianischer Balsam;* Sp. *Balsamo de Quinquina;* Lat. *Balsamum Peruvianum*), the produce of a tree (*Myroxylon Peruiferum*) growing in the warmest parts of South America. The balsam procured by incisions made in the tree is called *white liquid balsam;* that which is found in the shops is obtained by boiling the twigs in water: it is imported in jars, each containing from 20 to 40 pounds weight. It has a fragrant aromatic odor much resembling that of benzoin, with a warm bitterish taste. It is viscid, of a deep reddish-brown color, and of the consistence of honey.

4. *Storax* (Fr. *Storax;* Ger. *Stryaxbroom;* It. *Storace;* Sp. *Azumbar;* Lat. *Styrax;* Arab. *Usteruk*), the produce of a tree (*Styrax officinale*) growing in the south of Europe and the Levant. Only two kinds are found in the shops: storax in tears, which is pure, and storax in the lump, or red storax, which is mixed with sawdust and other impurities. Both kinds are brought from the Levant in chests and boxes. Storax has a fragrant odor, and a pleasant, sub-acidulous, slightly pungent, and aromatic taste: it is of a reddish-brown color, and brittle.—THOMSON'S *Dispensatory.*

5. *Tolu, Balsam of* (Fr. *Baume de Tolu;* Ger. *Tolutanischer Balsam;* Sp. *Balsamo de Tolu*). The tree which yields this balsam is the same as that which yields the balsam of Peru, it being merely the white balsam of Peru hardened by exposure to the air.

6. *Benzoin*, or *Benjamin* (Fr. *Benzoin;* Ger. *Benzoe;* Sp. *Bengui;* It. *Belzuino;* Lat. *Benzoinum;* Arab. *Liban;* Hind. *Luban;* Jav. *Menian;* Malay, *Caminyan*), is an article of much greater commercial importance than any of those balsams previously mentioned. It is obtained from a tree (*Styrax Benzoin*) cultivated in Sumatra and Borneo, but particularly the former. The plants produce in the seventh year. The balsam is obtained by making incisions in the bark, when it exudes, and is scraped off. During the first three years the balsam is of a clear white color, after which it becomes brown. Having borne 10 or 12 years, the tree is cut down, a very inferior article being obtained by scraping the wood. The balsams procured in these different stages are distinguished in commerce, and differ widely in value. Benzoin has a very agreeable, fragrant odor, but hardly any taste. It is imported in large masses, packed in chests and casks. It should be chosen full of clear, light-colored, and white spots, having the appearance of white marble when broken; it is rarely, however, to be met with in so pure a state, but the nearer the approach to it the better. The worst sort is blackish, and full of impurities.—MILBURN'S *Orient. Com.*, and private information. The price of Benzoin in bond varied, in the London market, in February, 1843, from £3 to no less than £46 per cwt.! Mr. Crawfurd has given the following interesting and authentic details with respect to this article: "Benzoin, or frankincense, called in commercial language Benjamin, is a more general article of commerce than camphor, though its production be confined to the same islands. Benzoin is divided in commerce, like camphor, into three *sorts* (head, belly, foot), according to quality, the comparative value of which may be expressed by the figures 105, 45, 18. Benzoin is valued in proportion to its whiteness, semi-transparency, and freedom from adventitious matters. According to its purity, the first sort may be bought at the *emporia* to which it is brought, at from 50 to 100 dollars per picul (133⅓ pounds), the second from 25 to 45 dollars, and the worst from 8 to 20 dollars. According to Linschoten, benzoin, in his time, cost, in the market of Sunda Calapa or Jacatra, from 19·05 to 25·40 Spanish dollars the picul. By Niebuhr's account, the worst benzoin of the Indian islands is more esteemed by the Arabs than their own best *olibanum*, or frankincense. In the London market, the best benzoin is fourteen times more valuable than *olibanum*, and even the worst two and one third times more valuable. Benzoin usually sells in England at 10*s.* per pound. The quantity generally imported there in the time of the monopoly was 312 cwt. The principal use of this commodity is as incense, and it is equally in request in the religious ceremonies of Catholics, Mohammedans, Hindoos, and Chinese. It is also used as a luxury by the great in fumigating their apartments, and the Japanese chiefs are fond of smoking it with tobacco. Its general use among nations in such various states of civilization, and the steady demand for it in all ages, declare that it is one of those commodities the taste for which is inherent in our nature, and not the result of a particular caprice with any individual people, as in the case of Malay camphor with the Chinese."—*Indian Archipelago*, vol. iii. p. 418. An inferior description of benzoin, the produce of a different tree from the *Styrax benzoin*, is produced in Siam. It is comparatively cheap and abundant.

7. *Dragon's blood* (Fr. *Sang-Dragon;* Lat. *Sanguis Draconis;* Arab. *Damulākhwain;* Hind. *Heraduky*), the produce of a large species of rattan (*Calamus Draco*) growing on the north and northeast coast of Sumatra, and in some parts of Borneo. It is largely exported to China, and also to India and Europe. It is either in oval drops, wrapped up in flag-leaves, or in large and generally more impure masses composed of smaller tears. It is externally and internally of a deep dusky red color, and when powdered it should become of a bright crimson: if it be black, it is worth little. When broken and held up against a strong light, it is somewhat transparent, and it has little or no smell or taste; what it has of the latter is resinous and astringent. Dragon's blood in drops is much preferable to that in cakes, the latter being more friable, and less compact, resinous, and pure than the former. Being a very costly article, it is very apt to be adulterated. Most of its alloys dissolve like gums in water, or crackle in the fire without proving inflammable, whereas the genuine dragon's blood readily melts and catches flame, and is scarcely acted on by watery liquors. It sells in the market of Singapore at from 15 to 35 dollars per picul, according to quality; but the Chinese have the art of purifying and refining it, when it sells at from 80 to 100 dollars per picul.—MILBURN'S *Orient. Com.;* CRAWFURD'S *East. Archip.;* and private information. The price of dragon's blood, in the London market, varied, in November, 1853, from £5 to £15 per cwt.

Baltic Sea. The denomination of the Baltic, applied to the inland sea which forms the subject of this article, is first found in the work entitled *Chorographia Scandinaviæ*, by Adam of Bremen, who was canon of that city at the close of the eleventh century. The etymology of the name has given rise to many conjectures. The Swedes derive it from the Scandinavian word *baelt*, a girdle, because of its peculiar form; the Prussians from the Sclavonian or Lettonian word *balt*, white, from its being frozen part of the year, or from *Baltus*, one of their kings; while by others it is derived from *Baltea*, the name of an island mentioned by Pytheas, a merchant of Marseilles, who, in the second or third century before the Christian era, is supposed to have sailed as far north as this sea. In the countries which bound it, its ancient name was *Variatzkoië Morè*, or the Sea of Variaghi; by the modern Russians it is called *Baltiskoè Morè;* and by the Swedes, Danes, and Germans, the *East Sea.*

Extent of the Baltic.—The Baltic is inclosed by Swe-

den, Russia, Prussia, Mecklenburg, and Denmark; and it communicates with the North Sea by the Skager-Rack, Cattegat, Sound, and Great and Little Belts. From Swinemünde in the south, to Tornea in the north, its length is 770 geographical miles; and its width from Karlscrona to Memel is not less than 180 miles. Its whole area, including the Gulf of Bothnia, is about 125,000 geographical square miles. It runs first in an easterly direction as far as Memel, a distance of 300 miles, and then northward as far as lat. 59° 21′ N., a distance of 350 miles, at which point it separates into two great gulfs. One of these, the Gulf of Finland, runs nearly due east; the other, the Gulf of Bothnia, almost north. The Gulf of Bothnia is 400 miles in length, with an average breadth of 120 miles, but where narrowest it does not exceed 40 miles. The Archipelago of Aland lies at its entrance. The Gulf of Finland is 200 miles in length, with a mean breadth of 60 or 70 miles. Numerous rocky islands and reefs, many of them level with the water, render the navigation of this sea extremely dangerous.

Depth of the Baltic.—The greatest depth of the Baltic rarely exceeds 100 fathoms. On the western side it is not more than 15 fathoms; and, in general, only from 8 to 10 fathoms. On the south it nowhere exceeds 50 fathoms. The Gulf of Finland suddenly shallows from 50 or 60 fathoms to 5, or even less. The average depth of the Gulf of Bothnia is not greater than that of the rest of the sea. It has long been a generally received opinion that the waters of the Baltic are gradually diminishing. Celsius, a learned Swede, who flourished toward the middle of last century, advances this hypothesis; and, from observations made on the coasts of the Baltic, he estimated the diminution at 45 inches in a hundred years. This hypothesis was supported by Linnæus, who founded on it a theory of the earth. M. Otto, in his physical observations on this sea, has suggested another theory to account for its apparent decrease. He supposes that, instead of really subsiding, it may be only shifting its position, and gaining in one quarter what it loses in another; and this he ascribes to the large and rapid rivers, which carry along with them an immense quantity of earth and sand, by which the beds at their mouths are raised, and their banks extend toward the sea. The views of Celsius have been confirmed by the observations of Von Buch, who also discovered at several places on the western shores of Scandinavia, and at considerable elevations, deposits of sand and mud containing numerous marine shells of species still existing in the neighboring ocean. Mr. Lyell at first entertained doubts of these phenomena; but on subsequent inspection he was led to concur in the opinion of Von Buch. Mr. Lyell found the marks which were cut in the rocks at water-line some years previous to his visit to be actually several inches above the level of the Baltic. From these observations, that eminent geologist concludes that, in several parts of Sweden, a gradual elevation of the land is taking place.—LYELL'S *Principles of Geology*. The great quantity of sand and mud carried down by the rivers has considerably raised the bottom of this sea, and affected its navigation, so that the mouths of rivers formerly navigable are now inaccessible.

In the Baltic, the tides are scarcely, if at all, perceptible. There are sensible tides in the Skager-Rack; but these begin to diminish in the Cattegat, and are very trifling in the Sound and Belts. There are, however, irregular variations in the level of the waters of the Baltic which bear some resemblance to tides. These elevations generally occur in autumn, when the weather threatens rain; and they last sometimes a few days, sometimes several weeks. The maximum rise is three feet and a half, and the low shores are occasionally inundated. They also render brackish the fresh-water lakes which communicate with the sea. In the Gulf of Bothnia, the subsidence of the waters is usually succeeded by north winds; whereas, near Stockholm, these winds usually follow their rise. M. Kraft, formerly professor of experimental philosophy in the Imperial Academy of Sciences at St. Petersburg, in his treatise on the inundations of the Neva at the autumnal equinox, observes that, three or four days before or after the full or new moon, a violent northwest wind drives the waters of the Northern Ocean, during the influx of the tide, into the Baltic, and is accompanied or immediately succeeded by a south wind in that sea and the Gulf of Finland. By Schultens, a learned Swede, who paid particular attention to the physical geography of the Baltic, the irregular elevations of this sea are attributed to the state of the atmosphere. He had observed that when the waters were about to rise the barometer fell, and that when they were about to fall it rose. Hence he inferred that the unequal pressure of the atmosphere on different portions of the water deranged the level of the waters. The difference between the greatest and the least rise of the barometer in the northern parts of Europe is two and a half inches, which answers to three and a half feet of water, or the difference of the elevation of the waters at their extremes.

Superior and inferior Currents.—In the Sound there are superior and inferior currents. These were first observed by some Englishmen, who, being in a boat in the middle of the channel, found that they drifted toward the Cattegat; but having let down a loaded bucket to the depth of four or five fathoms, the boat became stationary; and when the bucket was sunk deeper, the boat drifted against the superficial current. The general currents of the Baltic are strong, and evidently occasioned by the vast number of rivers and streams that pour their waters into it, many of which, especially toward the north, rise thrice in the course of the year. At the northern extremity of the Island of Bornholm, a violent agitation of the waters, or kind of whirlpool, called by the Swedes *malt-quern*, or the grinding-mill, is occasioned by the current rushing over a circular cluster of sunken rocks. The waves of the Baltic are short and broken, in consequence of sudden changes of wind, irregular depths, and strong currents.

Saltness.—The waters of this sea are not nearly so salt as those of the ocean; and when the wind blows strong from the north they become so fresh as to be fit for drinking or cooking meat. The degree of their saltness varies in different parts, and even in the same parts, according to the season or wind. According to Bergman, in his *Physical Geography*, the waters near the south coast of Norway, at the entrance of the Skager-Rack, contain from one-tenth to one-seventh part of their weight of salt; in the Cattegat, one-twelfth; in the Baltic, one-sixteenth; and in the Gulf of Bothnia from one-fortieth to one-fiftieth. The southwest and west winds augment the saltness, by introducing the waters of the ocean. In the summer it requires 300 tons of the water of the Gulf of Bothnia to produce one ton of salt, but in the winter only 50 tons. This difference is caused by congelation, and by the diminished flow of fresh water.

Temperature.—There is great difference in the temperature in different parts of the Baltic. The general temperature of the Gulf of Bothnia in July is from 48° to 56°, but it is sometimes heated to 70°; the medium of the thermometer throughout the year at Uleoborg is 29°, and at Stockholm 42 4-5°. Near the land in the Gulf of Bothnia, the temperature of the atmosphere in the month of July was observed to be 68°, while the temperature of the surface of the water was 65°; and in October the temperatures of both were respectively 39° and 46. In the Sound, the temperature of the atmosphere in the month of August was 70°; on the surface of the water, 68°; and at three fathoms, 66°. On the 10th of October, 1813, Dr. Thomson found the temperature of the Sound to be 54°. The Skager-

Rack and Gulf of Norway are open to navigation all the winter, whereas several portions of the Baltic are covered with ice in a very moderate degree of cold; and generally the bays and channels are encumbered with ice at the latter end of December. The waters toward the heads of the Gulfs of Bothnia and Finland are first frozen; and the ice being conveyed by the currents to the south, the masses of it are united by the increasing cold into vast fields, which become stationary on the west toward Stockholm, and in the east toward the islands of Dagœ and Œsel. In the southern parts of the sea the ice begins to break up in April, but the Gulfs of Bothnia and Finland often continue closed till May. The rigor of the climate in the Baltic is supposed to be considerably diminished by the clearing of the forests and the progress of cultivation; at least the frosts during the fourteenth and fifteenth centuries appear, in their intensity and long continuance, to have exceeded those of the severest seasons in more recent times.

The winds are extremely variable in the Baltic, but they blow most commonly from the east in the spring, and from the west in autumn. Calms are seldom experienced except in the middle of summer.

Fisheries.—There is historical evidence that the herring fishery was a branch of national industry in the Sound as early as the year 1168; and in 1389, according to Philip de Mezières, such vast shoals of herrings crowded into the Sound, that 40,000 boats, with from six to ten men each, were employed in the fishery, besides 900 large vessels, in which the herrings were salted. This important branch of industry, however, no longer exists. "In the year 1238, the inhabitants of Gothia (Sweden) and Frise were prevented, by their fear of the Tartars, from sending, as usual, their ships to the herring fishing on the coast of England; and as there was no exportation, 40 or 50 of these fish were sold for a shilling.—Matthew Paris, p. 396. It is whimsical enough that the orders of Mogul Khan, who reigned on the borders of China, should have lowered the price of herrings in the English market."—Gibbon, vol. xi. p. 422. Salmon ascend the rivers from April to June, according as they are free from ice. On the south, they abound most in the Oder, Vistula, Düna, and Narrowa; on the north, in the Motala, Dalecarlia, Ulea, Kemi, Tornea, and Keymen. Salmon-trout is taken in some bays of the Baltic. In the middle of the River Kemi is a small island where an annual salmon fair is held.

Whales very rarely enter the Baltic. The common porpoise is the only one of the lesser species of cetaceous animals that lives habitually in this sea; and at Middlefahrt, in Funen, is a company which enjoys the exclusive privilege of taking it. There are two varieties of the common seal, which are hunted for their oil, in March and April, by the peasants of the Isle of Gottland, and of the islands in the Gulfs of Bothnia and Finland.

The trade of the Baltic is of great extent and importance. In 1852, 17,563 ships passed up and down the Sound, of which 3902 were British vessels. The internal trade is also very considerable. The exports consist of the various productions of the countries on its coasts, and include corn, timber, pitch and tar, hemp, flax, tallow, hides, linseed, bristles, wool, etc. Its imports are colonial products, manufactured goods, dry stuffs, wines, salt, coal, etc. The most important ports are St. Petersburg, Riga, Königsberg, Danzig, Swinemünde, Lübeck, Copenhagen, Karlscrona, and Stockholm. By means of numerous large rivers and canals a considerable trade is carried on with the interior.—E. B. *See* Thomson's *Travels in Sweden*; *Tableau de la Mer Baltique*, par Catteau; *Tableau des Etats Danois*, par Catteau.

Of all seas, the Baltic is one of the most dangerous to shipping and harassing to crews. Sudden and frequent changes of the wind, shallow waters off shore, innumerable shoals and insulated rocks, with currents divided by these obstacles, branching off in different directions to be divided by the same cause, till, meeting from opposite quarters, the waters are embroiled in the hurly-burly of a sturdy conflict; these are almost constant causes of anxiety to the mariner, for the navigation is most beset with such impediments precisely in those parts which are eminently the highways of commerce. Hence the proportion of maritime casualties is much greater in the case of vessels sailing to the Baltic ports than in the instance of merchantmen passing between Great Britain and America.

Three of the rivers flow into the North Sea; the Oder flows into the Baltic, and the trade of all the four, particularly that of the Weser, is increasing. Of the Jahde the world has heard but little till lately, when it was made known that Prussia had acquired a port on it. By an agreement between Oldenburg and Prussia, concluded in July, 1853, and ratified in December, Prussia purchased of Oldenburg for 500,000 thalers (about £80,000) the sovereignty of 500 morgens (about 3000 acres) of land and marshes, in order that Prussia might have a sea-port on the North Sea, to give protection to her trade. Jahde, or rather Fahrhuh, will probably hereafter become a place of some importance. It is seated on a large and tolerably safe bay between the Ems and the Weser, and may probably, in the hands of Prussia, increase in importance. At present it possesses little except coasting trade. The Weser, a short river, with all its tributaries, so far as navigable, flows through the territories of six different Powers, and, as their territories are mixed and mingled the sovereignty through which it flows changes no less than thirty-four times. Formerly every sovereign had his tolls, and at every change of sovereignty there was a toll-house. At present the tolls are reduced to one sum, and the toll-houses, which were 22, are reduced to 9. The toll at present, from Bremen to Carlshafen, is nearly a third of the freight.—*Die Deutschen Ströme*, u. s. w. Vierte abtheilung die Weser, Ems, Jahde, und Oder: Leipzig.—Pope's *Journal of Trade.*

Baltimore, a city, port of entry, metropolis of the State, and capital of Baltimore county, Maryland. The third city in extent and population in the United States; situated on the north side of Patapsco River, 10 miles from its entrance into Chesapeake Bay, and 200 miles from the ocean by ship channel. In 39° 17′ 23″ N. lat., and 76° 37′ 30″ W. long.

It is by railroad route 38 miles from Washington, 98 from Philadelphia, 186 from New York, 599 from Pittsburg, and 590 northeast from Charleston. Population in 1790, 13,503; 1800, 26,514; 1810, 35,583; 1820, 62,738; 1830, 80,625; 1840, 102,313; 1850, 169,054; 1854, with environs, 200,000. The branch of the Patapsco River, around which the city is built, is about a mile and three-quarters long, and varies from one-eighth to three-quarters of a mile in width, having its greatest breadth opposite to the tract called Canton. It affords an easy access to the city, and a capacious, safe, and well-protected harbor of a depth and extent sufficient to float ships of the largest class, and to afford ample accommodation for at least two thousand vessels. Its harbor consists of an inner basin, at the wharves of which vessels drawing ten or twelve feet of water may lie, and an outer bay lying between Fells Point and Canton on the north and east, and Whetstone Point on the south, with from sixteen to twenty feet of water. Ships of heavy burden do not go up higher than the Point. From the facilities offered by the depth of the water, the Point is also the seat of the principal ship-yards, from which have been launched some of the finest and fleetest vessels of the American marine, which are especially noted for beauty of proportion and excellence of construction. The name of Baltimore clipper is synonymous all over the world with all that is beautiful in naval architecture, and perfect in the requisites of a stanch and well-appointed ship.

The commerce of Baltimore is extensive and rapidly increasing. The receipts for the year ending 1853 were 406,000 tons of Cumberland, and 183,000 tons of anthracite coal, 35,003 bales of cotton, 3,411,965 bushels of wheat, 3,906,494 bushels of corn, 780,000 bushels of oats, 160,000 bushels of rye, 13,000 bushels of peas, 4000 bushels of beans, and 83,000,000 feet of lumber. There were 1,181,603 barrels of wheat flour inspected, 5394 of rye flour, and 38,478 of corn meal. Imports, of coffee, 208,702 bags; molasses, 3820 hogsheads, 632 tierces, and 72 barrels from the West Indies, and 192 hogsheads, 115 tierces, and 13,187 barrels coastwise; of sugar, New Orleans and West Indies, 12,582 hogsheads, and 14,350 barrels; tobacco inspected, 40,667 hogsheads; wool, foreign and domestic, 900,000 pounds; mackerel inspected, 12,597 barrels; herrings, 29,000 barrels; shad, 6671 barrels. Value of hides imported, $137,690. There were 356 (tonnage 88,798) American vessels cleared from this port, and 227 (tonnage 55,772) foreign. Tonnage registered, 92,772·46; enrolled and licensed, 65,706·14; total, 158,478·60. Number of vessels built 71, and their aggregate tonnage 18,391·62. There were, in 1853, 12 banks with an aggregate capital of $7,292,315, a savings bank, and 8 insurance offices; 20 printing-offices, issuing 5 daily, 4 tri-weekly, 8 weekly newspapers, 1 semi-monthly, and 3 monthly publications.

Manufactures.—A great amount of water-power is concentrated in the vicinity, which has been extensively improved for manufacturing purposes. Jones' Falls, a small stream which passes through the city, has a succession of falls which afford considerable water-power. The Patapsco, though not a large river, has a fall of about 800 feet in the course of 30 miles, affording many valuable mill sites. There are within 20 miles of the city sixty flouring mills, besides numerous cotton manufactories and other manufactories of cloth, powder, paper, iron, copper, glass, steam-engines, chemicals, tobacco, etc.

Ship-building.—The number of vessels built at Baltimore, and other ports of Maryland, in the fiscal year 1854–5, were as follows:

	Ships and Barks.	Brigs.	Schooners.	Sloops and Canal Boats.	Steamers.	Total.	Value.
Baltimore	13	3	36	1	4	57	$16,618
Oxford...	..	..	19	..	..	19	1,319
Vienna...	..	..	35	..	..	35	1,753
Snow Hill	..	..	10	..	..	10	604
Annapolis	..	..	1	..	..	1	57
Total..	13	3	101	1	4	122	$20,352

LIST OF NEW VESSELS REGISTERED, ENROLLED, ETC., AT THE PORT OF BALTIMORE DURING THE YEARS 1854, '55, '56.

	1854.		1855.		1856.	
	No.	Tonnage.	No.	Tonnage	No.	Tonnage
Ships	8	8,352·60	7	9,169·12	5	6,112·10
Barks......	4	1,435·67	5	2,201·55	12	5,693·36
Brigs	3	712·22	6	1,491·64	12	2,881·49
Schooners..	32	3,766·10	45	4,166·11	29	2,848·32
Sloops	1	48·55	5	95·90	3	29·56
Steamboats.	2	2,276·10	1	130·45	..	....
Steamships.	..	....	1	1,011·83	..	....
Canal Boats	..	....	2	116·47	..	....
Yachts.....	..	....	..	....	1	12·71
Total....	50	16,591·04	72	18,386·28	62	17,577·54

VALUE OF FOREIGN IMPORTS AND EXPORTS AT THE DISTRICT OF BALTIMORE FOR THE LAST SEVENTEEN YEARS.

Years.	Imports.	Exports.	Years.	Imports	Exports.
1840	$5,109,274	$5,538,018	1849	$5,291,566	$8,660,381
1841	6,109,101	4,997,633	1850	6,417,113	8,530,970
1842	4,052,260	4,448,946	1851	7,243,963	6,466,165
1843	3,607,733	4,740,042	1852	5,978,021	7,549,766
1844	4,251,883	4,622,063	1853	6,331,671	9,686,914
1845	3,356,670	6,256,276	1854	7,750,387	11,306,010
1846	4,238,760	6,710,559	1855	7,772,591	11,601,637
1847	4,146,743	9,826,479	1856	9,772,591	13,362,252
1848	5,245,894	7,209,602			

INSPECTIONS OF MARYLAND AND OHIO TOBACCO FOR THE LAST SIXTEEN YEARS.

Years.	Inspections.			Stock on hand December 31.
	Maryland.	Ohio.	Total.	
	Hhds.	Hhds.	Hhds.	Hhds.
1841	29,980	7,692	37,672	10,900
1842	33,759	11,279	45,038	9,660
1843	29,617	13,465	43,082	12,354
1844	32,183	15,320	47,503	12,605
1845	39,844	26,716	66,560	15,342
1846	41,027	28,862	69,889	32,416
1847	33,729	15,671	49,400	28,467
1848	23,253	9,845	33,098	32,751
1849	30,965	13,618	44,583	19,628
1850	27,085	13,965	41,040	10,617
1851	25,013	16,791	41,804	17,699
1852	29,570	17,720	47,290	11,760
1853	29,248	17,947	47,195	9,779
1854	26,048	10,362	36,410	3,715
1855	28,470	10,097	38,567	4,273
1856	44,779	6,510	51,289	4,074

EXPORTS OF FLOUR FROM BALTIMORE FOR THE LAST FIVE YEARS.

Where to.	1852.	1853.	1854.	1855.	1856.
	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.
Great Britain.....	257,552	239,949	223,937	124,[illegible]	126,715
France...........	....	....	....	30,088	16,767
Brazil	235,042	113,036	104,755	108,75[illegible]	130,[illegible]
River Plate.......	17,108	31,140	12,928	12,035	54,150
British N. A. Col..	39,445	27,086	25,086	62,062	88,662
Venezuela........	10,390	9,625	8,766	4,077	7,5[illegible]
West Indies......	156,975	154,842	95,723	103,552	166,545
Pacific	6,571	13,762	600	4,005	2,980
Other ports.......	27,961	42,700	44,680	30,274	28,614
Total.......	731,044	632,140	516,475	480,120	621,2[illegible]

EXPORTS OF MARYLAND AND OHIO TOBACCO FROM BALTIMORE FOR THE LAST SIXTEEN YEARS.

Years.	Bremen.	Rotterdam.	Amsterdam.	Antwerp.	Emden.	France.	Trieste.	England.	Total Export.
	Hhds.	Hhds.	Hhds	Hhds.	Hhds.	Hhds.	Hhds.	Hhds.	Hhds.
1841	16,373	7,918	5,169	905	...	3,814	1183	120	35,482
1842	17,719	10,874	8,109	978	...	4,682	1401	....	43,763
1843	16,949	6,474	7,311	324	386	8,066	2514	...	42,[illegible]
1844	17,137	11,872	7,095	190	502	7,212	902	...	44,910
1845	28,732	18,171	10,944	667	190	7,183	1373	...	65,[illegible]
1846	24,674	8,164	7,314	1856	...	8,165	425	...	51,[illegible]
1847	22,251	8,593	10,409	1659	235	8,947	150	...	53,344
1848	12,705	7,965	3,090	131	...	4,911	...	260	[illegible]
1849	18,531	13,876	8,736	200	310	9,562	...	600	52,[illegible]
1850	15,936	7,816	5,989	...	...	8,177	600	1905	44,408
1851	12,600	9,661	4,154	...	...	2,326	1851	1320	[illegible]
1852	22,707	11,258	5,064	...	329	7,679	340	2815	51,[illegible]
1853	18,947	10,395	9,980	...	...	5,380	1619	2773	[illegible]
1854	16,876	7,263	5,435	471	...	10,180	...	1115	41,340
1855	8,999	9,722	5,754	...	...	7,526	640	2000	[illegible]
1856	21,408	14,628	10,141	186	...	4,919	802	4258	[illegible]

Included in the above total are the following: In 1845, 650 hhds. shipped to St. Petersburg; 1846, 738 hhds. do.; 1849, 533 hhds. do.; 1850, 1856 hhds. to St. Petersburg, and 2129 to Spain; 1851, 602 hhds. to St. Petersburg, 1154 hhds. to Spain, and 175 hhds. to Hamburg; 1852, 203 hhds. to St. Petersburg, and 678 hhds. to Hamburg; in 1853, 994 hhds. to Hamburg; 1855, 250 hhds. Virginia to Genoa, and 350 hhds. to West Indian and other ports; and in 1856, 356 hhds. to West Indian and other ports.

Account of the Inspections of Wheat Flour, Indian Corn Meal, Rye Meal, and Tobacco at Baltimore, during each of the eight Years ending with 1852.

Year.	Flour.		Indian Corn Meal.		Rye Meal.		Tobacco.
	bbls.	*hhds.*	*bbls.*	*half-bbls.*	*bbls.*	*half-bbls.*	*hhds.*
1845	576,745	631	23,949	1450	6518	24	
1846	850,116	1076	40,942	1744	5402		
1847	959,456	934	105,842	1298	6666	49	50,571
1848	736,441	333	60,225	1322	7520	105	33,906
1849	764,519	428	51,772	2051	8007	9	45,601
1850	896,592	272	42,403	3369	5419	22	41,833
1851	912,498	620	28,917	2256	7654	53	42,742
1852	1,307,165	477	52,658	745	6449	21	

Bamboo (Fr. *Bambou, Bambouchés;* Ger. *Indianischer Rohr;* It. *Bambu;* Hind. *Rans;* Malay, *Búlúh;* Jav. *Preng*), a species of cane, the *Bambos arundinacea* of botanists. It grows every where within the tropics, and is of the greatest utility: strictly speaking, it is a gigantic grass with a ligneous stem. It often rises to the height of 40 or 50 feet, and sometimes to even double those heights. Like most plants long and extensively cultivated, it diverges into many varieties. Some of these are dwarfish, while others, instead of being hollow canes, are solid. The bamboo is of rapid growth, and in four or five years is fit for many uses, but does not bear fruit or grain till it is 25 years old, after which it perishes. The grain makes tolerable bread. The young but gigantic shoots, as they spring from the earth, make a tender and good esculent vegetable. The mature bamboo is employed in an immense variety of ways—in the construction of houses, bridges, boats, agricultural implements, etc. Some varieties grow to such a size as to be, in the largest part, near two feet in circumference, and single knees of these are used as pails or buckets. The Chinese are believed to fabricate their cheap and useful paper of macerated bamboo. The canes used in Europe as walking-sticks are not bamboos, but rattans—a totally distinct class of plants. Bamboos are never used for that purpose.—*Private information.*

Banana (*Musa sapientum*), an herbaceous plant, a native of the West Indies. Its fruit is produced in large clusters weighing many pounds, and forms a considerable article of food among the better classes.

Bandanas, silk handkerchiefs, generally red spotted with white. They were formerly manufactured only in the East Indies; but they are now manufactured of a very good quality at Glasgow and other places.

Bangkok, or **Bankok**, the capital city of Siam, and one of the most commercial cities in Asia, on the Menam, about 20 miles above its mouth. Lat. 13° 58′ N., long. 100° 34′ E. Population from 50,000 to 60,000 (?), half of whom are Chinese. It stretches along both banks of the river, and consists of three portions; viz., the palace or citadel, on an island inclosed by walls, and comprising the residences of the sovereign and court, with many temples and gardens; the city proper; and the floating town, composed of movable bamboo rafts, each bearing rows of 8 or 10 houses. It has numerous Buddhic temples; and in the palace is a spacious audience-hall. The more solid buildings are of brick; but the majority of the dwellings are of wood, mounted on posts. Most of the intercourse is carried on by water, and the Menam is navigable to the city for vessels of 250 tons. Bangkok has manufactures of tin and iron wares, and leather. Exports comprise sugar (from 10,000 to 12,000 tons yearly), black pepper (4000 to 5000 tons), tin, cardamoms, fine woods, ivory, cotton, rice, hides, horns, skins, and feathers. Imports, tea, quicksilver, raw and manufactured silks, porcelain, and numerous manufactured articles from China; camphor, and edible birds' nests, from the Asiatic Archipelago; and European and Indian piece goods, opium, and glass wares, from the British and Dutch settlements in the East. The country around is flat, but contains rich mines of iron, and extensive forests of teak. The most favorable time for reaching Bangkok, in ships of considerable draught, is about the beginning of November, when the rains are just over, and the season is cool and healthful. There is then on the bar of the river, at low water, a depth of 3½ fathoms. In the spring and summer months it is sometimes as low as two fathoms, or a little more, and the capital is then reached with some difficulty.

Bank.—Banking. Banks are establishments intended to serve for the safe custody and issue of money; for facilitating its payment by one individual to another; and sometimes for the accommodation of the public with loans. These subjects will be considered under the heads: I. General Principles of Banking; II. Account of Bank of England; III. English Private and Provincial Banks; IV. Scotch Banks; V. Irish Banks; VI. Foreign Banks; VII. Banking in the United States; VIII. Savings Banks.

"The first established was in Italy, A.D. 808, by the Lombard Jews, of whom some settled in Lombard Street, London, where many bankers still reside. The name is derived from *banco*, a bench, which was erected in the market-place for the exchange of money. The mint in the Tower of London was anciently the depository for merchants' cash, until Charles I. laid his hands upon the money, and destroyed the credit of the mint in 1640. The traders were thus driven to some other place of security for their gold, which, when kept at home, their apprentices frequently absconded with to the army. In 1645, therefore, they consented to lodge it with the goldsmiths in Lombard Street, who were provided with strong chests for their own valuable wares; and this became the origin of banking in England."—Haydn.

	A.D.
Bank of Venice formed	1157
Bank of Geneva	1345
Bank of Barcelona	1401
Bank of Genoa	1407
Bank of Amsterdam	1607
Bank of Hamburg	1619
Bank of Rotterdam	1635
Bank of Stockholm	1688
Bank of England	1694
Bank of Scotland	1695
Bank of Copenhagen	1736
Bank of Berlin	1765
Caisse d'Escompte, France	1776
Bank of Ireland	1783
Massachusetts Bank, Boston, established	1784
Bank of St. Petersburg	1786
In the East Indies	1787
Branch Banks in Great Britain	1828

I. General Principles of Banking.—Banks are commonly divided into the two great classes of *banks of deposit* and *banks of issue.* This, however, appears at first sight to be rather an imperfect classification, inasmuch as almost all banks of deposit are at the same time banks of issue, and almost all banks of issue also banks of deposit. But there is in reality no ambiguity; for by banks of deposit are meant banks for the custody and employment of the money deposited with them or intrusted to their care by their customers, or by the public; while by banks of issue are meant banks which, besides employing or issuing the money intrusted to them by others, issue money of their own, or notes payable on demand. The Bank of England is principally a bank of issue; but it, as well as the other banks in the different parts of the empire that issue notes, is also a great bank of deposit. The private banking companies of London, and the various provincial banks that do not issue notes of their own, are strictly banks of deposit. Banking business may be conducted indifferently by individuals, by private companies, or by joint-stock companies or associations.

Utility and Functions of Banks of Deposit.—Banks of this class execute all that is properly understood by banking business; and their establishment has contributed in no ordinary degree to give security and facility to commercial transactions. They afford, when properly conducted, safe and convenient places of deposit for the money that would otherwise have to be kept, at a considerable risk, in private houses. They also prevent, in a great measure, the necessity of carrying money from place to place to make payments, and enable them to be made in the most convenient and least expensive manner. A merchant or tradesman in London, for example, who employs a banker, keeps but very little money in his own hands, making all his considerable payments by drafts or checks on his banker; and he also sends the various checks, bills, or drafts payable to himself in London, to his bankers before they become due. By this means he saves the trouble and inconvenience of counting sums of money, and avoids the losses he would otherwise be liable to, and would no doubt occasionally incur, from receiving coins or notes not genuine. Perhaps, however, the great advantage derived by the merchant or tradesman from the employment of a banker, consists in its relieving him from all trouble with respect to the presentation for payment of due-bills and drafts. The moment these are transferred to the banker, they are at his risk. And if he either neglect to present them when due, or to have them properly noted in the event of their not being paid, he is responsible for the consequences. "This circumstance alone must cause an immense saving of expense to a mercantile house in the course of a year. Let us suppose that a merchant has only two bills due each day. These bills may be payable in distant parts of the town, so that it may take a clerk half a day to present them; and in large mercantile establishments it would take up the whole time of one or two clerks to present the due-bills and the drafts. The salary of these clerks is, therefore, saved by keeping an account at a banker's: besides the saving of expense, it is also reasonable to suppose that losses upon bills would sometimes occur from mistakes or oversights; from miscalculation as to the time the bill would become due; from errors in marking it up; from forgetfulness to present it; or from presenting it at the wrong place. In these cases the indorsers and drawees are exonerated; and if the acceptor do not pay the bill, the amount is lost. In a banking-house such mistakes occur sometimes, though more rarely; but when they do occur, the loss falls upon the banker, and not upon his customer."—GILBART'S *Practical Observations on Banking.*

It is on other grounds particularly desirable for a merchant or tradesman to have an account with a banking-house. He can refer to his bankers as vouchers for his respectability; and in the event of his wishing to acquire any information with respect to the circumstances or credit of any one with whom he is not acquainted, his bankers render him all the assistance in their power. In this respect they have great facilities, it being the common practice among bankers in London, and most other trading towns, to communicate information to each other as to the credit and solvency of their customers.

In Great Britain, to provide for the public security, the statute 7 & 8 Geo. 4, c. 29, § 49, "for the punishment of embezzlement committed by agents intrusted with property," enacts, "That if any money, or security for the payment of money, shall be intrusted to any banker, merchant, broker, attorney, or other agent, with any direction *in writing* to apply such money, or any part thereof, or the proceeds, or any part of the proceeds of such security, for any purpose specified in such direction, and he shall, in violation of good faith, and contrary to the purpose so specified, in any wise convert to his own use or benefit such money, security, or proceeds, or any part thereof respectively, every such offender shall be guilty of a misdemeanor, and, being convicted thereof, shall be liable, at the discretion of the court, to be transported beyond seas, for any term not exceeding fourteen years, nor less than seven years, or to suffer such punishment by fine or imprisonment, or by both, as the court shall award; and if any chattel or valuable security, or any power of attorney for the sale or transfer of any share or interest in any public stock or fund, whether of this kingdom, or of Great Britain, or of Ireland, or of any foreign State, or in any fund of any body corporate, company or society, shall be intrusted to any banker, merchant, broker, attorney, or other agent, for safe custody, or for any special purpose, *without any authority to sell*, negotiate, transfer, or pledge, and he shall, in violation of good faith, and contrary to the object or purpose for which such chattel or security, or power of attorney, shall have been intrusted to him, sell, negotiate, transfer, pledge, or in any manner convert to his own use or benefit such chattel or security, or the proceeds of the same, or any part thereof, or the share or interest in stock or fund to which such power of attorney shall relate, or any part thereof, every such offender shall be guilty of a misdemeanor, and, being convicted thereof, shall be liable, at the discretion of the court, to any of the punishments which the court may award, as hereinbefore last mentioned."

This act is not to affect trustees and mortgagees, nor bankers receiving money due upon securities, nor securities upon which they have a lien, claim, or demand, entitling them by law to sell, transfer, or otherwise dispose of them, unless such sale, transfer, or other disposal shall extend to a greater number or part of such securities or effects than shall be requisite for satisfying such lien, claim, etc.—§ 50.

Nothing in this act is to prevent, impeach, or lessen any remedy at law or in equity, which any party aggrieved by any such offense might or would have had had it not been passed. No banker, merchant, etc., shall be convicted as an offender against this act, in respect of any act done by him, if he shall at any time previously to his being indicted for such offense have disclosed such act on oath, in consequence of any compulsory process of any court of law or equity, in any action *bonâ fide* instituted by any party aggrieved, or if he shall have disclosed the same in any examination or deposition before any commissioner of bankrupt.—§ 52. Under the provisions of this act the members of the firm of Strahan, Paul, and Bates, bankers, London, were found guilty, and on the 27th of October, 1855, were sentenced to transportation for fourteen years.

The Bank of England, and the private banking companies of London, as well as some of the English provincial banks, charge no commission on the payments made and received on account of those who deal with them. And until the recent introduction of joint-stock banks, none of the London bankers, except in peculiar cases, allowed interest on deposits; nor is it yet allowed by the great majority of the metropolitan private bankers. It is also either stipulated or distinctly understood that a person employing a banker should, besides furnishing him with sufficient funds to pay his drafts, keep an average *balance* in the banker's hands, varying, of course, according to the amount of business done on his account: that is, according to the number of his checks or drafts to be paid, and the number of drafts and bills to be received for him. The bankers then calculate, as well as they can, the probable amount of cash that it will be necessary for them to keep in their coffers to meet the ordinary demands of their customers, and employ the balance in discounting mercantile bills, in the purchase of securities, or in some other sort of profitable adventure; so that their profits consist of the sum they realize from such part of the moneys lodged in their hands as they can venture to employ in an advantageous way, after deducting the various expenses attendant on the management of their establishments. A bank of deposit would never be established if it had to depend on its own capital; it makes no profit, in its capacity of bank, till it begins to employ the capital of others.

The directors of the Bank of England do not allow any individual to overdraw his account. They answer drafts to the full extent of the funds deposited in their hands; but they will not pay a draft if it exceed their amount. Private bankers are not generally so scrupulous; most of them allow respectable individuals in whom they have confidence to overdraw their accounts, those who do so paying interest at the rate of 5 per cent. on whatever sums they overdraw. The possession of this power of overdrawing is often a great convenience to merchants, while it is rarely productive of loss to the banker. The money which is overdrawn is usually replaced within a short period; sometimes, indeed, in a day or two. The directors of the Bank of England decline granting this facility, from a disinclination on their part to come into competition in a matter of this sort with private bankers, who transact this kind of business better, probably, than it could be done by a great establishment like the Bank.

Banks afford great facilities to the public in the negotiation of bills of exchange, or in the making of payments at distant places. Many of the banking companies established in different districts have a direct intercourse with each other, and they have all correspondents in London. Hence an individual residing in any part of the country, who may wish to make a payment in any other part, however distant, may effect his object by applying to the bank nearest to him. Thus, suppose A. of Penzance has a payment to make to B. of Inverness: to transmit the money by letter would be hazardous; and if there were fractional parts of a pound in the sum, it would hardly be practicable: how then will A. manage? He will pay the sum to a banker in Penzance, and his creditor in Inverness will receive it from a banker there. The transaction is extremely simple: the Penzance banker orders his correspondent in London to pay to the correspondent of the Inverness banker the sum in question on account of B., and the Inverness banker, being advised in course of post of what has been done, pays B. A small commission charged by the Penzance banker, and the postages, constitute the whole expense. There is no risk whatever, and the whole affair is transacted in the most commodious and cheapest manner.

By far the largest proportion both of the inland bills in circulation in the country, and also of the foreign bills drawn upon Great Britain, are made payable in London, the grand focus to which all the pecuniary transactions of the empire are ultimately brought to be adjusted. And in order still further to economize the use of money, the principal bankers of the metropolis are in the habit of sending a clerk each day to the *clearing-house* in Lombard Street, who carries with him the various bills in the possession of his house that are drawn upon other bankers; and having exchanged them for the bills in the possession of those others that are drawn upon his constituents, the balance on the one side or the other is paid in cash or Bank of England notes. By this contrivance the bankers of London are able to settle transactions to the extent of several millions a day, by the employment of not more, at an average, than from £200,000 to £300,000 of cash or bank notes.—*See* CLEARING-HOUSE.

In consequence of these and other facilities afforded by the intervention of bankers for the settlement of pecuniary transactions, the money required to conduct the business of an extensive country is reduced to a trifle only, compared to what it would otherwise be. It is not, indeed, possible to form any very accurate estimate of the total saving that is thus effected; but, supposing that 50 or 60 millions of gold and silver and bank-notes are at present required, notwithstanding all the devices that have been resorted to for economizing money, for the circulation of Great Britain, it may, one should think, be fairly concluded that 200 millions would, at the very least, be required to transact an equal extent of business but for those devices. If this statement be nearly accurate, and there are good grounds for thinking that it is rather under than overrated, it strikingly exhibits the vast importance of banking in a public point of view. By its means 50 or 60 millions are rendered capable of performing the same functions, and in an infinitely more commodious manner, that would otherwise have required four times that sum; and supposing that 20 or 30 millions are employed by the bankers as a capital in their establishments, no less than 120 or 130 millions will be altogether disengaged, or cease to be employed as an instrument of circulation, and made available for employment in agriculture, manufactures, and commerce. The security afforded by a bank of deposit is a matter as to which there must always be more or less of doubt. When, indeed, a banking company confines itself to its proper business, and does not embark in speculations of unusual hazard, or from which its funds can not be easily withdrawn, in the event of any sudden run or demand, it can hardly ever fail of being in a situation to meet its engagements; while the large private fortunes that most commonly belong to the partners afford those who deal with it an additional guarantee. Much, however, depends on the character of the parties, and on a variety of circumstances with respect to which the public can never be correctly informed; so that though there can be no doubt that the security afforded by many private banks of deposit is of the most unquestionable description, this may not be the case with others.

All joint-stock banks, or banks having more than six partners, whether for deposit and issue, or for deposit merely, are ordered, by the act 3 and 4 Will. 4, cap. 83, to send quarterly returns of the number and names of their partners to the stamp-office. But this act does not apply to private banks, or banks not having more than six partners, though we see no good reason why similar returns should not, and several why they should, be required from them as well as from others. At present few have any certain knowledge of the partners in private banks. Individuals often appear in the names of firms who have been dead for many years; and it has not unfrequently been found in cases of bankruptcy that parties of large fortune, who were supposed to have belonged to the concern, had withdrawn long previously. All uncertainty and obscurity of this kind might, however, be easily put an end to by making periodical declarations of the names of the partners; and provided this were done, and the names made sufficiently public, we doubt whether any other step should be taken for interfering in any way with banks of deposit. There is in this respect a wide difference between them and banks of issue. It is the duty of the government to take care that the value of the currency shall be as invariable as possible; but it has never been pretended that it is any part whatever of its duty to inquire into the security given by the borrowers to the lenders of money, any more than into the security given by the borrowers to the lenders of any thing else. Government very properly obliges a goldsmith to have his goods stamped, this being a security to the public that they shall not be imposed on in buying articles of the quality of which they are generally ignorant; but it does not require that the persons to whom the goldsmith sells or lends his goods should give him a guarantee for their payment. This is a matter as to which individuals are fully competent to judge for themselves; and there neither is nor can be any reason why a lender or depositor of bullion or notes should be more protected than a lender or depositor of timber, coal, or sugar. Gold being the standard or measure of value, government is bound to take effectual precautions that the currency shall truly correspond in the whole and in all its parts with that standard—that every pound note shall be worth a sovereign, and that the amount and value of the aggregate notes in circulation shall vary exactly as a gold currency would do were it substituted in their stead. But this is all that government is called upon to do. If A. trust a sum of money in the hands of B., it is their affair, and concerns no one else. Provided the money afloat correspond with the standard, it is of no importance, in a public point of view, into whose hands it may come. The bankruptcy of a deposit bank, like that of a private gentleman who has borrowed largely, may be productive of much loss or inconvenience to its creditors. But if the paper in circulation be equivalent to gold, such bankruptcies can not affect either the quantity or value of money, and are therefore injurious only to the parties concerned.

Substitution of Notes for Coins—Banks of Issue—Means by which the Value of Notes may be kept on a Level with the Value of the Precious Metals.—Notwithstanding the precious metals are in many respects admirably fitted to serve as a medium of exchange (*see art.* MONEY), they have two very serious drawbacks—their cost, and the difficulty and expense of carrying them from place to place. If the currency of Great Britain consisted only of gold, it would amount to at least sixty millions of sovereigns; and the expense attending such a currency, allowing only ¼ per cent. for wear and tear and loss of coins, could not be reckoned at less than £3,250,000 a year. The weight of 1000 sovereigns exceeds 21 pounds Troy; so that, were there nothing but coins in circulation, the conveyance of large sums from place to place to discharge accounts would be a very laborious process, and even small sums could not be conveyed without considerable difficulty. Hence it is that most commercial and civilized nations have fabricated a portion of their money of less costly and heavy materials, and resorted to various devices for economizing the use of coin. Of the substitutes for the latter hitherto suggested, paper is in all respects the most eligible. When governments are sufficiently powerful and intelligent to enforce the observance of contracts, individuals possessed of written promises from others that they will pay certain sums at specified periods begin to assign them to those to whom they are indebted; and when those by whom such obligations are subscribed are persons of whose solvency no doubt can be entertained, they are readily accepted in payment of the debts due by one individual to another. But when the circulation of obligations or bills in this way has continued for a while, individuals begin to perceive that they may derive a profit by issuing them in such a form as to fit them for being readily used as a substitute for money in the ordinary transactions of life. Hence the origin of bank-notes, or paper money. An individual in whose wealth and discretion the public have confidence being applied to for a loan, say of £5000, grants the applicant his bill or note payable on demand for that sum, on his receiving adequate security for its repayment with interest. Now, as this note passes, in consequence of the confidence placed in the issuer, currently from hand to hand as cash, it is quite as useful to the borrower as if he had obtained an equivalent amount of gold; and supposing that the rate of interest is 4 per cent., it will yield, so long as it continues to circulate, a revenue of £200 a year to the issuer. A sense of the advantages that might, in this way, be derived from the circulation of bills or notes, led to the formation of banks for their regular issue. Those who issue such notes coin, as it were, their credit. They derive the same revenue from the loan of their written promises to pay certain sums that they would derive from the loan of the sums themselves; and while they thus increase their own income, they at the same time contribute to increase the wealth of society. Besides being incomparably cheaper, bank-notes are also incomparably more commodious than a metallic currency. A bank-note for £1000 or £100,000 may be carried about with as much facility as a single sovereign. It is of importance, too, to observe, that its loss or destruction, whether by fire, shipwreck, or otherwise, would be of no greater importance, in a public point of view, than the loss or destruction of as much paper. No doubt it might be a serious calamity to the holder; but to whatever extent it injured him, it would proportionally benefit the issuer, whereas the loss of coin is an injury to the holder without being of service to any one else; it is, in fact, so much abstracted from the wealth of the community.

To obviate the endless inconveniences that would arise from the circulation of coins of every weight and degree of purity, were there no restrictions on their issue, all governments have forbidden the circulation of coins except they be of a certain specified or standard weight and fineness. And the recurrence of similar inconveniences from the issue of notes for varying sums, and payable under varying conditions, has led, in all countries in which paper money is made use of, to the enacting of regulations forbidding the issue of notes below a certain amount, and laying down rules for their payment. In England at this moment no note payable to bearer on demand can be issued for less than five pounds, and they must all be paid the moment they are presented. In Scotland and Ireland the minimum value of bank-notes is fixed at one pound, the regulations as to payment being the same as in England. In order to preserve monopoly of the London circulation to the Bank of England, no notes payable to bearer on demand are allowed to be issued by individuals or associations, other than the Bank of England, within sixty-five miles of St. Paul's. But beyond these limits every one who complies with the above regulations as to the minimum amount of notes, and who promises to pay them on demand, may, on paying the stamp-duty, and making returns of the issues to the stamp-office, circulate any amount of notes he can succeed in getting the public to take off.

But though the condition that they shall be paid on demand, and the belief that this condition will be complied with, be necessary to sustain the value of notes issued by private parties or associations, it is not necessary to sustain the value of paper money, properly so called, or of notes which have been made *legal tender*. The only thing required to sustain the value of the latter description of currency is, that it should be issued in *limited quantities*. Every country has a certain number of exchanges to make; and whether these are effected by the employment of a given number of coins of a particular denomination, or by the employment of the same number of notes of the same denomination, is, in this respect, of no importance whatever. Notes which have been made legal tender, and are not payable on demand, do not circulate because of any confidence placed in the capacity of the issuers to retire them; neither do they circulate because they are of the same real value as the commodities for which they are exchanged; but they circulate because, having been selected to perform the functions of *money*, they are, as such, readily received by all individuals in payment of their debts. Notes of this description may be regarded as a sort of tickets or counters to be used in computing the value of property, and in transferring it from one individual to another. And as they are nowise affected by fluctuations of credit, their value, it is obvious, must depend entirely on the quantity of them in circulation as compared with the payments to be made through their instrumentality, or the business they have to perform. By reducing the supply of notes below the supply of coins that would circulate in their place were they withdrawn, their value may be raised above the value of gold; while, by increasing them to a greater extent, it is proportionally lowered. Hence, supposing it were possible to obtain any security, other than immediate convertibility into the precious metals, that notes declared to be legal tender would not be issued in excess, but that their number afloat would be so adjusted as to preserve their value as compared with gold nearly uniform, the obligation to pay them on demand might be dispensed with. But it is needless to say that no such security can be obtained. Wherever the power to issue paper, not immediately convertible, has been conceded to any set of persons, it has been abused; or, which is the same thing, such paper has uniformly been over-issued, and its value depreciated from excess. And it is now admitted on all hands to be quite indispensable, for the prevention of injurious fluctuations in the value of money, that all notes be made payable, at the pleasure of the holder, in an unvarying quantity of gold or silver.

But though such be the law in this and most other countries, it is, we are sorry to say, operative only on the richest, most cautious, and respectable bankers, and is found to afford no real security against the roguery and misconduct of others. This security is, however, the more indispensable, seeing that the issue of notes is, of all businesses, that which seems to hold out the greatest prospect of success to the schemes of those who attempt to get rich by preying on the public. The circumstances that excite the public confidence in the first instance, and that afterward keep it up, are often of the most treacherous description. The cost of engraving and issuing notes is also but an inconsiderable item, compared with the sums for which they are issued, and provided they be got into any thing like extensive circulation, they become at once considerably productive. They are seldom issued except on the deposit of bills or other securities yielding a considerable rate of interest; so that if an individual, or set of individuals, with little or no capital, contrive, by fair appearances, promises, and similar devices, to insinuate himself or themselves into the public confidence, and can maintain £20,000, £50,000, or £100,000 in circulation, he or they secure a good income in the mean time; and when the bubble bursts, and the imposture is detected, they are no worse off than when they set up their bank. On the contrary, the presumption is that they are a great deal better off; and that they have taken care to provide, at the cost of the credulous and deceived public, a reserve stock for their future maintenance. Hence, seeing the facilities for committing fraud are so very great, the propriety, or rather necessity, of providing against them.

It must not be imagined that this is mere hypothetical reasoning. On the contrary, as every body knows, innumerable instances have occurred of the population of extensive districts having suffered severely from the insolvency of bankers in whom they placed the utmost confidence. In 1793, 1814–16, and 1825–26, a very large proportion of the British banks stopped payments, and produced by their fall an extent of bankruptcy and ruin that has seldom been equaled elsewhere. But when such gigantic disasters had already happened, and were on the eve of again happening in 1837–38, it became the bounden duty of government to hinder, by every means in its power, their recurrence. It is no exaggeration to affirm that England has sustained a thousand times more injury from the circulation of worthless paper, or paper issued by persons without the means of retiring it, than from the issue of spurious coin.

It has been supposed that the objections to the issue of notes because of the risk of non-payment might be obviated, were they issued only by associations or joint-stock companies. But there is no real foundation for any such supposition. There can not, in fact, be a greater error than to suppose that because a bank has a considerable number of partners it will necessarily be either rich or well managed. It may be neither the one nor the other. A single individual may possess more wealth than a number of individuals associated together; and the chances are that, if he engage in banking or any other business, it will be better managed than by a company. Under the present system (and it can not be prevented under any system), the partners in joint-stock banks, as in others, may be men of straw, or persons without property, and unable to fulfill their engagements. It is of the essence of a secure and well-established paper currency that the notes of which it consists should be of the exact value of the gold or silver they profess to represent, and that, consequently, they should be paid the moment they are presented. But it is not enough to order that this condition shall be uniformly complied with. Such order is obeyed only by the opulent, prudent, and conscientious banker, and forms little or no check on the proceedings of those of a contrary character. It is the latter class, however, that it is especially necessary to look after; and it is needless to say that any system that permits notes to be issued without let or hinderance by speculative, ignorant, or unprincipled adventurers, must be essentially vicious.

It has sometimes been contended, in vindication of the plan of allowing any individual, or set of individuals, how bankrupt soever in fortune and character, to issue notes without check or limitation of any kind other than the promise to pay them on demand, that they are essentially *private paper;* that their acceptance in payment is optional; and that, as they may be rejected by every one who either suspects or dislikes them, there is no room or ground for interfering with their issue! But every body knows that, whatever notes may be in law, they are in most parts of the country *practically and in fact legal tender.* The bulk of the people are totally without power to refuse them. The currency of many extensive districts consists in great part of country notes, and such small farmers or tradesmen as should decline taking them would be exposed to the greatest inconveniences. Every one makes use of or is a dealer in money. It is not employed by men of business only, but by persons living on fixed incomes; by women, laborers, minors; in short, by every class of individuals, very many of whom are necessarily, from their situation in life, quite unable to form any estimate of the solidity of the different banks whose paper is in circulation. Such parties are uniformly severe sufferers by the failure of banks. The paper that comes into their hands is a part of the currency or money of the country; and it is quite as much the duty of government to take measures that this paper shall be truly and substantially what it professes to be, as that it should take measures to prevent the issue of spurious coins or the use of false or deficient weights and measures.

The fact is, that the paper currency of a country can not be on a perfectly sound footing until the issue of notes, whether by joint-stock banks or private individuals, be suppressed. It has been proposed, to obviate any recurrence of the wide-spread ruin that has so frequently resulted from the bankruptcy of banks of issue, to compel them to give security for the payment of their notes; and the adoption of such a regulation would, no doubt, have been a vast improvement on the late system. But though the exacting of security would have materially mitigated, it would not have eradicated the vices of a system which allowed banks to be established at the pleasure of individuals. A paper currency is not in a sound or wholesome state, unless, 1st, means be taken to insure that each particular note or parcel of such currency be paid immediately on demand; and unless, 2d, *the whole currency vary in amount and value exactly as a* *metallic currency would do were the paper currency withdrawn and coins substituted in its stead.* The last condition is quite as indispensable to the existence of a well-established currency as the former; and it is one that can not be fully realized otherwise than by confining the issue of paper to a single source.

It is exceedingly difficult to prevent the issue of forged notes. Various schemes have been suggested for this purpose; and though it be hardly possible to suppose that an *inimitable* note will ever be produced, it is contended that by judiciously combining different sorts of engraving, forgery may be rendered so difficult as to be but rarely attempted. But however this may be, during the period from 1797 to 1819, when the Bank of England issued £1 notes, their forgery was carried on to a great extent. And the desire to check this practice, and to lessen the frequency of capital punishments, appears to have been among the most prominent circumstances which led to the return to specie payments in 1821, and the suppression of £1 notes.

Bank of England Notes legal tender.—According to the law as it stood previously to 1834, all descriptions of notes were legally payable at the pleasure of the holder in coin of the standard weight and purity. But the policy of such a regulation was very questionable; and we regard the enactment of the stat. 3 & 4 Will. 4, c. 98, which makes Bank of England notes legal tender, every where except at the Bank and its branches, for all sums above £5, as a great improvement. The unjust liabilities imposed upon the Bank of England by the old system placed her in a situation of great difficulty and hazard. They obliged her to provide a supply of coin and bullion, not for her own exigencies only, but for those of *all* the country banks; and, what is harder still, they exposed her to be deeply injured by any misconduct on the part of the latter, as well as by the distress in which they might accidentally be involved. In consequence, her free action was at all times in some degree impeded; and her power to render assistance to the banking and mercantile interests in periods of discredit materially diminished. The country banks kept but a small supply of coin in their coffers. They were all, however, holders, to a greater or less extent, of government securities; and whenever any circumstance occurred to occasion a demand upon them for coin, they immediately sold or pledged the whole or a portion of their stock, carried the notes to the Bank to be exchanged, and then carried the specie to the country. Hence, when any suspicions were entertained of the credit of the country banks, or when a panic originated among the holders of their notes, as was the case in 1793 and 1825, the whole of them retreated upon the Bank of England, and 700 or 800 conduits were opened, to draw off the specie of that establishment, which was thus, it is evident, exposed to the risk of stoppage without having done any thing wrong. It was not the drain for gold from abroad, but the drain for gold from the country, that nearly exhausted the Bank's coffers in 1825, and forced her to issue about a million of £1 and £2 notes. The currency could not be in a sound, healthy state, while the Bank of England, and, through her, public credit, were placed in so perilous a situation. But the making of Bank of England notes legal tender at all places except the Bank, has tended materially to protect her from the injurious consequences of panics or runs among the holders of country bank paper; and while it does this, it has not, it appears to us, any wise impaired the securities against overissue or depreciation.

It has, no doubt, been contended that the measure now referred to might lead to the depreciation of provincial paper; inasmuch as the expense of sending notes from a distance to London, to be exchanged for gold, would prevent any one from demanding Bank of England notes from country banks in good credit, till the value of the notes issued by them was so much depreciated below the value of gold that the difference would more than pay the expense of sending them to London, and bringing gold back. There can not, however, be the least difference, as respects value, in the provinces, between Bank of England paper, now that it is legal tender, and gold. London being the place where the exchanges are adjusted, the value of money in every part of the empire must depend on its value in it; and *this*, it is plain, is not in any degree affected by the measure under consideration. Formerly the provincial currency, gold as well as paper, might be, and indeed frequently was, depreciated. This was brought about either by an overissue on the part of the country banks, generally in the first instance the effect, but always in the end the cause, of a rise of prices; or by the issues of the Bank of England being, in consequence of an adverse exchange, narrowed sooner or more rapidly than those of the country banks. In either case, the provincial currency being redundant as compared with that of the metropolis, there was a demand on its issuers for bills on London; but it is material to observe that, unless their credit was suspected, there was not, in such cases, any demand upon them for gold. It is, indeed, obvious that a redundancy of the currency is a defect that can not be obviated by getting gold from the country banks, unless (as hoarding is out of the question) it be intended to send it abroad; and that may always be done *better and cheaper* by getting from them Bank of England notes, or bills on London. A local redundancy of the currency may take place now as it has done formerly; and its occurrence can not be prevented, even though paper were wholly banished from circulation, so long as the whole currency is not supplied from *one* source, and as London is the focus where the exchanges with foreign countries are adjusted. But the statements now made show that it is a radical mistake to suppose that it can take place more readily, or to a greater extent, under the present system than formerly. In this respect no change was made in 1834. And while the ancient security against overissue was maintained unimpaired, the arrangements then made increased the stability of the Bank of England, and consequently improved the pecuniary system of the country.

If any doubt could possibly remain as to the operation of this system, it would be removed by referring to Scotland. Gold has been practically banished from that country for a long series of years; and yet no one pretends to say that prices are higher in Scotland than in England, or that her currency is depreciated. The Scotch currency is kept at its proper level, not by the check of gold payments, but by the demand for bills on London; and it is as effectually limited in this way as it would be were the banks universally in the habit of exchanging notes for gold. On what grounds, then, is it to be apprehended that the obligation to give Bank of England notes or bills on London will be less effectual in restraining overissue in Yorkshire or Durham than in Scotland? A banker who issues notes must keep beside him such a stock of cash and bullion as may be sufficient to answer the demands of the public for their payment. If the value of the cash and bullion in his coffers were equal to the value of his notes in circulation, he would not, it is plain, make any profit; but if he be in good credit, a third, a fourth, or even a fifth part of this sum will probably be sufficient; and his profit consists of the excess of the interest derived from his notes in circulation over the interest of the sum he is obliged to keep dormant in his strong-box, and the expenses of managing his establishment. The Bank of England, as will be afterward seen, keeps an average stock of coin and bullion equal to a third of her liabilities.

No particular form of words is necessary in a banknote. The essential requisites are, that it should be for a definite sum (in England and Wales not less than

£5, and in Scotland and Ireland not less than £1), that it should be payable to bearer on demand, and that it should be properly stamped. Promissory notes, though issued by bankers, if not payable to bearer on demand, do not come under the denomination of bank-notes; they are not, like the latter, taken as cash in all ordinary transactions; nor are they, like them, assignable by mere delivery.

The circulation of notes for less than £5 was restrained by law (stat. 15 Geo. 3, c. 51) from 1766 to 1797. In 1808, it was enacted by stat. 48 Geo. 3, c. 88, that all bank-notes, promissory notes, or other negotiable instruments for less than 20*s*., should be absolutely void: a penalty of from 20*s*. to £5, at the discretion of the justices, being imposed on their issuers. It was enacted by the 7 Geo. 4, c. 6, that the issue of all bank-notes or promissory notes for less than £5 by the Bank of England, or by any licensed English bankers, and stamped on the 5th of February, 1826, or previously (after which period such notes were not stamped), should terminate on the 5th of April, 1829.

By the 9 Geo. 4, c. 23, English bankers not in the city of London, or within three miles thereof, are authorized to issue promissory notes, and to draw and issue bills of exchange, on unstamped paper, for any sum of £5 or upward, expressed to be payable to the bearer on demand, or to order, at any period not exceeding 7 days after sight (*bills* may also be drawn at any period not exceeding 21 days after date), upon obtaining licenses, costing £30, to that effect; provided such bills of exchange be drawn upon bankers in London, Westminster, or Southwark; or provided such bills be drawn by any banker or bankers at the place where he or they shall be licensed to issue unstamped notes and bills, upon himself or themselves, or his or their copartner or copartners, payable at any other place where such banker or bankers shall be licensed to issue such notes and bills. Bankers having such licenses are to give security, by bond, that they will keep a true account of all promissory notes and bills so issued, and account for the duties on them at the rate of 3*s*. 6*d*. for every £100, and also for the fractional parts of £100 of the average value of such notes and bills in circulation. Persons post-dating unstamped notes or bills shall, for every such offense, forfeit £100.

Legal Effect of the Payment of Bank-notes.—Notes of the Bank of England were not, previously to the act 3 & 4 Will. 4, c. 98, like bills of exchange, mere securities, or documents of debt, but were treated as money or cash in the ordinary course or transactions of business; the receipts given upon their payment being always given as for money. Now, however, they are legal tender, every where except at the Bank, for all sums above £5. All notes payable to bearer are assignable by delivery. The holder of a bank-note is *primâ facie* entitled to its prompt payment, and can not be affected by the previous fraud of any former holder in obtaining it, unless evidence be given to show that he was privy to such fraud. Such privity may, however, be inferred from the circumstances of the case. To use the words of Lord Tenterden, "If a person take a bill, note, or any other kind of security, under circumstances which *ought to excite suspicion* in the mind of any reasonable man acquainted with the ordinary affairs of life, and which ought to put him on his guard to make the necessary inquiries, and he do not, then he loses the right of maintaining possession of the instrument against the lawful owner."—*Guildhall*, 25th October, 1826.

Country bank-notes are usually received as cash. But though taken as such, if they be presented *in due time* and not paid, they do not amount to a payment, and the deliverer of the notes is still liable to the holder. It is not easy to determine what is a due or reasonable time, inasmuch as it must depend in a great measure on the circumstances of each particular case. On the whole, the safest rule seems to be to present all notes or drafts payable on demand, if received in the place where they are payable, on the day on which they are received, or as soon after as possible. When they have to be transmitted by post for payment, no unnecessary delay should be allowed to intervene.—CHITTY'S *Commercial Law*, vol. iii. p. 590; and the *art.* CHECK in this work.

Distinction between Bank-notes and Bills of Exchange.—It is common with those who object to any restrictions being laid on the issue of bank-notes to represent them as substantially identical with ordinary bills of exchange, and to contend that if it would be imprudent or impracticable to interfere with the issue of the latter, the issue of the former should also be left to the discretion of the parties. The cases, however, are not parallel. It is true that bills of exchange perform in some respects the functions of money; and, being transferred from one individual to another, make payments much in the same way as if they were bank notes. But though there are, no doubt, certain points in which bills of exchange and bank-notes closely resemble each other, there are others, and those too of the greatest importance, in which there is a distinct and material difference between them. Bank-notes are issued only by parties licensed for the purpose, or by bankers; they are uniformly payable on demand, or when presented; they are not indorsed by the holder on his paying them away; the party receiving has no claim on the party from whom he received them in the event of the failure of the issuers; and every one is thus encouraged, reckoning on the facility of passing them to others, to accept bank-notes, "even though he should doubt the ultimate solvency of the issuers."—THORNTON *on Paper Credit*, p. 172. Bills, on the contrary, may be drawn by all individuals; they are mostly all made payable at some distant period; and those into whose hands they come, if they be not in want of money, prefer retaining them in their possession, in order that they may get the interest accruing upon them. But the principal distinction between notes and bills is, that the latter are not assignable by mere delivery, but that every individual, in passing a bill to another, has to indorse it, and by doing so makes himself responsible for its payment. "A bill circulates," says Mr. Thornton, "in consequence chiefly of the confidence placed by each receiver of it in the last indorser, his own correspondent in trade; whereas the circulation of a bank-note is owing rather to the circumstance of the name of the issuer being so well known as to give it a universal credit."—P. 40. Nothing, then, can be more inaccurate than to represent bills and notes in the same point of view. If A. pay to B. £100 in satisfaction of a debt, there is an end of the transaction; but if A. pay to B. a bill of exchange for £100, the transaction is not completed; and, in the event of the bill not being paid by the person on whom it is drawn, B. will have recourse upon A. for its value. It is clear, therefore, that a great deal more consideration is always required, and may be fairly presumed to be given, before any one accepts a bill of exchange in payment, than before he accepts a bank-note. The note is payable on the instant, without deduction—the bill not until some future period; the note may be passed to another without incurring any risk or responsibility, whereas every fresh issuer of the bill makes himself responsible for its value. Notes form the currency of all classes, not only of those who are, but also of those who are not engaged in business, very many of whom are, as already seen, without the power to refuse them, and without the means of forming any correct conclusion as to the solvency of the issuers. Bills, on the other hand, pass only, with very few exceptions, among persons engaged in business, who, being fully aware of the risk they run in taking them, reject such as they apprehend might involve them in loss. There is plainly, therefore, a wide and obvious distinction between the two species of currency; and it would be ridiculous to argue that because government is bound to interfere to regulate the issue of the one, it should also regulate the issue of the other.

II. ACCOUNT OF THE BANK OF ENGLAND.—This great establishment, which has long been the principal bank of deposit and circulation, not in that country only, but in Europe, was founded in 1694. Its principal projector was Mr. William Paterson, an enterprising and intelligent Scotch gentleman, who was afterward engaged in the ill-fated colony at Darien. Government being at the time much distressed for want of money, partly from the defects and abuses in the system of taxation, and partly from the difficulty of borrowing, because of the supposed instability of the revolutionary establishment, the bank grew out of a loan of £1,200,000 for the public service. The subscribers, besides receiving *eight* per cent. on the sum advanced as interest, and £4000 a year as the expense of management, in all £100,000 a year, were incorporated into a society denominated the *Governor and Company of the Bank of England.* The charter is dated the 27th of July, 1694. It declares, among other things, that they shall "be capable in law to purchase, enjoy, and retain to them and their successors, any manors, lands, rents, tenements, and possessions whatsoever; and to purchase and acquire all sorts of goods and chattels whatsoever, wherein they are not restrained by act of Parliament; and also to grant, demise, and dispose of the same.

"That the management and government of the corporation be committed to the governor, deputy governor, and twenty-four directors, who shall be elected between the 25th day of March and 25th day of April, each year, from among the members of the company duly qualified. That no dividend shall at any time be made by the said governor and company, save only out of the interest, profit, or produce arising by or out of the said capital stock or fund, or by such dealing as is allowed by act of Parliament. They must be natural-born subjects of England, or naturalized subjects; they shall have in their own name and for their own use, severally, viz.: the governor at least £4000, the deputy governor £3000, and each director £2000 of the capital stock of the said corporation. That thirteen or more of the said governors and directors (of which the governor or deputy governor must be always one) shall constitute a court of directors, for the management of the affairs of the company, and for the appointment of all agents and servants which may be necessary, paying them such salaries as they may consider reasonable. Every elector must have in his own name and for his own use, £500 or more capital stock, and can only give one vote. He must, if required by any member present, take the oath of stock; or the declaration of stock, in case he be one of the people called Quakers. Four general courts to be held in every year; in the months of September, December, April, and July. A general court may be summoned at any time, upon the requisition of nine proprietors, duly qualified as electors. The majority of electors in general courts have the power to make and constitute by-laws and ordinances for the government of the corporation, provided that such by-laws and ordinances be not repugnant to the laws of the kingdom, and be confirmed and approved, according to the statutes in such case made and provided." The corporation is prohibited from engaging in any sort of commercial undertaking other than dealing in bills of exchange, and in gold and silver. It is authorized to advance money upon the security of goods or merchandise pledged to it; and to sell by public auction such goods as are not redeemed within a specified time.

It was also enacted in the same year in which the Bank was established, by statute 6 William and Mary, c. 20, that the Bank "shall not deal in any goods, wares, or merchandise (except bullion), or purchase any lands or revenues belonging to the crown, or advance or lend to their majesties, their heirs or successors, any sum or sums of money by way of loan or anticipation, or any part or parts, branch or branches, fund or funds of the revenue, now granted or belonging, or hereafter to be granted to their majesties, their heirs and successors, other than such fund or funds, part or parts, branch or branches of the said revenue only, on which a credit of loan is or shall be granted by Parliament." And in 1697 it was enacted that the "common capital and principal stock, and also the real fund of the governor and company, or any profit or produce to be made thereof, or arising thereby, shall be exempted from any rates, taxes, assessments, or impositions whatsoever, during the continuance of the Bank; and that all the profit, benefit, and advantage, from time to time arising out of the management of the said corporation, shall be applied to the uses of all the members of the said corporation of the Governor and Company of the Bank of England, ratably and in proportion to each member's part, share, and interest in the common capital and principal stock of the said governor and company hereby established." It was further enacted, in 1697, that the forgery of the company's seal, or of any sealed bill or bank-note, should be felony without benefit of clergy, and that the making of any alteration or erasure in any bill or note should also be felony.

In 1696, during the great recoinage, the Bank was involved in considerable difficulties, and was even compelled to suspend payment of her notes, which were at a heavy discount. Owing, however, to the judicious conduct of the directors, and the assistance of government, the Bank got over the crisis. But it was at the same time judged expedient, in order to place her in a situation the better to withstand any adverse circumstances that might afterward occur, to increase her capital from £1,200,000 to £2,201,171. In 1708, the directors undertook to pay off and cancel one million and a half of Exchequer bills they had circulated two years before, at 4½ per cent., with the interest on them, amounting in all to £1,775,028; which increased the permanent debt due by the public to the Bank, including £400,000 then advanced in consideration of the renewal of the charter, to £3,375,028, for which they were allowed 6 per cent. The Bank capital was then also doubled or increased to £4,402,343. But the year 1708 is chiefly memorable, in the history of the Bank, for the act that was then passed, which declared that, during the continuance of the corporation of the Bank of England, "it should not be lawful for any body politic, erected or to be erected, other than the said Governor and Company of the Bank of England, or for any persons whatsoever, united or to be united in covenants or partnership, exceeding the number of six persons, in that part of Great Britain called England, to borrow, owe, or take up any sum or sums of money on their bills or notes payable on demand, or in any less time than six months from the borrowing thereof." This proviso, which has had so powerful an operation on banking in England, is said to have been elicited by the Mine-adventure Company having commenced banking business, and begun to issue notes.

It has been pretty generally imagined, from the private banking companies in the metropolis not issuing notes, that they were legally incapacitated from doing so. But the clause in the act of 1708, which has been the only restriction on the issue of notes, applied generally to all England, and had no peculiar reference to London. The fact that banks with six or fewer partners have not issued notes in the metropolis, as well as in the provinces, is, therefore, ascribable either to their being aware that their notes would obtain no considerable circulation concurrently with those of a great association like the Bank of England, or from their believing that their issue would not be profitable.

An Account of the successive Renewals of the Charter, of the Conditions under which these Renewals were made, and of the Variations in the Amount and Interest of the Permanent Debt due by Government to the Bank, exclusive of the Dead Weight.

Date of Renewal.	Conditions under which Renewals were made, and Permanent Debt contracted.	Permanent Debt.		
		£	s.	d.
1694.	Charter granted under the act 5 & 6 Will. 3, c. 20, redeemable upon the expiration of 12 months' notice after the 1st of August, 1705, upon payment by the public to the Bank of the demands therein specified.			
	Under this act the Bank advanced to the public £1,200,000, in consideration of their receiving an annuity of £100,000 a year, viz. 8 per cent. interest, and £4000 for management	1,200,000	0	0
1697.	Charter continued by the 8 & 9 Will. 3, c. 20, till 12 months' notice after 1st of August, 1710, on payment, etc.			
	Under this act the Bank took up and added to their stock £1,001,171 Exchequer bills and tallies.			
1708.	Charter continued by 7 Anne, c. 7, till 12 months' notice after 1st of August, 1732, on payment, etc.			
	Under this act the Bank advanced £400,000 to government without interest; and delivered up to be canceled £1,775,027 17*s.* 10*d.* Exchequer bills, in consideration of their receiving an annuity of £106,501 13*s.*, being at the rate of 6 per cent.	2,175,027	17	10
1713.	Charter continued by 12 Anne, stat. 1, c. 11, till 12 months' notice after 1st August, 1742, on payment, etc.			
	In 1716, by the 3 Geo. 1, c. 8, Bank advanced to government, at 5 per cent.	2,000,000	0	0
	And by the same act, the interest on the Exchequer bills canceled in 1708 was reduced from 6 to 5 per cent.			
	In 1721, by 8 Geo. 1, c. 21, the South Sea Company were authorized to sell £200,000 government annuities, and corporations purchasing the same at 26 years' purchase were authorized to add the amount to their capital stock. The Bank purchased the whole of these annuities at 20 years' purchase	4,000,000	0	0
	5 per cent. interest was payable on this sum to mid-summer, 1727, and thereafter, 4 per cent.	9,375,027	17	10
	At different times between 1727 and 1738, both inclusive, the Bank received from the public, on account of permanent debt, £3,275,027 17*s.* 10*d.*, and advanced to it on account of ditto, £3,000,000: difference	275,027	17	10
	Debt due by the public in 1738	9,100,000	0	0
1742.	Charter continued by 15 Geo. 2, c. 13, till 12 months' notice after 1st of August, 1764, on payment, etc.			
	Under this act the Bank advanced £1,600,000 without interest, which being added to the original advance of £1,200,000, and the £400,000 advanced in 1710, bearing interest at 6 per cent., reduced the interest on the whole to 3 per cent.	1,600,000	0	0
	In 1745, under authority of 19 Geo. 2, c. 6, the Bank delivered up to be canceled £986,000 of Exchequer bills, in consideration of an annuity of £39,472, being at the rate of 3 per cent.	986,800	0	0
	In 1749, the 23 Geo. 2, c. 6, reduced the interest on the 4 per cent. annuities held by the Bank to 3½ per cent. for 7 years from the 25th of December, 1750, and thereafter to 3 per cent.			
1764.	Charter continued by 4 Geo. 3, c. 25, till 12 months' notice after 1st of August, 1786, on payment, etc.			
	Under this act the Bank paid into the Exchequer £110,000 free of all charge.			
1781.	Charter continued by 21 Geo. 3, c. 60, till 12 months' notice after 1st of August, 1812, on payment, etc.			
	Under this act the Bank advanced £3,000,000 for the public service, for 3 years, at 3 per cent.			
1800.	Charter continued by 40 Geo. 3, c. 28, till 12 months' notice after 1st of August, 1833, on payment, etc.			
	Under this act the Bank advanced to government £3,000,000 for 6 years without interest; but in pursuance of the recommendation of the committee of 1807, the advance was continued without interest till 6 months after the signature of a definitive treaty of peace.			
	In 1816, the Bank, under authority of the act 56 Geo. 3, c. 96, advanced at 3 per cent., to be repaid on or before 1st of August, 1833	3,000,000	0	0
1833.	Charter continued by 3 & 4 Will. 4, c. 98, till 12 months' notice after 1st of August, 1855, with a proviso that it may be dissolved on 12 months' notice after 1st of August, 1845, on payment, etc.	14,686,800	0	0
	This act directs that in future the Bank shall deduct £120,000 a year from their charge on account of the management of the public debt, and that a fourth part of the debt due by the public to the Bank, or £3,671,700, be paid off	3,671,700	0	0
	Permanent advance by the Bank to the public, bearing interest at 3 per cent., independent of the advances on account of dead weight, etc.	11,015,100	0	0
1844.	Charter continued by 7 & 8 Vict. c. 32, till 12 months after the 1st of August, 1855, on payment, etc.			
	This act, an abstract of which is given in a subsequent part of this article, exempts the notes of the Bank from all charge on account of stamp-duty, and directs that in future the Bank shall deduct £180,000 a year from the charge on account of the management of the public debt. It also separates the banking from the issuing department of the establishment, and effects other important changes.			

The charter of the Bank of England, when first granted, was to continue for eleven years certain, or till a year's notice after the 1st of August, 1705. The charter was further prolonged in 1697. In 1708, the Bank having advanced £400,000 for the public service, without interest, the exclusive privileges of the corporation were prolonged till 1733; and, in consequence of various arrangements made at different times, the exclusive privileges of the Bank have been continued by successive renewals, till a year's notice after the 1st of August, 1855. For further details as to this subject, see the *Appendix* No. 1 *of the Report of* 1832 *on the Renewal of the Bank Charter*, and the Acts of Parliament referred to in it; see also Postlethwait's *History of the Revenue*, p. 301–310; and Fairman *on the Funds*, 7th ed. p. 85–88, etc.

The capital of the Bank on which dividends are paid has never exactly coincided with, though till of late it seldom differed very materially from, the permanent advance by the Bank to the public. We have already seen that it amounted, in 1708, to £4,402,343. Between that year and 1727 it was increased to near £9,000,000. In 1746 it amounted to £10,780,000. From this period it underwent no change till 1782, when it was increased 8 per cent., or to £11,642,400. It continued stationary at this sum down to 1816, when it was raised to £14,553,000 by an addition of 25 per cent. from the profits of the Bank, under the provisions of the act 56 Geo. 3, c. 96. The act for the renewal of the charter in 1833, the 3 & 4 Will. 4, c. 98, directed that the sum of £3,671,700 of the debt due to the Bank should be repaid by the public, giving the directors power, if they thought fit, to deduct it from the bank capital. But this was not done, the sum being reinvested in a government annuity, terminable in 1860. The Bank of England has been frequently affected by panics among the holders of its notes. In 1745, the alarm occasioned by the advance of the Highlanders, under the Pretender, as far as Derby, led to a run upon the Bank; and in order to gain time to concert measures for averting the run, the directors adopted the device of paying in shillings and sixpences! But they derived a more effectual relief from the retreat of the Highlanders, and from a resolution agreed to at a meeting of the principal merchants and traders of the city, and very numerously signed, declaring the willingness of the subscribers to receive bank-notes in payment of any sum that might be due to them, and pledging themselves to use their utmost endeavors to make all their payments in the same medium. During the tremendous riots in June, 1780, the Bank incurred considerable danger. Had the mob attacked the establishment at the commencement of the riots, the consequences might have proved fatal. Luckily, however, they delayed their attack till time had been afforded for providing a force sufficient to insure its safety. Since that period a considerable military force is nightly placed in the interior of the Bank, as a protection in any emergency that may occur. In the latter part of 1792 and beginning of 1793, there was, in consequence of a previous overissue on their part, a general run on most of the private banks, and about a *third* part of these establishments were forced to stop payments. This led to a considerable demand for coin from the Bank.

The year 1797 is, however, the most important epoch in the recent history of the Bank. Owing partly to events connected with the war in which England was engaged — to loans to the Emperor of Germany; to bills drawn on the treasury at home by the British agents abroad; and partly and chiefly, perhaps, to the advances most unwillingly made by the Bank to government, which prevented the directors from having a sufficient control over their issues—the exchanges became unfavorable in 1795, and in that and the following year large sums in specie were drawn from the Bank. In the latter end of 1796 and beginning of 1797, considerable apprehensions were entertained of invasion, and rumors were propagated of descents having been actually made on the coast. In consequence of the fears that were thus excited, runs were made on the provincial banks in different parts of the country; and some of them having failed, the panic became general, and extended itself to London. Demands for cash poured in upon the Bank from all quarters, and on Saturday, the 25th of February, 1797, she had only £1,272,000 of cash and bullion in her coffers, with every prospect of a violent run taking place on the following Monday. In this emergency an order in council was issued on Sunday the 26th, prohibiting the directors from paying their notes in cash until the sense of Parliament had been taken on the subject; and after Parliament met, and the measure had been much discussed, it was agreed to continue the restriction till six months after the signature of a definitive treaty of peace.

As soon as the order in council prohibiting payments in cash appeared, a meeting of the principal bankers, merchants, traders, etc., of the metropolis was held at the Mansion House, when a resolution was agreed to, and very numerously signed, pledging, as had been done in 1745, those present to accept, and to use every means in their power to cause bank-notes to be accepted as cash in all transactions. This resolution tended to allay the apprehensions that the restriction had excited. Parliament being sitting at the time, a committee was immediately appointed to examine into the affairs of the Bank; and their report put to rest whatever doubts might have been entertained with respect to the solvency of the establishment, by showing that, at the moment when the order in council appeared, the Bank was possessed of property to the amount of £15,513,690, after all claims upon her had been deducted.

Much difference of opinion has existed with respect to the policy of the restriction in 1797; but, considering the peculiar circumstances under which it took place, its expediency seems abundantly obvious. The run did not originate in any overissue of bank paper, but grew entirely out of political causes. So long as the alarms of invasion continued, it was clear that no bank paper immediately convertible into gold would remain in circulation. And as the Bank, though possessed of ample funds, was without the means of instantly retiring her notes, she might, but for the interference of government, have been obliged to stop payment—an event which, had it occurred, must have produced consequences in the last degree fatal to the public interests. It had been generally supposed, previously to the passing of the Restriction Act, that bank-notes would not circulate unless they were immediately convertible into cash; but the event showed, conformably to principles that have since been fully explained, that this was not really the case. Though the notes of the Bank of England were not, at the passing of the Restriction Act, publicly declared to be legal tender, they were rendered so in practice by being received as cash in all transactions on account of government, and of the vast majority of individuals. For the first three years of the restriction, their issues were so moderate that they not only kept on a par with gold, but actually bore a small premium. In the latter part of 1800, however, their quantity was so much increased that they fell to a discount of 8 per cent. as compared with gold, but they soon after rose nearly to par; and it was not until 1808 that the decline of their value excited any considerable attention. Early in 1810 they were at a discount of about 13½ per cent.; and this extraordinary fall having attracted the attention of the Legislature, the House of Commons appointed a committee to inquire into the circumstances by which it had been occasioned. The committee examined several witnesses; and in their report, which was drawn up with considerable ability, they justly ascribed the fall to the overissue of bank paper, and recommended that the Bank should be obliged to resume cash payments within two years. This recommendation was not, however, acted upon; and the value of bank paper continued to decline, as compared with gold, till 1814.

At the period when the restriction on cash payments took place in 1797, it is supposed that there were about 280 country banks in existence; but so rapidly were these establishments multiplied, that they amounted to above 900 in 1813. The price of corn, influenced partly by the depreciation of the currency, and the facility with which discounts were obtained, but far more by deficient harvests and the unprecedented difficulties which the war threw in the way of importation, had risen to an extraordinary height during the five years ending with 1813. But the harvest of that year being unusually productive, and the intercourse with the Continent being then also renewed, prices, influenced by both circumstances, sustained a very heavy fall in the latter part of 1813 and the beginning of 1814; and this fall having ruined a considerable number of farmers, and produced a general want of confidence, such a destruction of provincial paper took place as has rarely been paralleled. In 1814, 1815, and 1816, no fewer than 240 country banks stopped payment; and *eighty-nine* commissions of bankruptcy were issued against these establishments, being at the rate of *one* commission against every *ten and a half* of the total number of banks existing in 1813. The great reduction that had been thus suddenly and violently brought about in the quantity of country bank paper, by extending the field for the circulation of Bank of England paper, raised its value in 1817 nearly to a par with gold. The return to cash payments being thus facilitated, it was fixed, in 1819, by the act 59 Geo. 3, c. 78, commonly called Sir Robert Peel's Act, that they should take place in 1823. But to prevent any future overissue, and at the same time to render the measure as little burdensome as possible, it was enacted, in pursuance of a plan suggested by the late Mr. Ricardo, that the Bank should be obliged, during the interval from the passing of the act till the return to specie payments, to pay her notes, if required, in bars of standard bullion of not less than sixty ounces weight. This plan was not, however, acted upon during the period allowed by law; for, a large amount of gold having been accumulated at the Bank, the directors preferred recommencing specie payments on the 1st of May, 1821.—See Table for an account of the price of bullion, the depreciation of paper, etc., from 1800 to 1821.

A great diversity of opinion has been entertained with respect to the policy of the return to the old standard in 1819. By one party it has been represented as a wise and politic measure; they contend that Sir Robert Peel's Act not only put an end to those fluctuations in the value of money, which had previously been productive of great mischief, and gave effect to the solemn engagements into which the public had entered with the national creditor, but that it did this without adding any thing material to the national burdens. But another, and also a very numerous party, take a total different view of this measure: they contend that the public was not really bound to return to cash payments at the old standard at the termination of the war; that the return has very greatly enhanced the value of the currency; and that this enhancement, by adding proportionally to the fixed burdens laid on the industrious classes, has been most injurious to their interests. It will, however, be found in this, as in most cases of the sort, that the statements of both parties are exaggerated, and that if, on the one hand, the measure has not been so advantageous as its eulogists represent, neither, on the other, has it been nearly so injurious as its enemies would have us believe.

In discussing this question, it is material to observe that the value of paper, which had been in 1815 and 1816 about 16¾ per cent. below that of gold, rose in 1817 and 1818, from the causes already mentioned, without any interference whatever on the part of government, to within little more than 2½ per cent. of the value of gold; and that in 1819 the depreciation only amounted to 4½ per cent.—See Table. It is, therefore, futile to ascribe to the act of 1819, as is often done, the whole rise that has taken place in the value of the currency since the peace, seeing that the currency had been for *three years previously to its enactment* from 12½ to 14½ per cent. above its value in 1815, and from 21 to 23 per cent. above its value in 1814! The main object which the promoters of the act of 1819 had in view was to sustain the value of the currency at the point to which it had recovered itself without legislative interference. This, however, could not be done without recurring to specie payments; and the difference of 4½ per cent. that obtained in 1819, between the value of gold and paper, was not deemed sufficiently considerable to warrant a departure from the old standard, and from the acts engaging to restore it.

But it is alleged that those who suppose that the act of 1819 added only 4½ per cent. to the value of the currency mistake altogether the effect of the measure. It is admitted, indeed, that paper was then only 4½ per cent. less valuable than gold; but by reverting to specie payments, an unexpected purchase of *thirty millions* of gold was made; and it is affirmed that this novel and large demand, concurring simultaneously with the contraction of paper in several of the Continental states, and with a falling off in the supply of bullion from the mines, had the effect of adding very greatly to the value of gold itself, and consequently to that of the currency. It is very difficult, or rather, perhaps, impossible, to determine the precise degree of credit that should be attached to this statement; but, while we incline to think that it is well founded to a certain extent, we see no grounds for believing that it is so to any thing like the extent that has been stated. The gold imported into Great Britain, to enable the Bank to resume specie payments, was not taken from any particular country or district, but was drawn from the market of the world; and considering the vast extent of the supply whence it was derived, it is against all reason to suppose that its value could be materially influenced by the purchases. We doubt, too, whether the contraction of the paper currency of some of the Continental states, and the substitution of specie in its stead, was not more than balanced by the cessation of the demand for specie for the military chests of the different armies, by the stoppage of the practice of hoarding, and the greater security consequent to the return of peace. And with respect to the falling off in the supplies from the mines, it is not a circumstance, supposing it to have had a considerable influence, that Parliament could take into account. It could neither determine the extent to which bullion had been raised, nor at what point the rise would stop, nor how soon it might again begin to decline. The diminution in the supply of bullion had then continued for too short a period, and its influence on the value of gold was much too uncertain, to make it a ground for interfering in any degree with the standard. And notwithstanding the falling off in the productiveness of the American mines still continues, the diminution thence arising has been since more than compensated by the extraordinary increase that has taken place of late years in the produce of the Russian mines and washings.

The decline in the price of most articles that has taken place since the peace has been often referred to as a conclusive proof of the great enhancement in the value of bullion. But the inference is by no means so certain as has been represented. The prices of commodities are as much affected by changes in the cost of their production as by changes in the quantity of money afloat. Now, there is not one of the great articles of commerce the cost of which has not been considerably reduced, or which has not been supplied from new and more productive sources within the last few years. The growth of corn, for example, has been vastly extended in France, Prussia, and generally throughout the Continent, by the splitting of large estates, and the complete subversion of the feudal system; and the reduction of its price in England has been wholly owing to the astonishing improvements made in agriculture, and to the increase of imports from Ireland. The fall in the price of wool is satisfactorily accounted for by the introduction and rapid multiplication of Merino sheep in Germany, where they seem to succeed even better than in Spain; and by the large and rapidly growing imports from Australia, where little more than 50 years ago there was not a single sheep! And a very large portion, if not the whole, of the fall in the price of colonial products, is admitted, on all hands, to be owing to the destruction of the monopoly system, and the vast extension of cultivation in Cuba, Brazil, Java, Louisiana, etc. Although, therefore, we do not deny that the falling off in the supply of bullion from the mines must, at first, have had some influence over prices, we hold it to be the greatest imaginable error to ascribe to it the entire fall that took place after the peace. Were its effect rated at from 5 to 10 per cent., we believe it would be very considerably overstated.—*See* Precious Metals.

On the whole, therefore, we are disposed to approve of the conduct of those who framed the act of 1819. That it added somewhat to the burdens of the industrious classes, and has been in so far hostile to the public interests, it seems impossible to doubt; but it has not been so in any thing like the degree which its enemies represent. The period, too, when it was passed is now so distant, that the existing engagements among individuals have almost all been formed with reference to the altered value of the currency; so that whatever injury it may have occasioned in the first instance must be nearly gone by. To modify or change the standard at this late period, would not be to repair injustice, but to commit it afresh. At the end of the war, the circumstances were considerably different. The standard had been really abandoned for the previous 18 years; and perhaps we may now say that it would have been better, all things considered, had the mint price of bullion been raised in 1815 to the market price. But having surmounted all the difficulties attendant upon the restoration of the old standard, and maintained it since 1821, it would be in the last degree impolitic to subject it to new alterations. Should the country become, at any future period, unable to make good its engagements, it will better consult its honor and its interest by fairly compounding with its creditors, than by endeavoring to slip from its engagements by resorting to the underhand and dishonest expedient of enfeebling the standard.

The price of grain, which had been very much depressed in 1821 and 1822, rallied in 1823; and this circumstance contributed, along with others peculiar to that period, to promote an extraordinary rage for speculation. The issues of the country banks being in consequence far too much extended, the currency became redundant in the autumn of 1824; and the exchanges having been depressed, a drain for gold began to operate upon the Bank of England. But the directors of the Bank having entered, in the early part of that year, into an engagement with government to pay off such holders of 4 per cent. stock as might dissent from its conversion into a 3½ per cent. stock, they were obliged to advance a considerable sum on this account after the depression of the exchange. This tended to counteract the effect of the drain on the Bank for gold; and, in consequence, the London currency was not very materially diminished till September, 1825. When, however, the continued demand of the public on the Bank for gold had rendered money scarce in the metropolis, the pressure speedily extended to the country. Such of the provincial banks—and they were a numerous class—as had been originally established without sufficient capital, or had conducted their business upon erroneous principles, began to give way the moment they experienced an increased difficulty of obtaining pecuniary accommodations in London. The alarm, once excited, soon became general; and confidence and credit were, for a while, almost wholly suspended. In the short space of six weeks, above 70 banking establishments were destroyed, notwithstanding the very large advances made to them by the Bank of England; and the run upon the Bank for cash to supply the exigencies of the country banks was so heavy, that she was well nigh drained of all the coin in her coffers, and obliged, as already remarked, to issue about a million of £1 and £2 notes.

To guard against a recurrence of the wide-spread mischief and ruin produced by this and the previous bankruptcies of the country banks, it was resolved, in 1826, with consent of the Bank of England, to make a change in the law of 1708 limiting the number of partners in banking establishments to six only. And it was accordingly enacted that thenceforth any number of partners might form themselves into associations to carry on the business of banking, including the issue of notes, any where not within *sixty-five miles* of London. The directors of the Bank of England came, at the same time, to the resolution of establishing branches in some of the principal towns; and these have since been established in Gloucester, Manchester, Birmingham, Leeds, Liverpool, Bristol, Exeter, Newcastle-upon-Tyne, Hull, Norwich, etc.

Besides attempting to lessen the frequency of bankruptcy among the country banks by repealing the law limiting the number of partners, it was further resolved, in 1826, to prohibit the issue of £1 notes. The policy and effects of this measure gave rise to much dispute. It seems clear that it went far to shut up one of the most convenient channels by which the inferior class of country bankers contrived to get their notes into circulation, and must, in so far, have done good. But there were many other channels still open to them; and to imagine that this measure was to place the provincial currency on that solid basis on which it should be placed was quite visionary. There were no notes under £5 in circulation in 1792; and yet fully *one third* part of the country banks then in existence became bankrupt! The truth is, as already stated, that it is not possible to guard against loss and fraud from the proceedings of the country bankers, otherwise than by compelling them to give security for their issues; and as security may as easily be given for £1 notes as for those of £5, the suppression of the former does not appear to be essential. No doubt can, however, be entertained that the representations of the extreme injury occasioned by the withdrawal of £1 notes were greatly exaggerated; though it is, at the same time, obvious that the means of the bankers to make advances, as well as the profit derived from making them, must both have been diminished by the suppression of the small notes; and it would be foolish to deny that this circumstance must have occasioned some loss and inconvenience to many individuals. These remarks are meant to apply only to the case of the country banks. The extraordinary extent to which the forgery of the £1 notes of the Bank of England was carried affords a sufficient vindication of the policy of their suppression. But the comparatively limited circulation of the country banks, and perhaps we may add the greater attention paid to the manner in which their notes were engraved, hindered their forgery from becoming injuriously prevalent.

Charter of 1844.—The defects inherent in the old system were again fully developed in 1836 and 1837. It is needless now to enter upon any investigation of the circumstances which led to the overtrading of these years; but it was carried to a great extent in England and in the United States. In nothing, however, was this more strikingly evinced than in the rapid increase of joint-stock banks; their number, which in 1834–35 had amounted in England and Wales to 55, having risen in 1835–36 to no fewer than 100! Many of these were banks of issue, and in consequence of the large additions that were thus suddenly made to the number of notes afloat, and still more to the number of bills, checks, and other substitutes for money, the currency became redundant and the exchange depressed; and the deficient harvests of 1838 and 1839, conspiring with this redundancy, occasioned a further fall in the exchange, and a severe drain upon the Bank of England for gold. But while the latter was narrowing her issues by supplying the exporters of bullion with gold in exchange for notes, the country banks went on increasing their issues! What the former did by contracting on the one hand, the latter more than undid by letting out on the other. The vacuum created by the withdrawal of Bank of England paper was immediately filled up, and made to overflow, by the issue of a more than equal amount of provincial paper: so that had it not been for the rise in the rate of interest, and the other repressive measures adopted by the Bank, the probability is that she might have gone on paying away bullion for notes till she was drained of her last sixpence, without in any degree affecting the exchange; and as it was, the bullion in her coffers in August, 1839, was reduced to £2,420,000, so that the market narrowly escaped a tremendous crisis.

This perilous experience having again forcibly attracted the public attention to the state of the banking system, Sir Robert Peel was encouraged to attempt its improvement. The clause in the act 3 & 4 Will. 4, c. 98, for the renewal of the charter in 1833, which gave to Parliament power to revise or cancel it in 1845, afforded a legitimate opportunity for the introduction of the new system. But, however desirable, the total suppression of the issue of notes by joint-stock and private banking companies would have been a measure too much opposed to popular prejudices, and to the real or supposed interests of a large and powerful class, to have had any chance of being carried; and there also would have been great, though inferior, difficulties in the way of the plan for taking security. It was, indeed, indispensable, in attempting to obviate the defects inherent in the banking system, to proceed cautiously, to respect, in as far as possible, existing interests, and to avoid taking any step that might excite the fears or suspicions of the public; the grand difficulty being to reconcile the introduction of such a course with the adoption of any plan that would obviate in any considerable degree the defects complained of. Happily, this difficult problem has been dexterously and satisfactorily solved by Sir Robert Peel; the measures he introduced and carried through Parliament in 1844 and 1845, for the improvement of the banking system, having been so skillfully contrived as to provoke little opposition, at the same time that they effected very extensive and, as we think, most beneficial changes.

The measures in question consist of the act 7 & 8 Vict. c. 32, which refers to the Bank of England and the English country banks; and the acts 8 & 9 Vict. c. 37, 38, referring to the Banks of Scotland and Ireland. The principal object of these statutes has been to obviate the chances of overissue and of sudden fluctuations in the quantity and value of money, by limiting the power to issue notes payable on demand, and by making the amount of such notes in circulation vary more nearly than previously with the amount of bullion in the possession of the issuers. Sir Robert Peel adopted, in dealing with the Bank of England, the proposal made by Mr. Loyd, in 1837, for effecting a complete separation between the issuing and banking departments of that establishment. And while the directors are left at liberty to manage the latter at discretion, their management of the former, or issue department, is subjected to what seems to be a well-devised system of restraint. The Bank is allowed to issue £14,000,000 of notes upon securities (of which the debt of £11,015,100 lent by her to government is a part); and whatever paper the issue department may at any time issue over and above this maximum amount of securities, it must have an equal amount of coin and bullion in its coffers. A clause is inserted in the act allowing the Bank to increase her issue upon securities in the event of her notes being used instead of those of any or all of the existing banks of issue. Hence it is impracticable for the issue department to increase its issues without, at the same time, proportionally increasing its stock of coin and bullion; or to diminish the latter without proportionally diminishing the amount of paper supplied to the public and the banking department. And, therefore, if the latter issued the whole notes assigned to it, the total amount issued by the issue department and the amount in circulation would be identical; and it might under such circumstances be truly said that, in so far as the currency consists of Bank of England notes payable on demand, it varied in amount and value as it would do were it wholly metallic, and, consequently, by being so closely identified with the standard, realized the *beau ideal* of a paper currency.

But, though the currency approaches to, it has not arrived at this degree of perfection. The public does not deal alone with the issue, but also, and to a far greater extent, with the banking department. And this latter department retained such a portion of the notes issued to it by the former, under the 2d clause of the 7 & 8 Vict. c. 32, as was supposed at the time to be sufficient to carry on its business, their amount having since varied with the varying demands for bullion, the sales and purchases of securities, etc. But it is sufficient, in illustration of what is now stated, to observe that during the week ending the 4th of November, 1848, notes to the amount of £26,796,660 had been issued to the public and the banking department, of which the latter had £8,242,575 in its coffers, making the sum in the hands of the public £18,554,085. And as it is sometimes supposed that the banking department might issue this sum of £8,242,575, or the spare notes at any time in its coffers, in the discount of bills, or any other way, it is concluded that there is still room for some, though but little, derangement of the currency from mistaken proceedings on the part of the Bank; and this, no doubt, may be sometimes true, at least to some extent. But it is idle to suppose that the banking department could carry on business without a large reserve of notes or of coin. This department may have, owing to a variety of circumstances, to meet a drain for deposits; and as it is very unsafe to trust to the sale of securities in periods of discredit, a very considerable supply of notes or of bullion, or of both, can never be advantageously or safely dispensed with.

This shows the little weight to be attached to the statements of those who contend that the late measure has laid no real restraint on the issues of the Bank, because, say they, she has a large reserve of unissued notes which she might legitimately throw on the market. But in truth and reality she can do nothing of the sort. A reserve is indispensable, not only to her safety, but to her ability to carry on banking business; and it is at present (November, 1848) sufficiently narrow. More vigilance and caution are now required on the part of the bank directors than formerly; for otherwise the banking department of the Bank may be reduced to the greatest difficulties, without its being possible for it to obtain any assistance from the issue department, how able soever the latter might be to render it. This was strikingly evinced in the autumn of 1847; and nothing but the exercise of a proper degree of foresight and caution can prevent its recurrence. No gold can now be obtained from the issue department except in exchange for notes; nor can the latter be obtained from it except in exchange for gold. Hence it is no longer, as formerly, in the power of the Bank to create paper money at pleasure to supply the place of cash in any emergency in which she may be involved; and instead of less she requires to act with more circumspection under the new system than under the old.

But though the check on the overissue of bank-notes be thus nearly effectual, it appears rather singular that no check should be established on the issue of bank post-bills, which amounted to £1,048,503 on the 4th November, 1848, and which are and may be substituted for notes. No doubt, however, were the Bank (which is hardly to be imagined) to abuse the privilege of issuing post-bills, by making advances in them which she could not have made in notes, measures would be taken to prevent the abuse; and perhaps, on the whole, it was as well to postpone devising means for the prevention of what seems so unlikely to occur. Weekly returns are now published of the issues of the Bank, and of the securities, bullion, etc., in her possession. The sum to be deducted by the Bank from the charge on account of the management of the national debt is in future to be £180,000 instead of £120,000 a year, as fixed by the act 3 & 4 Will. 4, c. 98. The charter is to be continued till twelve months' notice after the 1st of August, 1855. The provisions made in this act for restraining the country circulation were, perhaps, still more important. The maximum future issue of the joint-stock and other banks in England and Wales was limited to the average amount of the circulation of each during the twelve months preceding the 27th of April, 1844. It was farther enacted that no new bank shall be established for the issue of notes, and that the names of the partners in joint-stock and other banks shall be periodically published. The regulations in the statutes relating to banking in Scotland and Ireland are nearly similar. The maximum amount of notes to be issued by the banks of both countries is, in time to come, not to exceed the average amount which each bank had in circulation during the twelve months ending the 1st of May, 1845. Certain returns, including among others the amount of gold and silver coin held by the banks, the names of the partners, etc., are to be periodically published. The small-note currency of Scotland has not been affected by the measure.

It is impossible to doubt that these regulations interpose a formidable obstacle to overissue; and that, consequently they discourage overtrading, and tend to reduce both the number and the violence of those commercial revulsions and changes in the value of money, that have always been, and must necessarily continue to be, productive of the greatest mischief. No one ever pretended to say that these or any other measures which could be adopted with respect to the currency would wholly prevent unsafe speculation and overtrading. These may originate in an endless variety of circumstances; but in times past the tendency to speculation and gambling, when once set on foot, was in most cases powerfully stimulated by the facility which banks then possessed of issuing additional quantities of paper; and of that facility they are now all but deprived. It is, perhaps, true that the fair and legitimate influence of the acts now referred to may be in some degree countervailed by the circulation, to a greater extent than formerly, of bills and other sorts of paper not payable on demand, but at short dates; and it is not improbable that sooner or later the question may arise whether any regulations should be adopted in regard to the issue of such paper. In so far, however, as respects the issue of *paper money*, or notes payable on demand, the regulations in the act of 1844 appear to have left little to be desired. No doubt, also, numbers of the private and other banks that now issue notes will from time to time wind up their affairs; and as no new banks of issue can be established in their stead, the vacuum caused by the withdrawal of their notes will be supplied by those of the Bank of England; so that a gradual progress will be made toward the desirable consummation of having only one bank of issue.

It is sometimes contended, by those opposed to the policy of limiting the issues, that they never can be in excess so long as they are payable on demand. Such, however, is not the case: notes payable, *and really paid*, on demand, can not, it is true, fall below the value of specie in the country in which they are issued; but the check of payment in specie does not, in fact, begin to operate till their overissue has depreciated the value of the whole currency, gold as well as paper, in such country, below its level in the surrounding countries, and till, consequently, the exchange becomes unfavorable, and it is of advantage to export gold. Then, of course, the overissue is stopped, but such stoppage is almost always accompanied by a great deal of public distress and inconvenience; while it by no means necessarily follows that any considerable portion of the loss thence arising will fall on those banks by whose misconduct or overissue the fall in the exchange and the demand for bullion may have been occasioned.

The measures adopted in 1844, though they deeply affected many powerful private interests, were, as already stated, passed with little difficulty, and were very generally approved of. In this respect, however, the public opinion has, to some extent, changed; and the act of 1844 has been charged with having aggravated the pressure experienced by the mercantile world in 1847. But we are satisfied that there is no real room or ground for any such imputation. The crisis of 1847 was a consequence partly of the railway mania of the previous year, and partly of the failure of the potato crops of 1845 and 1846. The failure in the latter year deprived fully two-thirds of the people of Ireland, and a considerable portion, also, of those of Great Britain, of their accustomed supplies of food. In consequence of this deficiency, and of government having come forward to provide the means for its relief, there was an unprecedented importation of all sorts of corn; and the demand for bullion for exportation to meet this importation, occurring simultaneously with a vast railway expenditure, pecuniary accommodations were obtained with the greatest difficulty, and the rate of interest rose to an extraordinary height. Instead, however, of being increased by the act of 1844, it is abundantly certain that the operation of the latter contributed to alleviate the severity of the crisis. The restraints it imposed on the issues of the country banks had hindered them from embarking to any great extent in railway adventures, so that they were better able to assist their customers; and it also prevented the Bank of England from attempting to meet the exigencies of the case, otherwise than by raising the rate of interest and restricting her issues. And besides being the natural and proper, these were, in fact, the only means by which the value of bullion could be raised, its demand for foreign remittance checked, and the exchange turned in favor of England. A great many mercantile houses that had been trading upon very insufficient capitals, or which had previously been virtually insolvent, were, of course, swept off during the crisis; and the alarm that was thereby ocasioned, though for the most part without any good foundation, gave rise to a species of panic. During the prevalence of the latter, government consented (25th October, 1847) to a temporary suspension of the act of 1844; but there is now, we believe, little doubt that this was an unwise proceeding. When it took place the violence of the crisis had abated. The drain for gold for exportation had not only ceased, but had begun to react; and the probability is, that in a very few days all alarm would have passed off, without the dangerous precedent which was set by the interference of ministers. Hence, in our view of the matter, the experience afforded by the crisis of 1847 tells strongly in favor of the act of 1844. But for its influence, it is most probable that the Bank would have attempted to meet the demand for bullion without raising the rate of interest, at least to the extent to which she did raise it; and if so, she should have been exposed to the imminent risk of a suspension of cash payments. If, therefore, the act of 1844 should be subjected to any modifications, it is to be hoped that they may be such as may tend to carry out and strengthen the principles on which it is founded.

Previously to the late changes, the Bank directors endeavored, as a general rule, to have *as much coin and bullion in their coffers as might together amount, when the exchange was at par, to a third part of the Bank's liabilities, including deposits as well as issues*; so that, in the event of the notes afloat, and the public and private deposits in the coffers of the Bank, amounting to £27,000,000 or £30,000,000, they did not consider the establishment in a perfectly satisfactory state, unless she was, generally speaking, possessed of about £9,000,000 or £10,000,000 of coin and bullion. The issues of the Bank were then wholly governed, at least in ordinary cases, by what Mr. Horsley Palmer expressively called "the action of the public;" that is, they were increased during a favorable exchange, or when bullion was sent to the Bank to be exchanged for notes; and diminished during an unfavorable exchange, or when notes were sent to the bank to be paid. But the vice of the old system was that this rule was not strictly enforced, and that the directors were every now and then compelled to relax it. But under the present system such relaxation is practicable only to a very limited extent, and can be but little abused, which formerly was not always the case. It is frequently said that the value of money, and consequently that the price of all sorts of property, depends on the fiat of the Bank, by which it is capriciously elevated at one time and depressed at another. But the account previously given of the mode in which the issues of the Bank are regulated completely disproves such statements; and independently of this, every one who knows that the Bank must pay her notes in coin when presented, and that coin may be at all times obtained from the Mint without any charge, in exchange for bullion, must know that the very supposition of their being true involves a contradiction.

An Account of the Notes, Securities, Bullion, etc., of the Bank of England for the first Week in each Month, as published Weekly in the "Gazette," from the passing of the Act 7 and 8 Vict. c. 32, to the 5th December, 1846.

ISSUE DEPARTMENT.

Week ending.	Notes.	Government Debt.	Other Securities.	Bullion.	
				Gold.	Silver.
	£	£	£	£	£
1844, December 7........	27,817,505	11,015,100	2,984,900	12,223,894	1,593,611
1845, January 4........	28,087,055	11,015,100	2,984,900	12,493,444	1,593,611
February 1........	28,232,485	11,015,100	2,984,900	12,548,405	1,684,080
March 1........	28,952,105	11,015,100	2,984,900	12,943,918	2,008,187
April 5........	29,352,145	11,015,100	2,984,900	13,260,543	2,091,602
May 3........	29,167,095	11,015,100	2,984,900	13,088,142	2,078,953
June 7........	29,732,600	11,015,100	2,984,900	13,605,716	2,126,884
July 5........	29,891,935	11,015,100	2,984,900	13,751,932	2,140,003
August 2........	29,196,760	11,015,100	2,984,900	13,206,991	1,989,769
September 6........	28,953,300	11,015,100	2,984,900	12,982,591	1,970,709
October 4........	28,355,670	11,015,100	2,984,900	12,514,730	1,840,940
November 1........	27,267,115	11,015,100	2,984,900	11,661,681	1,605,434
December 6........	26,540,480	11,015,100	2,984,900	10,992,631	1,547,849
1846, January 3........	26,675,925	11,015,100	2,984,900	11,093,869	1,582,056
February 7........	26,698,620	11,015,100	2,984,900	11,140,210	1,558,410
March 7........	27,079,270	11,015,100	2,984,900	11,417,040	1,662,230
April 4........	27,181,980	11,015,100	2,984,900	11,460,445	1,721,535
May 2........	27,072,295	11,015,100	2,984,900	11,279,130	1,793,165
June 6.......	28,325,000	11,015,100	2,984,900	12,192,710	2,132,290
July 4........	29,322,200	11,015,100	2,984,900	12,905,074	2,417,126
August 1........	29,292,320	11,015,100	2,984,900	12,854,618	2,437,702
September 5........	29,760,870	11,015,100	2,984,900	13,057,997	2,702,873
October 3........	29,359,795	11,015,100	2,984,900	12,632,794	2,727,001
November 7........	28,235,885	11,015,100	2,984,900	11,724,111	2,511,774
December 5........	28,269,105	11,015,100	2,984,900	11,762,647	2,506,458

BANKING DEPARTMENT.

Week ending.	Capital.	Rest.	Deposits.		Seven Days' and other Bills.	Securities.		Notes.	Coin.
			Public.	Private.		Public.	Other.		
	£	£	£	£	£	£	£	£	£
1844, Dec. 7	14,553,000	3,110,069	5,795,572	8,422,809	966,455	13,540,619	10,193,713	8,286,105	827,468
1845, Jan. 4	14,553,000	3,127,278	7,366,643	8,037,320	1,015,166	13,539,720	11,426,996	8,418,125	714,566
Feb. 1	14,553,000	3,298,944	2,852,124	8,713,690	1,085,065	13,541,692	8,652,751	7,642,235	666,145
Mar. 1	14,553,000	3,575,172	5,476,984	10,323,799	983,328	13,474,379	11,707.400	8,952,545	777,959
April 5	14,553,000	3,586,219	6,924,106	10,445,950	1,063,189	13,474,379	13,123,678	9,252,350	722,057
May 3	14,553,000	3,183,817	2,712,041	10,355,640	1,139,238	13,616,966	9,857,686	7,827,925	641,159
June 7	14,553,000	3,136,091	5,745,482	10,564,624	1,018,497	13,384,898	11,470,805	9,382,505	779,486
July 5	14,553,000	3,164,493	7,330,309	10,041,440	1,045,592	13,384,206	12,944,496	9,279,785	526,197
Aug. 2	14,553,000	3,338,246	3,215,363	10,960.214	1,072,260	13,321,844	11,463,603	7,849,785	503,851
Sept. 6	14,553,000	3,608,180	6,474,705	8,507,213	1,021,689	13,468,643	11,967,081	8,255,505	473,558
Oct. 4	14,553,000	3,629,978	8,703,497	8,167,961	1,088,160	13,348,643	15,188,965	7,095,615	599,373
Nov. 1	14,553,000	3,224,453	4,487,058	9,099.737	1,106,405	13,203,138	13,429,813	5,219,775	617,927
Dec. 6	14,553,000	3,209,394	8,110,401	9,022,019	1,004,471	13,201,863	16,224,712	5,945,840	526,870
1846, Jan. 3	14,553,000	3,254,660	9,369,630	8,350,465	959,967	13,201,072	16,262,593	6,418,510	605,547
Feb. 7	14,553,000	3,462,787	5,054,438	18,912,445	963,688	13,137,047	22,908,661	6,263,625	637,025
Mar. 7	14,553,000	3,757,708	6,502,355	17,828,778	898,176	13,136,440	22,118,987	7,576,625	707,965
April 4	14,553,000	3,799,508	7,074,026	16,763,047	965,446	13,136,440	22,058,631	7,316,415	643,541
May 2	14,553,000	3.396.540	2,578,451	16,780,380	965,730	13,303,065	17,901,148	6,408,470	661,418
June 6	14,553,000	3,379,044	5,753,512	15,927,013	852,008	12,988,065	18,321,641	8,468,180	686,691
July 4	14,553,000	3,424,178	7,794,200	14,402,460	887,364	12,987,142	18,145,319	9,303,090	625,651
Aug. 1	14,553,000	3,597,679	3,793,610	13,449,388	943.423	12,961,735	14,068,257	8,796,875	510,233
Sept. 5	14,553,000	3,864,479	7,318,919	8,557,109	935,830	12,961,735	12,523,550	9,231,095	512,957
Oct. 3	14,553,000	3,886,985	9,776,195	8,167,143	930,793	12,961,360	15,086,775	8,809,150	456,831
Nov. 7	14,553,000	3,468,352	5,428,783	8,281,624	1,018,610	12,808,119	12,153,009	7,264,620	524,621
Dec. 5	14,553,000	3,432,203	8,612,488	8,303,523	895,483	12,807,417	13,853,212	8,402,300	733,768

Connection with Government and the Public.—The Bank of England conducts the whole banking business of the British government. "It acts not only," says Dr. Smith "as an ordinary bank, but as a great engine of state. It receives and pays the greater part of the annuities which are due to the creditors of the public; it circulates Exchequer bills; and it advances to government the annual amount of the land and malt taxes, which are frequently not paid till some years thereafter."

Advances by the Bank in Discounts, etc.—The greater part of the paper of the Bank has generally been issued in the way of advances or loans to government, upon security of certain branches of the revenue, and in the purchase of Exchequer bills and bullion; but her issues through the medium of discounts to individuals have, notwithstanding, been at all times considerable, while during war, and in periods of distress, they have been occasionally very great. Generally speaking, however, the directors do not think it advisable to enter into competition with private bankers in the transacting of ordinary banking business, or in the discounting of mercantile paper. Mr. Horsley Palmer is decidedly of opinion that all banking business, apart from the issue of notes, is better transacted by private bankers than by public bodies.—*Min. of Evidence, Report of* 1832, p. 37. He also thinks that were the Bank to come fairly into competition at all times with the private bankers and other individuals in discounting, it would be very apt to lead, every now and then, to an excess of the currency, and a fall of the exchange, producing fluctuations that could not fail to be injurious. At present, therefore, and generally since the peace, the rate of interest charged by the Bank for loans has been somewhat above the market rate. The consequence is, that, in ordinary periods, very few applications are made to her for discounts. But, at the same time, every one who has any reasonable security to offer, knows where they may always be had; while the rate of interest charged by the Bank necessarily forms a *maximum* rate which no other establishment can exceed. When, however, any circumstances occur to occasion a pressure in the money market, or a difficulty of obtaining accommodations in the usual channels, the market rate of interest immediately rises to the rate fixed by the Bank; and on such occasions the private bankers, and the public generally, resort to the Bank for aid. She then becomes, as it were, a *bank of support;* and has, as such, on many trying occasions, particularly in 1793, 1815 and 1816, 1825–26, and 1838, rendered essential service to public credit, and to the commercial interests of the country. The usual limited amount of the Bank's discounts does not, therefore, proceed, as has been absurdly enough stated, from any indisposition on the part of the directors to render every assistance in their power to the commercial classes, but is, in fact, the effect of such disposition. They consider, and we believe justly, that, except under peculiar circumstances, the business of discounting and banking is best conducted by private parties; and that by abstaining from coming into competition with them they are better able to act as a bank of support in seasons of distress and difficulty. This is not to neglect the interests of the mercantile classes, but to promote them in the best and most efficient manner, even though it should be at the expense of the Bank.

At the same time, however, it must be admitted that the interference of the Bank in assisting the commercial interest is a matter that requires the greatest consideration, and that it can only be safely undertaken under very peculiar circumstances. It should always be borne in mind that however a drain for gold may originate, the fact of its existence is of itself a conclusive proof that gold is more valuable abroad than at home, and consequently that the currency is redundant, and ought to be diminished. Under such circumstances, it is the imperative duty of the directors, in order to provide for the safety of the Bank, to prevent the vacuum caused by the exchange of bullion for notes from being again filled up by the issue of fresh notes. This may be done in various ways; but the best and surest way is by raising the rate of discount so as to lessen the number of applicants for loans.—*See* Post. It is at such periods, however, that the applications for assistance are the most urgent; and it is exceedingly difficult to yield to them, and at the same time to enforce that systematical and continuous reduction of the issues that is now indispensable to reduce the currency to its proper level, and to restore the exchange to par. Unquestionably the Bank allowed the stock of bullion in her coffers to be reduced in 1839 a great deal too low. And though, perhaps, as things turned out, less hardship was, in the end, inflicted on individuals than if the directors had adhered more to the stern path of duty, still it is extremely hazardous to trust in matters of such vast importance to the chapter of accidents; and we incline to think that in this, as in most other cases, the safest plan, or the systematic reduction of the issues whenever the exchange becomes unfavorable, is that also which, speaking generally, is most advantageous to all classes. And this, as already seen, is now all but imperative on the Bank.

In 1839, and we believe, also, on a previous occasion, the Bank negotiated credits abroad, and endeavored to restore the exchange to par by selling bills on the Continent. The policy of this device gave rise to a good deal of discussion at the time; but in the particular cases it appears to us to have been most judicious; and we incline, also, to think that under the old system the same course might and should have been followed on various occasions. This device is now less necessary; but we may still easily conceive occasions when it might be advantageous. What merchants want during an adverse exchange is good foreign bills, it being only in default of such that they export bullion; and the Bank, by supplying them with such bills, and getting, of course, her notes in exchange, is able to diminish her issues quite as effectually as if her notes were sent in for bullion. Another advantage of this plan is, that no one knows when it is in operation, and, consequently, that it goes far to obviate that internal discredit and alarm that are apt to be produced when the stock of bullion in the Bank is reduced unusually low. In fact, had the Bank not acted, in part at least, on this plan in 1839, the probability is that she must have suspended payments. No doubt the Bank would be exposed, if she adopted this plan, to the contingency of losing by her foreign securities in the event of the breaking out of hostilities, or of the occurrence of any event by which their value might be reduced. These events may, however, be in general foreseen and provided against; and if the Bank's investments were judiciously made, not in one only, but in several quarters, the risk they would involve does not appear to be at all equivalent to the advantage. Perhaps, as the law now stands, there may be legal objections to the Bank's holding foreign securities; but if it be expedient that she should do so, the law might be easily altered. The amount of the discounts of private paper at the Bank and her branches varies, as already seen, greatly in different periods; and depends, indeed, wholly on contingent and accidental circumstances. Thus, on the 1st of January, 1839, the bills discounted in London amounted to only £396,000, whereas on the 3d of December of the same year they amounted to £3,926,000. The annual average loss by bad debts on the discounts of the Bank of England in London, from 1791 to 1831, both inclusive, was £31,698.—*Appendix to Rep. on Bank Charter*, No. 60.

Advances to Government.—These are made on account of the produce of taxes not yet received, and on the security of the Exchequer bills, etc. They varied, from 1792 down to 1810, from about £10,000,000 to about £16,000,000. During the remainder of the war, and down to 1820, they were a good deal larger; but in 1819 provision was made for reducing the amount of these advances; and they do not at present, excluding the permanent advance on account of the dead weight, exceed a fourth part of their amount in 1820. They are represented by the Exchequer bills and deficiency bills in the hands of the Bank.

Balances of Public Money.—In point of fact, however, a very large part of these advances has been nominal only, or has been virtually canceled by the balances of public money in the hands of the Bank. Thus, from 1806 to 1810, both inclusive, the average advances to government amounted to £14,492,970. But the average balance of public money in possession of the Bank during the same period amounted to about £11,000,000; so that the real advance was equal only to the difference between these two sums, or to about £3,500,000. This statement completely negatives, as Mr. Tooke has justly stated, the supposition so commonly entertained and reasoned upon as a point beyond doubt, that the Bank was rendered, by the restriction, a mere engine in the hand of government for facilitating its financial operations.—*First Letter to Lord Grenville*, p. 64. The Bank being enabled to employ the greater part of the balances of public money in her hands as capital, they have formed one of the main sources of the profit she has derived from her transactions with the public. This subject was brought very prominently forward in the Second Report of the Committee of the House of Commons on Public Expenditure in 1807. And it was agreed in the same year that the Bank should, in consideration of the advantages derived from the public balances, continue the loan of £3,000,000 made to government in 1800 for 6 years without interest, on the same terms, till 6 months after the signature of a definitive treaty of peace. In 1816 this sum was finally incorporated with the debt due by government to the Bank, at an interest of 3 per cent.

Management of Public Debt.—Previously to 1786, the Bank received an allowance on this account; that is, for trouble in paying the dividends, superintending the transfer of stock, etc., of £562 10*s.* a million. In 1786 this allowance was reduced to £450 a million, the Bank being, at the same time, entitled to a considerable allowance for her trouble in receiving contributions on loans, lotteries, etc. This, however, though long regarded as a very improvident arrangement on the part of the public, was acquiesced in till 1808, when the allowance on account of management was reduced to £340 per million on £600,000,000 of the public debt, and to £300 per million on all that it exceeded that sum, exclusive of some separate allowances for annuities, etc. The impression, however, was still entertained that the allowances for management should be further reduced. In consequence, the act 3 & 4 Will. 4, c. 98, directed that £120,000 a year should be deducted from their amount; and the late act, the 7 & 8 Vict. c. 32, directs that this deduction shall be increased to £180,000. During the year ending the 5th of January, 1846, the Bank received £93,111 19*s.* 10*d.* for the management of the public debt and annuities. It should be observed that the responsibility and expense incurred by the Bank in managing the public debt are very great. The temptation to the commission of fraud in transferring stock from one individual to another, and in the payment of the dividends, is well known; and notwithstanding the skillfully devised system of checks adopted by the Bank for its prevention, she has frequently sustained very great losses by forgery and otherwise.

In 1803 the Bank lost, through a fraud committed by one of her principal cashiers, Mr. Astlett, no less than £340,000; and the forgeries of Fauntleroy the banker cost her a still larger sum. At an average of the ten years ending with 1831, the Bank lost, through forgeries on the public funds, £40,204 a year.—*Report on Bank Charter*, *Append.*, p. 165. The total sums paid by the public to the Bank on account of the loans raised, Exchequer bills funded, transfer of 3½ per cent. stock, etc., from 1793 to 1820, both included, amounted to £426,795 1*s.* 11*d.* — *Parliamentary Paper*, No. 81, Sess. 1822.

Dead Weight.—Besides the transactions alluded to, the Bank entered, on the 20th of March, 1823, into an engagement with government with respect to the public pensions and annuities, or, as they have been more commonly termed, the *dead weight.* At the end of the war, the naval and military pensions, superannuated allowances, etc., amounted to above £5,000,000 a year. They would, of course, have been gradually lessened and ultimately extinguished by the death of the parties. But it was resolved in 1822 to attempt to spread the burden equally over the whole period of *forty-five* years, during which it was calculated the annuities would continue to decrease. To effect this purpose, it was supposed that, upon government offering to pay £2,800,000 a year for forty-five years, capitalists would be found who would undertake to pay the entire annuities, according to a graduated scale previously determined upon, making the first year a payment of £4,900,000, and gradually decreasing the payments until the forty-fifth and last year, when they were to amount to only £300,000. This supposition was not, however, realized. No capitalists were found willing to enter into such distant engagements. But in 1823 the Bank agreed, on condition of receiving an annuity of £585,470 for *forty-four* years, commencing on the 5th of April, 1823, to pay, on account of the pensions, etc., at different specified periods between the years 1823 and 1828, both inclusive, the sum of £13,089,419. —4 *Geo.* 4, c. 22.

Rate of Discount.—The Bank discounted private bills at 5 per cent. during nearly the whole period from her establishment till 1824, when the rate was reduced to 4 per cent.

An Account of the Minimum Rate of Discount charged by the Bank of England, in London, from 1694 to 1855.

From Aug. 8, 1694, to Aug. 30, 1694,	on foreign bills . .	6 per cent.
From Aug. 30, 1694, to Jan. 16, 1695,	on “ . .	4½ per cent.
From Oct. 24, 1694, to Jan. 16, 1695,	on inland bills . . .	6 per cent.
From Jan. 16, 1695, to May 19, 1695,	on foreign bills . .	6 per cent.
From Jan. 16, 1695,	(to customers of the bank) do. . . .	3 per cent.
From Jan. 16, 1695, to July 26, 1716,	on inland bills . . .	4½ per cent.
From May 19, 1695, to Feb. 28, 1704,	on foreign bills . .	4 per cent.
From “	on Foreign bills, not payable at the bank .	5 per cent.
From Feb. 28, 1704, to June 22, 1710,	on foreign bills . .	5 per cent.
From June 22, 1710, to July 26, 1716,	on for. and inland do.	4 per cent.
From July 26, 1716, to April 30, 1719,	on bills and notes . .	5 per cent.
From April 30, 1719, to Oct. 27, 1720,	on bills	5 per cent.
From Oct. 27, 1720, to Aug. 23, 1722,	on “	4 per cent.
From Aug. 23, 1722, to Oct. 18, 1742,	on inland bills . . .	6 per cent.
From Aug. 23, 1722, to Oct. 18, 1742,	on foreign bills . .	4 per cent.
From Oct. 18, 1742, to Dec. 12, 1744,	on “ . .	5 per cent.
From Dec. 12, 1744, to May 1, 1746,	on “ (15 d. to run)	4 per cent.
From Dec. 12, 1744, to May 1, 1746,	on inland bills . . .	5 per cent.
From May 1, 1746, to April 5, 1773,	on foreign bills . .	5 per cent.
From May 1, 1746, to June 20, 1822,	on bills and notes (95 days to run)	4 per cent.
From June 20, 1822, to Dec. 13, 1825,	on “	5 per cent.
From Dec. 13, 1825, to July 5, 1827,	on “	5 per cent.
From July 5, 1827, to July 21, 1836,	on “	4 per cent.
From July 21, 1836, to Sept. 1, 1836,	on “	4½ per cent.
From Sept. 1, 1836, to July 15, 1838,	on “	5 per cent.
From Feb. 13, 1838, to May 16, 1839,	on “	4 per cent.
From May 16, 1839, to June 20, 1839,	on “	5 per cent.
From June 20, 1839, to Aug. 1, 1839,	on “	5½ per cent.
From Aug. 1, 1839, to Jan. 23, 1840,	on “	6 per cent.
From Jan. 23, 1840, to Oct. 15, 1840,	on 65 day bills . . .	5 per cent.
From Oct. 15, 1840, to June 3, 1841,	on 95 day bills . . .	5 per cent.
From June 3, 1841, to April 7, 1842,	on “	5 per cent.
From April 7, 1842, to Sept. 5, 1844,	on “ . . .	4 per cent.
From Sept. 5, 1844, to Mar. 13, 1845,	on bills	2½ per cent.
From Sept. 5, 1844, to Mar. 13, 1846,	on notes	3 per cent.
From Mar. 13, 1845, to Oct. 16, 1845,	on minimum rate . .	2½ per cent.
From Oct. 16, 1845, to Nov. 6, 1845,	on “ . .	3 per cent.
From Nov. 6, 1845, to Aug. 17, 1846,	on “ . .	3½ per cent.
From Aug. 17, 1846, to Jan. 14, 1847,	on “ . .	3 per cent.
From Jan. 14, 1847, to Jan. 21, 1847,	on “ . .	3½ per cent.
From Jan. 21, 1847, to April 8, 1847,	on “ . .	4 per cent.
From April 8, 1847, to Aug. 5, 1847,	on “ . .	5 per cent.
From Aug. 5, 1847, to Sept. 23, 1847,	on “ . .	5½ per cent.
From Sept. 23, 1847, to Oct. 25, 1847,	on “ . .	6 per cent.
From Oct. 25, 1847, to Nov. 22, 1847,	on “ . .	8 per cent.
From Nov. 22, 1847, to Dec. 2, 1847,	on “ . .	7 per cent.
From Dec. 2, 1847, to Dec. 23, 1847,	on “ . .	6 per cent.
From Dec. 23, 1847, to Jan. 27, 1848,	on “ . .	5 per cent.
From Jan. 27, 1848, to June 16, 1848,	on “ . .	4 per cent.
From June 15, 1848, to Nov. 2, 1848,	on “ . .	3½ per cent.
From Nov. 2, 1848, to Nov. 22, 1849,	on “ . .	3 per cent.
From Nov. 22, 1849, to Dec. 26, 1850,	on “ . .	2½ per cent.
From Dec. 26, 1850, to Jan. 1, 1852,	on “ . .	3 per cent.
From Jan. 1, 1852, to April 22, 1852,	on “ . .	2½ per cent.
From April 22, 1852, to Jan. 6, 1853,	on “ . .	2 per cent.
From Jan. 6, 1853, to Jan. 20, 1853,	on “ . .	2½ per cent.
From Jan. 20, 1853, to June 2, 1853,	on “ . .	3 per cent.
From June 2, 1853, to Sept. 1, 1853,	on “ . .	3½ per cent.
From Sept. 1, 1853, to Sept. 16, 1853,	on “ . .	4 per cent.
From Sept. 15, 1853, to Sept. 29, 1853,	on “ . .	4½ per cent.
From Sept. 29, 1853, to May 11, 1854,	on “ . .	5 per cent.
From May 11, 1854, to Aug. 3, 1855,	on “ . .	5½ per cent.
From Aug. 3, 1854, to April 5, 1855,	on “ . .	5 per cent.
From April 5, 1855, to May 3, 1855,	on “ . .	4½ per cent.
From May 3, 1855, to June 14, 1855,	on “ . .	4 per cent.
From June 14, 1855, to Sept. 6, 1855,	on “ . .	3½ per cent.
From Sept. 6, 1855, to Sept. 13, 1855,	on “ . .	4 per cent.
From Sept. 13, 1855, to Sept. 27, 1855,	on “ . .	4½ per cent.
From Sept. 27, 1855, to Oct. 4, 1855,	on “ . .	5 per cent.
From Oct. 4, 1855, to Oct. 18, 1855,	on “ . .	5½ per cent.
From Oct. 18, 1855,	on 65 day bills . . .	6 per cent.
From Oct. 18, 1855,	on 95 day bills . . .	7 per cent.

When the currency happens, from any cause, to become redundant, its contraction, always a matter of some difficulty, is to be effected only (if she hold no foreign securities) by the sale of bullion or public securies by the Bank, or by a diminution of the usual discounts, or both. But were the Bank to throw any considerable amount of public securities upon the market, the circumstance would be apt to excite alarm; and, even though it did not, it would be difficult to dispose of them without a heavy loss. Hence, when a reduction is determined upon, it is most commonly effected, in part at least, by a contraction of discounts; and it is plain that such contraction can not be made except by rejecting altogether some of the bills sent in for discount, or, which is in effect the same thing, by shortening their dates, or by raising the rate of interest, so that fewer may be sent in. Of these methods, the last seems to be in every respect the most expedient. When bills are rejected for no other reason than that the currency may be contracted, the greatest injury is done to individuals, who, entertaining no doubt of getting their usual accommodation from the Bank, may have entered into transactions which they are thus deprived of the means of completing. When the reduction is made by raising the rate of interest, it principally affects those who are *best able to bear it;* at the same time that its operation, instead of being, like the rejection of bills, arbitrary and capricious, is uniform and impartial. It does, therefore, seem that the Bank should seldom or never throw out good bills that she may contract her issues; but that, when she has resolved upon such a measure, she should, provided the contraction can not be made by the sale of bullion and public securities, raise the rate of discount so as to lessen the demands upon her for loans.

The dividends on bank stock, from the establishment of the company to the present time, have been as follows:

Years.	Dividend.
1694	8 per cent.
1697	9 "
1708	Varied from 9 to
1729	5½ per cent.
Lady-day 1730	6 "
Michaelmas 1730	5½ "
Lady-day 1731	6 "
Michaelmas 1731	5½ "
Lady-day 1732	6 "
Michaelmas 1732	5½ "
Lady-day 1747	5 "
" 1753	4½ "
Michaelmas 1764	5 "
" 1767	5½ "
" 1781	6 "
Lady-day 1788	7 "
" 1807	10 "
" 1823	8 "
" 1839	7 "

Previously to 1759, the Bank of England issued no notes for less than £20. She began to issue £10 notes in 1759; £5 notes in 1793; and £1 and £2 notes in March, 1797. The issue of the latter may be said to have ceased in 1821, though they were again issued on the emergency in 1825.

Interest on Deposits.—The Bank of England does not allow, either in London or at her branches, any interest on deposits; but it would be exceedingly desirable if she could safely make some alteration in this respect. The want of the power readily to invest small sums productively, and at the same time with perfect security, tends to weaken the motives to save and accumulate. Nothing has contributed more to diffuse a spirit of economy, and a desire to save, among all classes of the population of Scotland, than the readiness with which deposits of small sums are received by banks of undoubted solidity in that part of the country, and the allowance of interest upon them. — *See* SCOTCH BANKS. This advantage is now, however, in some degree secured in England, not only by the institution of savings banks, but by the joint-stock banks that have been opened in most parts of the country. The receiving of deposits is, indeed, an essential part of the proper business of a bank. "A banker is a dealer in capital, an intermediate party between the borrower and the lender. He borrows of one party and lends to another; and the difference between the terms at which he borrows and those at which he lends is the source of his profit. By this means he draws into active operation those small sums of money which were previously unproductive in the hands of private individuals, and at the same time furnishes accommodation to another class, who have occasion for additional capital to carry on their commercial transactions."—*See* GILBART'S *Practical Observations on Banking*, p. 52.

In further corroboration of what has now been stated, it may be mentioned that it is estimated by the best authorities that the deposits in the Scotch banks may amount at present (1846) to about £30,000,000, of which more than a half consists of sums of from £10 to £200! This is a most satisfactory proof of the vast importance of the system. Perhaps it is not going too far to affirm that but for the receiving of deposits by the banks, and the allowing of interest upon them, not a third part of the sums under £200, and not a half of those above it, would ever have been accumulated. — *See* SCOTCH BANKS. We are not, however, able to say whether the Bank of England could offer interest on deposits without having so large a sum forced upon her as might in periods of distrust seriously endanger her stability. And it were better that the system should continue as at present, than that any risk of this sort should be incurred. Since 1826, the private deposits in the hands of the Bank have been greatly augmented. Their increase is mainly ascribable to the preceding panic, and the loss that was then occasioned by the failure of private banks.

Method of conducting Business at the Bank.—All accounts kept at the Bank with individuals are termed *drawing accounts*; those with whom they are opened being entitled to draw checks upon them, and to send the bills and drafts in their favor to be presented by the Bank, exactly as if they dealt with private bankers. There is no fixed sum with which an individual must open a drawing account; nor is there any fixed sum which the Bank requires him to keep at his credit to indemnify her for her trouble in answering his drafts, etc. Mr. Horsley Palmer gave in his evidence, in 1832, the following statement as to the facilities granted by the Bank in drawing accounts since 1825: 1. The Bank receives dividends by power of attorney for all persons having drawing accounts at the Bank. 2. Dividend warrants are received at the drawing office for ditto. 3. Exchequer bills and other securities are received for ditto; the bills exchanged, the interest received, and the amount carried to their respective accounts. 4. Checks may be drawn for £5 and upward, instead of £10, as heretofore. 5. Cash-boxes taken in, contents unknown, for such parties as keep accounts at the Bank. 6. Bank-notes are paid at the counter, instead of drawing tickets for them on the pay clerks, as heretofore. 7. Checks on city bankers paid in by three o'clock may be drawn for between four and five; and those paid in before four will be received and passed to account the same evening. 8. Checks paid in after four are sent out at nine o'clock the following morning, received and passed to account, and may be drawn for as soon as received. 9. Dividend warrants taken in at the drawing office until five in the afternoon, instead of three as heretofore. 10. Credits paid in to account are received without the bank-book, and are afterward entered therein without the party claiming them. 11. Bills of exchange accepted payable at the Bank are payable with or without advice; heretofore with advice only. 12. Notes of country bankers payable in London are sent out the same day for payment. 13. Checks are given out in books, and not in sheets as heretofore.

A person having a drawing account *may* have a *discount account*; but no person can have the latter without, at the same time, having the former. When a discount account is opened, the signatures of the parties are entered in a book kept for the purpose, and powers of attorney are granted, empowering the persons named in them to act for their principals. No bill of exchange drawn in the country is discounted by the Bank *in London* under £20, nor London *note* under £100, nor for a longer date, under existing regulations, than three months. The number of holidays formerly kept at the Bank has recently been reduced about a half, in the view, as stated by the directors, of preventing the interruption of business. There are no holidays in the months of March, June, September, and December, excepting Christmas; Easter Monday and Tuesday are no longer kept.

We subjoin an account of the days for transferring stock, and when the dividends are due at the Bank of England, the South Sea House, and the East India House:

Transfer Days at the Bank.	Dividends due.
Bank Stock.—Tuesday, Wednesday, Thursday, and Friday	April 5. Oct. 10.
3 per cent. Red.—Tuesday, Wednesday, Thursday, and Friday	
3 per cent. 1726.—Tuesday, Wednesday, Thursday, and Friday	Jan. 5. July 5
3 per cent. Cons.—Tuesday, Wednesday, Thursday, and Friday	

	Dividends due.
Long. Annuity to Jan., 1860.—Tuesday, Wednesday, Thursday, and Friday	April 5. Oct. 10.
New 3¼ per cent. Annuity.—Tuesday, Wednesday, Thursday, and Friday	Jan. 5. July 5.
New 5 per cent. Annuity.—Tuesday, Wednesday, Thursday, and Friday	
Annuities for terms of years, some payable on	April 5. Oct. 10.
Ditto, others on	Jan. 5. July 5.
Life Annuity, if transferred between January 5 and April 4, or between July 5 and October 9	Jan. 5. July 5.
Life Annuity, if transferred between April 5 and July 4, or between October 10 and January 4	April 5. Oct. 10.
At the South Sea House.	
South Sea Stock.—Monday, Wednesday, and Friday	Jan. 5. July 5.
3 per cent. Old Annuity.—Monday, Wednesday, and Friday	April 5. Oct. 10.
3 per cent. New Annuity.—Tuesday, Thursday, and Saturday	Jan. 5. July 5.
3 per cent. 1751.—Tuesday and Thursday	
At the East India House.	
India Stock.—Tuesday, Thursday, and Saturday	Jan. 5. July 5.
Interest on India bonds, due	Mar. 31. Sept. 30.

Branch Banks of the Bank of England.—The Bank of England, as already observed, has within these few years established branch banks at several of the most considerable towns throughout the country. The mode and terms of conducting business at these establishments have been described as follows: "The branch bank at Swansea (and the same is true of those established in other places) is to be a secure place of deposit for persons having occasion to make use of a bank for that purpose; such persons are said to have *drawing accounts:* to facilitate to the mercantile and trading classes the obtaining discounts of good and unexceptionable bills, founded upon real transactions, two approved names being required upon every bill or note discounted; these are called *discount accounts.* The applications of parties who desire to open discount accounts at the branch are forwarded to the parent establishment for approval, and an answer is generally received in about ten days. When approved, good bills may be discounted at the branch without reference to London. Bills payable at Swansea, London, or any other place where a branch is established, are discounted under this regulation. The dividends on any of the public funds, which are payable at the Bank of England, may be received at the branch, by persons who have opened 'drawing accounts,' after signing powers of attorney for that purpose, which the branch will procure from London. No charge is made in this case, except the expense of the power of attorney and the postages incurred in transmitting it. Purchases and sales of every description of government securities are effected by the branch at a charge corresponding to that made by the local bankers where the branch is situated. A commission, including brokerage in London, and all expenses of postage, is charged on paying at the Bank of England bills accepted by persons having drawing accounts at Swansea, such bills to be advised by the branch; also for granting letters of credit on London, or on the other branches. The branch grants bills on London, payable at seven days' date, without acceptance, for sums of £10 and upward. Persons having drawing accounts at Swansea may order money to be paid at the Bank in London to their credit at Swansea, and *vice versâ,* at a charge of 6*d.* in lieu of postage. The branch may be called upon to change any notes issued and *dated* at Swansea; but they do not change the notes of the Bank in London, nor receive them in payment, unless as a matter of courtesy where the parties are known. Bank post-bills, which are accepted and due, are received at the branch from parties having drawing accounts, and taken to account without any charge for postage; but unaccepted bank post-bills, which must be sent to London, are subject to the charge of postage, and taken to account when due. No interest is allowed on deposits. No advance is made by the branch upon any description of landed or other property, nor is any account allowed to be overdrawn. The notes are the same as those issued by the parent establishment, except being dated Swansea, and made payable there and in London. No note issued exceeds the sum of £500, and none are for a less amount than £5."

Bank-notes to be legal Tender, except at the Bank and Branch Banks.—From and after the 1st of August, 1834, unless and until Parliament shall otherwise direct, a tender of a note or notes of the Governor and Company of the Bank of England, expressed to be payable to bearer on demand, shall be a legal tender to the amount expressed in such note or notes, and shall be taken to be valid as a tender to such amount for all sums above £5 on all occasions on which any tender of money may be legally made, so long as the Bank of England shall continue to pay on demand their said notes in legal coin: provided always, that no such note or notes shall be deemed a legal tender of payment by the Governor and Company of the Bank of England, or any branch bank of the said governor and company; but the said governor and company are not to become liable or be required to pay and satisfy, at any branch bank of the said governor and company, any note or notes of the said governor and company not made specially payable at such branch bank; but the said governor and company shall be liable to pay and satisfy at the Bank of England in London all notes of the said governor and company, or of any branch thereof.—§ 6.

An Account of the average Market Price of Bullion in each Year, from 1800 to 1821 (taken from official Documents); of the average Value per Cent. of the Currency, estimated by the Market Price of Gold for the same Period; and of the average Depreciation per Cent.

Years.	Average Price of Gold per oz.	Average per Cent. of the Value of the Currency.	Average Depreciation per Cent.
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
1800	3 17 10½	100 0 0	Nil.
1801	4 5 0	91 12 4	8 7 8
1802	4 4 0	92 14 2	7 5 10
1803	4 0 0	97 6 10	2 13 2
1804	4 0 0	97 6 10	2 13 2
1805	4 0 0	97 6 10	2 13 2
1806	4 0 0	97 6 10	2 13 2
1807	4 0 0	97 6 10	2 13 2
1808	4 0 0	97 6 10	2 13 2
1809	4 0 0	97 6 10	2 13 2
1810	4 10 0	86 10 6	13 9 6
1811	4 4 6	92 3 2	7 16 10
1812	4 15 6	79 5 3	20 14 9
1813	5 1 0	77 2 0	22 18 0
1814	5 4 0	74 17 6	25 2 6
1815	4 13 6	83 5 9	16 14 3
1816	4 13 6	83 5 9	16 14 3
1817	4 0 0	97 6 10	2 13 2
1818	4 0 0	97 6 10	2 13 2
1819	4 1 6	95 11 0	4 9 0
1820	3 19 11	97 8 0	2 12 0
1821	3 17 10½	100 0 0	Nil.

An Account of the Profits of the Bank of England in the Year ending the 29th of February, 1832; stating the Description of the Securities held by the Bank, and the Sources from which the said Profits have accrued.—*No. 15, Append. to Report.*

Interest on commercial bills	£130,695
Interest on Exchequer bills	204,109
Annuity for 45 years (the dead-weight account)	451,415
Interest on capital received from government	446,502
Allowance received for management of the public debt	251,896
Interest on loans on mortgages	60,684
Interest on stock in the public funds	15,075
Interest on private loans	56,941
Profit on bullion, commission, rent, receipts on discounted bills unpaid, management of the business of the Banks of Ireland, of Scotland, and Royal Bank of Scotland, and sundry items	71,859
	£1,689,176

AN ACCOUNT OF ALL DISTRIBUTIONS MADE BY THE BANK OF ENGLAND AMONG THE PROPRIETORS OF BANK STOCK, WHETHER BY MONEY PAYMENTS, TRANSFER OF 5 PER CENT. ANNUITIES, OR OTHERWISE, UNDER THE HEADS OF BONUS, INCREASE OF DIVIDEND, AND INCREASE OF CAPITAL, BETWEEN THE 25TH OF FEBRUARY, 1797, AND 31ST OF MARCH, 1832, IN ADDITION TO THE ORDINARY ANNUAL DIVIDEND OF 7 PER CENT. ON THE CAPITAL STOCK OF THAT CORPORATION, EXISTING IN 1797, INCLUDING THEREIN THE WHOLE DIVIDEND PAID SINCE JUNE, 1816, ON THEIR INCREASED CAPITAL; STATING THE PERIOD WHEN SUCH DISTRIBUTIONS WERE MADE, AND THE AGGREGATE AMOUNT OF THE WHOLE.

Denomination and Periods of Distribution.		Amount
In June, 1799:	£10 per cent. bonus in 5 per cents. 1797, on £11,642,400, is	£1,164,240
May, 1801:	£5 per cent. ditto, in Navy 5 per cents. ditto	582,120
November, 1802:	£2 10s. per cent. ditto, ditto, ditto	291,060
October, 1804:	£5 per cent. ditto, cash, ditto	582,120
October, 1805:	£5 per cent. ditto, ditto, ditto	582,120
October, 1806:	£5 per cent. ditto, ditto, ditto	582,120
From April, 1807, to October, 1822, both inclusive	Increase of dividends at the rate of £3 per cent. per annum, on £11,642,400, is, 16 years	5,588,352
From April, 1823, to October, 1829, both inclusive	Increase of dividends at the rate of £1 per cent. per annum, on £11,642,400, is, 7 years	814,968
In June, 1816	Increase of capital at 25 per cent., is	2,910,600
From October, 1816, to October, 1822, both inclusive	Dividend at the rate of £10 per cent. per annum on £2,910,600, increased capital, is, 6½ years	1,891,890
From April, 1823, to October, 1831, both inclusive	Dividend at the rate of £8 per cent. per annum on £2,910,600, increased capital, is, 9 years	2,095,632
	Aggregate amount of the whole	£17,318,070
Annual dividend payable on Bank stock in 1797, on a capital of £11,642,400 at the rate of £7 per cent. per annum		£814,968
Annual dividend payable since June, 1816, on a capital of £14,553,000, to October, 1822, inclusive, at the rate of £10 per cent. per annum		£1,455,300
Annual dividend payable from April, 1823, to the 31st of March, 1832, both inclusive, on a capital of £14,553,000 at the rate of £8 per cent. per annum		£1,164,240

AN ACCOUNT OF THE NOTES, POST-BILLS, ETC., OF THE BANK OF ENGLAND IN CIRCULATION, ON THE 28TH OF FEBRUARY IN EACH YEAR, FROM 1698 TO 1792, BOTH INCLUDED, AS NEAR AS THE SAME CAN BE MADE UP.

Year.	28th February.	Year.	28th February.	Year.	28th February.	Year.	28th February.
	£		£		£		£
1698	1,221,290	1722	2,365,640	1746	3,383,720	1770	5,237,210
1699	743,850	1723	3,516,110	1747	4,107,420	1771	6,822,780
1700	938,240	1724	3,232,830	1748	3,894,650	1772	5,962,160
1701	298,860	1725	3,734,480	1749	3,737,110	1773	6,037,060
1702	920,730	1726	3,076,850	1750	3,964,970	1774	7,550,780
1703	933,760	1727	3,888,180	1751	4,022,160	1775	9,135,930
1704	961,990	1728	4,574,920	1752	4,444,960	1776	8,699,720
1705	556,610	1729	4,152,590	1753	4,401,580	1777	8,712,230
1706	996,840	1730	3,998,280	1754	4,062,870	1778	7,440,330
1707	959,820	1731	4,451,720	1755	3,950,650	1779	9,012,610
1708	648,680	1732	4,251,660	1756	4,106,790	1780	8,410,790
1709	707,470	1733	4,385,060	1757	5,319,130	1781	7,092,450
1710	601,580	1734	4,205,070	1758	5,320,590	1782	8,028,880
1711	477,510	1735	4,627,990	1759	4,586,840	1783	7,675,090
1712	739,920	1736	4,907,750	1760	4,969,250	1784	6,202,760
1713	1,221,880	1737	5,215,010	1761	5,632,350	1785	5,923,090
1714	623,640	1738	4,766,280	1762	5,741,090	1786	7,581,960
1715	972,160	1739	4,347,270	1763	5,999,910	1787	8,329,840
1716	1,460,660	1740	4,550,980	1764	5,501,300	1788	9,561,120
1717	2,053,150	1741	4,841,840	1765	6,316,670	1789	9,807,210
1718	2,782,420	1742	4,471,510	1766	5,617,570	1790	10,040,540
1719	1,807,010	1743	4,654,890	1767	5,510,990	1791	11,439,200
1720	2,466,880	1744	4,253,610	1768	5,778,990	1792	11,307,380
1721	2,244,280	1745	4,279,610	1769	5,707,190		

No previously published table of the circulation of the Bank of England extends further back than 1777; we are indebted to the Court of Directors for being able to supply this striking defect, and to exhibit for the first time the circulation of the Bank, from within four years of its establishment down to the present day.

STATEMENT EXHIBITING THE TOWN AND COUNTRY CIRCULATION, DEPOSITS, SECURITIES, BULLION, ETC., OF THE BANK OF ENGLAND, ON THE UNDERMENTIONED DAYS OF THE FOLLOWING YEARS.

Dates.	Notes in Circulation.		Deposits.	Total Liabilities.	Securities.	Bullion.	Total Assets.	Balance of Assets over Liabilities.
	In London.	In the Country.						
	£	£	£	£	£	£	£	£
1832, July 3	14,369,000	2,734,000	8,558,000	25,661,000	21,230,000	6,616,000	27,846,000	2,185,000
1833, January 1	14,298,000	2,778,000	12,725,000	29,801,000	21,947,000	10,026,000	31,973,000	2,172,000
July 2	15,783,000	3,159,000	12,836,000	31,778,000	22,683,000	11,391,000	34,074,000	2,296,000
1834, January 7	14,193,000	3,229,000	19,889,000	37,311,000	29,694,000	10,142,000	39,836,000	2,525,000
July 1	15,518,000	3,171,000	15,373,000	34,062,000	27,471,000	8,885,000	36,356,000	2,294,000
1835, January 6	13,850,000	3,155,000	17,894,000	34,899,000	30,933,000	6,838,000	37,771,000	2,872,000
July 7	14,081,000	3,329,000	17,702,000	35,112,000	31,445,000	6,536,000	37,981,000	2,869,000
1836, January 5	13,318,000	3,396,000	20,429,000	37,143,000	32,057,000	7,697,000	39,754,000	2,611,000
July 5	13,715,000	3,595,000	16,316,000	33,326,000	29,397,000	6,714,000	36,111,000	2,785,000
1837, January 3	13,023,000	4,074,000	16,678,000	33,775,000	32,447,000	4,221,000	36,668,000	2,893,000
July 4	13,149,000	3,735,000	10,257,000	27,141,000	24,589,000	5,577,000	30,166,000	3,025,000
1838, January 2	13,369,000	3,723,000	11,230,000	28,322,000	20,927,000	9,909,000	30,836,000	2,514,000
July 3	14,699,000	4,038,000	9,199,000	27,936,000	20,590,000	9,980,000	30,570,000	2,634,000
1839, January 1	13,461,000	4,068,000	11,327,000	28,856,000	22,377,000	9,048,000	31,425,000	2,569,000
July 2	13,442,000	4,169,000	7,489,000	25,100,000	24,061,000	3,676,000	27,737,000	2,637,000
1840, January 7	11,621,000	3,926,000	14,518,000	30,065,000	28,411,000	4,508,000	32,919,000	2,854,000
July 7	12,641,000	3,971,000	7,293,000	23,905,000	21,915,000	4,819,000	26,734,000	2,829,000
1841, January 5	11,650,000	3,971,000	8,479,000	24,100,000	22,850,000	4,063,000	26,913,000	2,813,000
July 6	12,357,000	4,167,000	14,728,000	31,252,000	28,947,000	5,319,000	34,266,000	3,014,000
1842, January 4	11,815,000	4,364,000	9,008,000	25,187,000	22,512,000	5,602,000	28,114,000	2,927,000
July 2	13,261,000	4,963,000	8,670,000	26,894,000	21,002,000	8,593,000	29,595,000	2,701,000
1843, January 7	13,304,000	5,214,000	16,534,000	35,052,000	26,706,000	10,932,000	37,638,000	2,586,000

A RETURN OF THE AVERAGE AGGREGATE AMOUNT OF PROMISSORY NOTES, PAYABLE TO BEARER ON DEMAND, IN CIRCULATION IN THE UNITED KINGDOM IN THE MONTHS OF JANUARY AND JULY, DISTINGUISHING THOSE CIRCULATED BY THE BANKS OF ENGLAND AND IRELAND, AND BY PRIVATE AND JOINT-STOCK BANKS IN ENGLAND, SCOTLAND, AND IRELAND, TOGETHER WITH THE BULLION IN THE BANK OF ENGLAND, FROM SEPTEMBER, 1833, TO JANUARY, 1843.

Dates.	England.				Scotland.	Ireland.		Total Issues in the United Kingdom.	Bullion in the Bank of England.
	Bank of England.	Private Banks.	Joint-stock Banks.	Unreturned.	Private and Joint-stock Banks.	Bank of Ireland.	Private and Joint-stock Banks.		
	£	£	£	£	£	£	£	£	£
1833, September	19,014,000	6,163,037	1,115,521	2,307,086	2,644,495	3,678,900	1,112,155	36,035,244	10,844,250
1834, January .	19,234,500	6,621,623	1,260,685	2,195,989	3,004,983	4,017,600	1,520,578	37,855,958	9,952,500
July	19,488,400	6,368,122	1,537,511	2,054,514	3,108,239	3,638,300	1,134,764	37,329,850	8,403,600
1835, January .	18,547,500	6.670,988	1,822,491	1,867,577	3,056,828	3,858,560	1,702,956	37,526,900	6,552,500
July	18,864,750	6,535,365	2,130,968	1,821,730	3,058,053	3,491,175	1,276,589	37,178,630	6,268,500
1836, January .	17,953,500	6,842,803	2,472,267	1,898,915	3,091,510	3,484,620	2,035,709	37,779,324	7,632,000
July	18,582,750	6,716,830	3,371,942	1,491,240	3,230,066	3,230,600	1,940,976	38,654,404	6,224,250
1837, January .	18,735,000	6,831,721	3,661,659	540,983	3,149,321	3,487,150	2,143,361	38,549,195	3,990,600
July	19,174,500	6,229,418	3,355,911	346,242	2,977,539	3,091,300	1,444,762	36,619,672	5,857,000
1838, January .	18,948,000	6,659,282	3,763,187	271,498	3,000,288	3,312,600	2,246,424	38,201,279	9,912,600
July	20,249,400	6,762,555	4,239,333	250,719	3,121,882	3,222,350	1,896,768	39,743,007	9,680,800
1839, January .	18,554,800	7,539,120	4,566,369	232,592	3,244,603	3,551,525	3,090,246	40,779,255	8,318,800
July	18,407,800	6,847,002	4,243,419	84,891	3,165,761	3,193,175	2,074,422	38,016,470	3,118,800
1840, January .	17,315,000	6,626,674	3,941,307	62,376	3,076,585	3,265,550	2,715,645	37,003,137	4,364,500
July	17,681,000	6,336,824	3,697,041	57,921	3,228,595	2,979,950	1,876,651	35,857,982	4,499,750
1841, January .	16,852,250	6,301,992	3,587,319	164,717	3,174,555	3,213,200	2,366,264	35,660,297	3,965,250
July	17,976,000	5,907,682	3,418,810	....	3,181,594	3,055,025	1,905,672	35,444,783	5,011,000
1842, January .	16,293,000	5,478,189	3,042,197	....	3,070,075	3,205,875	2,515,677	33,605,013	5.629,000
July	19,908,000	5,166,581	2,939,195	....	2,715,680	2,842,775	1,680,987	35,303,218	8,883,000
1843, January .	18,283,000	4,942,825	2,839,909	....	2,770,838	3,112,950	2,099,641	34,049,163	11,054,000

ACCOUNT OF THE CIRCULATION, DEPOSITS, SECURITIES, BULLION, AND SURPLUS (EXCLUSIVE OF CAPITAL) OF THE ASSETS OVER THE LIABILITIES OF THE BANK OF ENGLAND AT (OR AS NEAR THERETO AS THE ACCOUNTS CAN BE MADE UP) THE UNDER-MENTIONED DATES IN EACH OF THE FOLLOWING YEARS.

Dates.	Circulation.	Deposits.	Securities.	Bullion.	Rest or Surplus of Assets over Liabilities.
	£	£	£	£	£
1793, February 28	11,888,910	5,346,450	16,005,250	4,010,680	2,780,570
August 31	10,865,050	6,442,810	14,809,680	5,322,010	2,823,830
1794, February 28	10,744,020	7,891,810	14,524,550	6,987,110	2,875,830
August 30	10,286.780	5,935,710	12,446,460	6,770,110	2,994,080
1795, February 28	14.017.510	5,973,020	16,811,340	6,127,720	2,948,530
August 31	10,862,200	8,154,980	16,989,920	5,136,350	3,109,090
1796, February 28	10,729,520	5,702,360	17,139,840	2,539,630	3,247,590
August 31	9,246,790	6,656,320	17,025,470	2,122,950	3,245,310
1797, February 28	9,674,780	4,891.530	16,837,750	1,086,170	3,357,610
August 31	11,114,120	7,765,350	18,261,170	4,089,620	3,471,320
1798, February 28	13,095,830	6,148,900	16,799,500	5,828,940	3,383,710
August 31	12,180,610	8,300,720	17,349,640	6,546,100	3,414,410
1799, February 28	12,959.800	8,131,820	17,039,030	7,563,900	3,511,310
August 31	13.389.490	7,642,240	16,930,440	7,000,780	2,899,490
1800, February 28	16.844.470	7,062,680	21,024,050	6,144,250	3,661,150
August 31	15,047,180	8,335,060	22,138,420	5,150,450	3,906,630
1801, February 28	16,213,280	10,745,840	26,424,730	4,640,120	4,105.730
August 31	14.556.110	8,133,830	22,209,570	4,335,260	3,854,890
1802, February 28	15,186,880	6,858,210	21,959,820	4,152,950	4,067,680
August 31	17,097,630	9,739,140	27,113,360	3,891,780	4,168,370
1803, February 28	15,319,930	8,050,240	23,914,900	3,776,750	4,321,480
August 31	15,983,330	9,817,240	26,918,840	3,592,500	4,710,770
1804, February 29	17,077,830	8,676,830	26,998,970	3,372,140	4,616,450
August 31	17,153,890	9,715,530	25,826,680	5,879,190	4,836,450
1805, February 28	17,871,170	12,083,620	28.661,390	5,883.800	4,590,400
August 31	16,388,400	14,048.080	27,772,850	7,624,500	4,960,870
1806, February 28	17,730,120	9,980,790	26,591,070	5,987,190	4,867,350
August 31	21,027.470	9,636,330	29,473,100	6,215.020	5,024,320
1807, February 28	16,950,680	11,829,320	27,408,460	6,142,840	4,771,300
August 31	19,678,360	11,789,200	29,936,950	6,484,350	4,953,740
1808, February 29	18.188,860	11,961,960	27,384,080	7,855,470	5,088,730
August 31	17,111,290	13,012,510	29,244,090	6,015,940	5,136,230
1809, February 28	18,542,860	9,982,950	29,118,200	4.488,700	5,081,090
August 31	19,574,180	12,257,180	33,435,270	3,652,480	5,256,390
1810, February 28	21,019,600	12,457,310	33,378,580	3,501,410	5,403,080
August 31	24,793,990	13,617,520	40,973,770	3,191,850	5,754,110
1811, February 28	23,360,220	11,445,650	37,122,350	3,350,940	5,667,420
August 31	23,286,850	11.075.660	37,083,280	3,243,360	5,964,070
1812, February 29	23,408.320	11,595,200	38,026,290	2,983,190	6,005,960
August 31	23,026,880	11,848.910	38,176,120	3,099,270	6,399,600
1813, February 27	23,210,930	11,268,180	37,930.950	2,884,500	6.336,340
August 31	24,828,120	11,159,730	40,106,080	2,712,270	6,830,500
1814, February 28	24.801,080	12,455.460	41,989,910	2,204,430	6,937,800
August 31	28,368,290	14,849,940	48,345,960	2,097,680	7,225,410
1815, February 28	27,261.650	11,702,250	44.558,500	2,036,910	7,631,510
August 31	27,248,670	12,696.000	44,854,180	3,409,040	8,318,550
1816, February 29	27,013,620	12,388,890	45,401,310	4,640,880	8,639,680
August 31	26,758,720	11,856,380	37,279,540	7,562,780	6,227,220
1817, February 28	27.397,900	10,825,610	34,278,630	9,680,970	5,736,090
August 30	29,543,780	9,084.590	32,605,630	11,668,260	5,645.520
1818, February 28	27,770,970	7,997,550	30,905,330	10,055,460	5,192,270
August 31	26,202,150	7,927,730	32,370,760	6,363,160	4,604,040
1819, February 27	25,126,700	6,413,370	31,455,000	4,184.620	4,099,550
August 31	25,252,690	6.304.160	31,740,550	3,595,360	3,779,060
1820, February 29	23,484,110	4,093.550	26,187,490	4,911,050	3,520,880
August 31	24,299,340	4.420,910	23,846,120	8,211,080	3,336,950
1821, February 28	23,884,920	5,622,890	20,796,270	11,869.900	3,158,360
August 31	20,295,300	5,818,450	18,475,540	11,233,590	3,595,380

Dates.	Circulation.	Deposits.	Securities.	Bullion.	Rest or Surplus of Assets over Liabilities.
	£	£	£	£	£
1822, February 28	18,665,350	4,689,940	15,973,080	11,057,150	3,674,940
August 31	17,464,790	6,399,440	17,290,510	10,097,960	3,524,240
1823, February 28	18,592,240	7,181,100	18,319,730	10,384,230	3,130,620
August 30	19,231,240	7,827,350	17,467,370	12,658,240	3,067,020
1824, February 28	19,736,990	10,097,850	18,872,000	13,810,060	2,847,220
August 31	20,132,120	9,679,810	20,904,530	11,787,430	2,880,030
1825, February 28	20,753,760	10,168,780	24,951,330	8,779,100	2,807,890
August 31	19,398,840	6,410,560	25,106,030	3,634,320	2,930,950
1826, February 28	25,467,910	6,935,940	32,918,580	2,459,510	2,974,240
August 31	21,563,560	7,199,860	25,083,630	6,754,230	3,074,440
1827, February 28	21,890,610	8,801,660	23,529,530	10,159,020	2,996,280
August 31	22,747,600	8,052,090	23,199,320	10,463,770	2,863,400
1828, February 29	21,980,710	9,198,140	23,581,270	10,347,290	2,749,710
August 30	21,357,510	10,201,280	23,905,530	10,498,880	2,845,620
1829, February 28	19,870,850	9,553,960	25,384,750	6,835,020	2,794,960
August 31	19,547,380	9,035,070	24,661,810	6,795,530	2,874,890
1830, February 27	20,050,730	10,763,150	24,204,390	9,171,000	2,561,510
August 30	21,464,700	11,620,840	24,565,690	11,150,480	2,630,630
1831, February 28	19,600,140	11,213,530	25,208,980	8,217,050	2,612,360
August 31	18,538,630	9,069,310	23,905,030	6,439,760	2,736,850
1832, February 29	18,051,710	8,937,170	24,333,490	5,293,150	2,637,760
August 28	18,320,000	10,278,000	23,420,000	7,514,000	2,336,000
1833, February 26	19,372,000	12,455,000	23,850,000	10,205,000	2,228,000
August 27	19,925,000	11,927,000	23,245,000	10,871,000	2,264,000
1834, February 25	19,050,000	13,087,000	25,212,000	9,225,000	2,300,000
August 26	19,195,000	13,300,000	27,732,000	7,303,000	2,540,000
1835, February 24	18,510,000	10,071,000	24,895,000	6,289,000	2,603,000
August 25	18,085,000	13,725,000	28,173,000	6,255,000	2,618,000
1836, February 23	18,181,000	14,044,000	27,368,000	7,787,000	2,930,000
August 30	18,018,000	12,040,000	27,697,000	5,250,000	2,889,000
1837, February 28	18,165,000	10,007,000	27,297,000	4,077,000	3,202,000
August 29	18,887,000	10,040,000	25,357,000	6,548,000	2,978,000
1838, February 27	18,975,000	10,825,000	21,958,000	10,471,000	2,629,000
August 28	19,488,000	8,922,000	21,611,000	9,540,000	2,741,000
1839, February 26	18,098,000	7,739,000	21,741,000	6,773,000	2,677,000
August 27	17,982,000	6,488,000	25,141,000	2,420,000	3,091,000
1840, February 25	16,504,000	6,556,000	21,611,000	4,311,000	2,862,000
August 25	17,170,000	6,254,000	22,075,000	4,299,000	2,950,000
1841, February 23	16,399,000	6,407,000	21,344,000	4,335,000	2,873,000
August 31	17,370,000	6,975,000	22,602,000	4,822,000	3,079,000
1842, February 22	16,920,000	8,239,000	22,124,000	6,119,000	3,084,000
August 27	20,332,000	8,690,000	22,159,000	9,729,000	2,866,000
1843, February 25	20,218,000	11,520,000	23,564,000	11,016,000	2,872,000

An Account of the Notes in circulation of the Bank of England, and of the other Banks of Issue in England and Wales, Scotland, and Ireland, specifying also the Bullion in the Bank of England.

Four Weeks ending	England.			Scotland.	Ireland.		Total.	Bullion in the Bank of England.
	Bank of England.	Private Banks.	Joint-stock Banks.	Chartered, Private, and Joint-stock Banks.	Bank of Ireland.	Private and Joint-stock Banks.		
	£	£	£	£	£	£	£	£
24 July, 1841	17,976,000	5,907,682	3,418,810	3,181,594	3,055,025	1,905,672	35,444,783	5,011,000
8 January, 1842	16,203,000	5,478,189	3,042,197	3,070,075	3,205,875	2,515,677	33,605,013	5,629,000
2 April, "	16,674,000	5,289,050	3,047,656	2,670,290	3,074,125	2,259,556	33,014,677	7,006,000
23 July, "	19,908,000	5,166,581	2,939,195	2,715,680	2,892,775	1,680,987	35,303,218	8,883,000
15 October, "	19,503,000	5,488,661	3,064,539	2,743,795	3,041,150	2,002,784	35,843,929	9,801,000
7 January, 1843	18,283,000	4,942,825	2,839,909	2,770,838	3,112,950	2,099,641	34,049,163	11,054,000
1 April, "	19,539,000	4,716,506	2,862,986	2,457,604	3,085,400	2,019,740	34,681,236	11,420,000
22 July, "	19,809,000	4,460,098	2,840,312	2,665,326	3,089,100	1,681,958	34,545,794	11,872,000
14 October, "	19,024,000	4,721,109	3,130,002	2,762,353	3,232,575	2,058,845	34,928,884	12,086,000
6 January, 1844	18,964,000	4,822,675	3,234,999	2,901,746	3,489,650	2,361,189	35,774,259	14,658,000
27 April, "	21,839,000	5,295,239	3,752,867	2,714,627	3,625,925	2,357,446	39,585,104	15,884,000
20 July, "	21,448,000	4,624,179	3,340,326	2,903,322	3,440,700	1,974,284	37,730,811	15,485,000
12 October, "	21,029,000	4,674,162	3,331,516	2,987,665	3,597,850	2,456,261	38,076,454	14,882,000
4 January, 1845	20,301,000	4,429,454	3,056,862	3,159,450	3,917,800	3,065,751	37,930,317	14,867,000
26 April, "	22,078,000	4,680,648	3,306,245	3,001,240	4,036,400	3,016,231	40,118,764	15,924,000
19 July, "	22,076,000	4,478,679	3,158,775	3,333,906	3,860,475	2,633,657	39,541,492	16,274,000
11 October, "	21,890,000	4,559,712	3,311,527	3,428,074	3,907,025	2,926,265	40,022,603	14,988,000
3 January, 1846	21,028,000	4,505,823	3,162,742	3,336,409	4,351,200	3,053,166	39,437,340	15,313,000
25 April, "	21,279,000	4,736,786	3,301,184	3,096,317	4,355,025	3,181,298	39,949,610	15,682,000
18 July, "	21,284,000	4,410,585	3,088,619	3,390,060	3,995,875	2,690,616	38,859,755	15,858,000
10 October, "	21,194,000	4,666,748	3,262,588	3,665,155	4,184,575	3,066,980	40,040,046	15,388,000
2 January, 1847	20,633,000	4,525,855	3,138,321	3,787,151	4,212,225	3,303,189	39,599,741	15,083,000
27 March, "	20,087,000	4,541,543	3,247,531	3,360,348	3,857,800	2,846,936	37,941,158	11,322,000
1 January, 1848	17,924,990	3,528,197	2,410,276	3,341,317	3,088,700	2,107,416	32,400,896	12,404,250
27 January, 1849	19,292,000	3,651,797	2,621,819	3,032,872	2,717,525	1,957,214	33,273,227	15,015,000
26 January, 1850	20,244,000	3,685,291	2,680,457	3,112,859	2,690,800	1,979,024	34,392,431	16,878,000
25 January, 1851	20,805,000	3,573,292	2,728,624	3,252,485	2,646,150	2,136,501	35,142,052	14,607,000
24 January, 1852	21,485,000	3,494,416	2,743,351	3,283,502	2,484,650	2,195,806	35,686,725	17,688,000
22 January, 1853	24,848,000	3,771,528	2,989,578	3,612,710	2,896,100	2,793,551	40,911,467	19,712,000
24 December, "	22,112,000	3,833,753	3,056,085	4,112,787	3,095,900	3,357,327	39,567,852	15,424,000

Expenses of the Bank of England for the Year ending 28th of February, 1852.

Dr.		Cr.	
National debt department	£164,143	Salaries and pensions	£218,006
Bank-notes	106,092	House expenses	39,187
Banking department	69,165	Directors' allowance	8,000
		Rent	40,000
		Expenses at eleven branches arising from the banking department	5,702
		Expenses attending the circulation of £2,500,000 of branch Bank of England notes, at eleven branches	28,505
	£339,400		£339,400

III. English Private and Provincial Banks.—Besides charging the usual rate of interest on bills discounted, the provincial bankers are mostly in the habit of charging 5*s.* or 6*s.* per cent. as commission. They also charge a commission on all payments, and derive a profit from charges for the transmission of money, etc. They usually allow from 2 to 3 per cent. on money deposited; but the numerous failures that have taken place among them have, by generating a feeling of insecurity in the minds of the depositors, confined this branch of their business within comparatively narrow limits. When their customers overdraw their accounts, they are charged with interest at the rate of 5 per cent. Country banks, established by individuals possessed of adequate funds, and managed with due discretion, are productive of the greatest service. They form commodious reservoirs, where the floating and unemployed capital of the surrounding districts is collected, and from which it is again distributed, by way of loan, to those who will employ it to the best advantage. It is, therefore, of the utmost importance, in a public point of view, that these establishments should be based upon solid foundations. But in England, unfortunately, this, till recently, has been but little attended to; and the destruction of country banks has, upon three different occasions—in 1792, in 1814, 1815, and 1816, and in 1825 and 1826—produced an extent of bankruptcy and misery that has never, perhaps, been equaled, except by the breaking up of the Mississippi scheme in France. Government is bound to interfere to hinder such disastrous results, and we have already given some account of the measures adopted in this view.

The following is an account of the number of commissions of bankruptcy issued against country bankers in England from 1809 to 1830, both inclusive:

Years.	Commissions.	Years.	Commissions.
1809	4	1820	4
1810	20	1821	10
1811	4	1822	9
1812	17	1823	9
1813	8	1824	10
1814	27	1825	37
1815	25	1826	43
1816	37	1827	8
1817	3	1828	3
1818	3	1829	3
1819	13	1830	14

Exclusive of the above, many banks stopped payments, to the great injury of their creditors and the public, that afterward resumed them; at the same time that the affairs of some bankrupt concerns were arranged without a commission. During the whole of this period not a single Scotch bank gave way.

Besides the stamp duties payable on notes, each individual or company issuing them must take out a license, renewable annually, which costs £30. This license specifies the names and places of abode of the body corporate, person or persons in the firm to whom it is granted, the name of such firm, the place where the business is carried on, etc.; and a separate license is to be taken out for every town or place where any notes shall be issued by or on account of any banker, etc. Unless the license granted to persons in partnership set forth the names and places of abode of all persons concerned in the partnership, whether their names appear on the notes issued by them or not, such license shall be absolutely void.—55 *Geo.* 3, c. 184, s. 24. For the regulations as to the issue of unstamped notes, see *ante*, p. 69. The issue of notes for less than £5 was prohibited in England, as previously shown, from 1777 to 1797; but they continued to be issued from the latter period down to the 5th of April, 1829, when their further issue ceased, in consequence of an act passed in 1826. This act did not extend to Scotland or Ireland, and was intended to give greater stability to the system of country banking in England, by shutting up one of the principal channels through which the inferior class of bankers had been in the habit of getting their notes into circulation. The joint-stock banks established in different parts of England and Wales, under the provisions of the act 7 Geo. 4, c. 46, authorizing their establishment, consist of bodies of partners, varying from seven, the minimum, to any greater number. Each partner holds one or more shares of the company's stock, and is individually liable for the entire debts and engagements of the company; so that a person holding a £50 or £100 share in a joint-stock bank may, in the event of its becoming bankrupt, be called upon to make payment of as many thousands of pounds! They are uniformly almost managed by boards of directors appointed by, and generally responsible to, the body of shareholders. The conditions of copartnery vary materially in different associations; but the above are distinguishing features common to them all. The shares in many joint-stock banks are very small, few being above £100, the greater number not exceeding £50, while many are only £25, and some not more than £10, and even £5! Generally, too, it is understood, or rather it is distinctly set forth in the prospectus, that not more than five, ten, or twenty per cent. of these shares is to be called for; so that an individual who has ten or twenty shillings to spare may become a shareholder in a bank. And owing to a practice, or rather a flagrant abuse, introduced into the management of various banks, by which they make large advances or discounts on the credit of the stock held by the shareholders, not a few individuals in doubtful or even desperate circumstances take shares in them, in the view of obtaining loans, and bolstering up their credit! The great danger arising from such banks is obvious; and were one of them to stop payment, it is plain, even though the claims on it should be ultimately made good, that they could be so only at the cost, and perhaps ruin, of such of its proprietors as had abstained from the abusive practices resorted to by others. It may well excite astonishment, that any one who can really afford to make a *bonâ fide* purchase of shares in a bank should be foolhardy enough to embark in such concerns.

No doubt a joint-stock bank, if it possess adequate capital, and be discreetly managed, may afford ample security to its shareholders and the public. But there is no foundation for the notion that because a bank has 50 or 100 partners, it will therefore be better managed than if it had only 5 or 10. On the contrary, the fair presumption is that it will not be so well managed. A few wealthy individuals engaged in banking or any other sort of business, must, if they would protect themselves from ruin, pay unremitting attention to their concerns, and act in a discreet and cautious manner. But the partners and managers of a great joint-stock company act under no such direct and pressing responsibility. "I think," said the highest authority on such subjects, "that joint-stock banks are deficient in every thing requisite for the conduct of banking business, except extended responsibility; the banking business requires peculiarly persons attentive to all its details, constantly, daily, and hourly watchful of every transaction, much more than mercantile or trading businesses. It also requires immediate, prompt decisions, upon circumstances when they arise—in many cases a decision that does not admit of delay for consultation; it also requires a discretion to be exercised with reference to the special circumstances of each case. Joint-stock banks being, of course, obliged to act through agents, and not by a principal, and therefore under the restraint of general rules, can not be guided by so nice a reference to degrees of difference in the character or responsibility of parties; nor can they undertake to regulate the assistance to be granted to concerns under temporary embarrassment by so accurate a reference to the circumstances, favorable or unfavorable, of each case."—*Evidence of* S. J. Loyd, *Esq., before the Committee of* 1832 *on the Renewal of the Bank Charter.*

In fact, more than nine-tenths of the partners in joint-stock banks are wholly ignorant of banking business, and have nothing better to trust to than the supposed honesty and intelligence of the directors; and, even if they were acquainted with the business, the result would be nearly the same, as it would not be possible for any one, by a mere cursory inspection of the books of any bank (if such were permitted), to form any accurate estimate of its condition, or of the mode in which it transacted business. And hence the directors in these establishments are practically all but absolute. If they be worthy of the confidence placed in them, all goes on smoothly; and this also is the case when they are most unworthy, till they have involved the concern in inextricable difficulties! The history of the Norwich Bank, of the Northern and Central Bank, the Marylebone Bank, the Manchester Bank, and a host of others, sufficiently attests the truth of what has now been stated. The responsibility of the directors to the shareholders has not been found, in any of these instances (and it is, indeed, ludicrous to suppose that it ever should be otherwise), to have been any check whatever over their frauds and improvidence. The whole paid-up capital of the Manchester Bank, amounting to about £750,000, had been wasted in the most improvident speculations, and additional debts incurred, before the great body of the shareholders had the least suspicion that the company was otherwise than prosperous!

We may observe, by-the-way, that the mischief occasioned by an establishment of this sort, when perverted from its proper objects, and mismanaged, is not to be estimated by the ruin it entails on its partners, and probably, also, on its customers. It becomes, in fact, a public nuisance, and entails privations on many who might be supposed to be beyond the sphere of its influence. Within the ten years ending with 1842, we believe it may be moderately estimated that about £1,500,000 of banking capital was wholly dissipated in Manchester and its immediate vicinity. And as nine-tenths of this enormous loss was occasioned by advances made to manufacturers who had little or no capital of their own, it is not easy to imagine what a ruinous stimulus it must have given to reckless competition, and how very injurious it must have been to parties trading on their own capital. Indeed, no inconsiderable portion of the distress in Manchester, in 1842 and 1843, may be traced to this source.

Remedial Measures that should be adopted.—The act of 1844, 7 & 8 Vict. c. 32, has successfully obviated some of the defects formerly existing in the joint-stock and private banking system, especially by limiting the extent of their issues; but in other respects the system is still open to serious objections. We retain the remarks made upon it in a former edition of M'Culloch's *Dict. of Commerce*, before the act of 1844 was passed:

"We do not, however, think that it would be at all necessary, in providing for a secure system of joint-stock banking, to make any regulations with respect to many of the points noticed by the committee as to which the law is silent. At present every partner in a joint-stock bank is liable to the public for the whole debts of the firm; and this may be truly said to be the saving principle of the system, and without which it would be an unmixed evil. No individual should, however, by merely withdrawing from a joint-stock concern, get rid of his liabilities in connection with it. To prevent fraud, and to insure due caution, these ought to continue for a period of three years at least after he has publicly withdrawn his name. The public, too, are clearly entitled to know the partners in joint-stock associations; that is, to be informed who the individuals are with whom they are dealing, and who are responsible to them. But, unluckily, no effective means are taken for supplying this necessary information, or, consequently, of properly discriminating between one establishment and another. The act of 1833 directed that an account of the places where they carry on business, and of the names and residences of the partners, should be quarterly transmitted to the Stamp-office. But doubts have been entertained as to the correctness of these returns, and comparatively little use has been, or, indeed, can be made of them. The accounts of the names and residences of the proprietors are not published, but are secluded from the public eye in the repositories of Somerset House! It is true that these lists may be seen, by those who choose to apply at the office, for a small fee, and that certified copies may be procured at no great expense. But few know that such returns exist; and fewer still have the opportunity, or think of availing themselves of them as sources of information. To render them of any real utility, they should be brought under the public eye, by being hung up in the offices of the banks to which they refer, and periodically published in the newspapers of the places where they carry on business. By this means the public would know exactly to whom they had to look, and would act accordingly. They would not be deceived, as they are liable to be at present, by supposing that, because a bank has a number of partners, some of them must be opulent and trustworthy. They would know the precise state of the fact; and if it were seen, from the quarterly returns, that opulent and intelligent individuals were withdrawing from a bank, every one would be put on his guard, and would naturally conclude that the parties had very sufficient reasons for quitting the concern. Thus far publicity may be made effectual, and would be of the greatest importance. Neither is it possible to allege a single plausible objection to this proposal. It interferes in no degree, nor in any way, with the proceedings of the parties: all that it does is to declare who and what they are; and to this degree of publicity no honest man will object." And we are glad to have to state that this is now effected by the act 7 & 8 Vict. c. 32, § 21.—See *ante*, p. 84.

"But we have great doubts whether it be possible to carry publicity farther than this. The committee state that 'the law does not provide for any publication of the liabilities and assets of these banks, nor does it enforce the publication of any balance-sheet to the proprietors at large;' and it has been proposed to compel the periodical publication of a statement of this sort; but it is very questionable whether any such publication would not be a great deal worse than useless. It is not proposed that commissioners should be appointed to inspect the accounts of the different banks, and to see that the returns are accurate: this would be too inquisitorial, too cumbrous, and too costly a plan to be thought of for a moment. There would be nothing for it, in fact, but to trust entirely to the *honor* of the parties! Hence, in all cases in which a disclosure would be really useful, the publication of an account of assets and liabilities would afford the means of deceiving the public, and of representing a bankrupt concern as being in a prosperous condition. Supposing, however, that the parties were, in all instances, perfectly honest, still the publication of a balance-sheet would be good for nothing. Every one knows how sanguine people are in relation to their own affairs, and that debts and obligations that other parties would hardly reckon worth any thing are estimated by them as if they were so much bullion. But, independently of this, the futility of the thing is obvious. A bank with a capital of £100,000 discounts bills and other obligations to the extent, perhaps, of £300,000 or £400,000; the fact that it has discounted them shows that it believes these bills and obligations to be good; and they will, consequently, be reckoned among its assets. But should a revulsion take place, or any circumstance occur to shake credit, these bills may not be worth £100,000; and those who have dealt with the bank, on the hypothesis of its having capital and assets more than enough to meet all its obligations, may find, to their cost, that it is not possessed of a single shilling, but is, on the contrary, some £200,000 or £300,000 worse than nothing!

"The committee seem to think that some regulation should be enacted, providing that a certain portion of its capital should be paid up before a bank begins business. But the better way would be to prohibit all advertising of *nominal* capital. This, in fact, is a mere device by which to entrap and delude the public. A bank is announced with a capital of £1,000,000, £2,000,000, or £3,000,000; and a great number of people, perhaps the majority, immediately conclude that there can be no risk in dealing with an establishment possessed of so great an amount of property. But what is the fact? The capital advertised is nominal merely; not more, perhaps, than a tenth or a fifth part of it has been received into the coffers of the bank, and we have nothing better than the statement of the bank proprietors, or their agents, that they will pay up the remainder, if necessary; of which necessity they of course are to be the only judges! Practically this is neither more nor less than a fraud upon the public; it is a contrivance for making £10,000 pass in the public estimation for £100,000, and for procuring the same degree of credit to its holders. This, however, is not all. Where is the security that, if a greater amount of capital were really required, it would be forthcoming? The notion that the bulk of the shareholders in many, we are pretty sure we might safely say most, of the joint-stock banks now in existence, could pay up the full amount of their shares, is too ludicrous to deserve notice. We might as well call upon a man worth £5 to extinguish a debt of £500.

"There can be no doubt, therefore—unless it be meant to affirm that deception and fallacious statements are indispensable to the success of joint-stock banking schemes—that all advertising of nominal capitals should be put an end to; and that no association should be allowed to represent its capital as exceeding the sum actually paid up by the proprietors. But though this would obviate one source of fraud and deception, there would still be abundant means of practicing on the credulity of the public at the disposal of parties inclined to use them. Admit that a bank has a capital of £500,000 actually received into its coffers, what is to hinder the directors from lending out the whole of this sum, or even more, to themselves or to partners in the bank? or, supposing them not to do this, who can tell whether the entire capital, or some considerable part of it, be not wholly ingulfed in ruinous speculations? It is indeed alleged, and truly too, that this could not happen with any 'respectable' bank; that 'gentlemen of character' would not lend themselves to such transactions! Unluckily, however, there are no decisive marks or tests by which the public can, *a priori*, say what is or what is not a 'respectable' bank, or who is or is not a 'gentleman of character;' and it is not a little hazardous in such matters to indulge in speculative remarks. Hence it is that the Marylebone Bank, the Bank of Manchester, and indeed all banks, are held to be respectable, that is, solvent, till the event prove the contrary; and that all gentlemen connected with banks are held to be 'men of character,' paragons, in fact, of honor, honesty, and intelligence, till their fraud or ignorance has involved hundreds or thousands in bankruptcy and ruin.

"We do not state these circumstances in order to raise any prejudice against joint-stock banks or other associations, for they apply equally to banks with one or a small number of partners; but we state them to show the folly of placing any reliance on statements as to the capital of any bank, or the character of its managers. Such statements may be either true or false; but, as the public can not tell which, they are plainly good for nothing. The only real security is to be found, if it exist at all, in the names of the partners responsible for the debts and obligations of the bank. The number of such partners is a very inferior consideration. There can not, in truth, be a greater error than to suppose that because a bank has a great number of partners, its security may be safely depended upon. A single individual worth £100,000 is an incomparably better security than fifty individuals worth £2000 each; and a hundred individuals worth £1000 would hardly be any security at all, at least for a sum of £10,000 or £20,000. A private bank with *six* may be a safer place of deposit than a joint-stock bank with *six hundred* partners. Every thing depends upon *the available wealth* of those responsible for the debts of the concern; and hence the propriety and justice, whether the firm consist of one or of many partners, of publicly declaring and specifying their names.

"We are decidedly hostile to a proposition we have heard mooted, and which seems to be countenanced by the committee on joint-stock banks, for obliging all banks to establish a guarantee fund; that is, for obliging them to accumulate a *portion of their profits* as a reserve stock. Where is the security that such reserve would be always deducted from profits? The truth is, that bankrupt and fraudulent concerns, and none else, would gain by such a regulation; inasmuch as it would enable them, by appearing to be prosperous, the better to deceive the public, and to blind them to the real state of their affairs. It is worse than absurd to induce the public to depend on guarantees that can not be enforced, and which, consequently, must be good for nothing. The knowledge of whom the partners in banks really consist, and their unlimited responsibility, are the only securities that, speaking generally, are worth a pinch of snuff. If these can not protect the public from fraud or loss, nothing else will; and the question will come to be, not whether the system should be reformed, but whether it should be abated as an incurable nuisance. On this ground, also, we should be disposed to dissent from any attempt to prevent, by legislative enactment, the making of loans upon the credit of bank stock. We do not question the advantage of such a regulation, provided it were honestly carried into effect. But it is useless to say that, whenever the parties were disposed to defeat such a regulation, it would be quite inoperative.

"Some of the joint-stock banks have an extraordinary number of branches; and the multiplication of these subordinate establishments all over the country is not one of the least striking features of the system. Neither is it very difficult to discover why banks of issue, at least, are so very anxious about the formation of these outworks. They are bound, it seems, by the present law, to pay their notes *only at the parent establishment;* so that by issuing them at a branch bank, perhaps a hundred miles distant from the head bank, the chances are ten to one that they will continue for a much longer period in circulation, and that they will consequently be able to carry on business with a less amount of capital than if they were, as they ought to be, obliged to pay their notes at the branches as well as at the principal office. It is obvious, indeed, that the convertibility of the paper, even of first-class banks, into either cash or Bank of England notes, is at present exceedingly imperfect; and that very great facilities are afforded for getting the worst class of notes into circulation, and for keeping them afloat even after their quality may be suspected. This defect in the law should undoubtedly be amended, by obliging all banks that issue notes to pay them indifferently at any of their offices. But we incline to think that Parliament might go farther than this; and that it should enact that no branch bank be established, whether for the issue of notes or otherwise, beyond a certain distance (say fifty miles) from the head office.

"Several of the points recapitulated by the committee, as to which the law is silent, respect the rights and interests of the partners in joint-stock banks, in relation to each other, and not as between them and the public. But it is always a very difficult matter to interfere to dictate the footing on which parties in any undertaking should stand among themselves. Much should, in such cases, be left to the judgment of the parties; and public regulations, if enforced at all, should only go to prevent obvious and acknowledged abuse; the parties may, in most cases, be safely left to take care of themselves. The protection of the public interest is the paramount consideration; and we do not well know what can be done to effect this, in the case at least of such banks as do not issue notes, other than the making known who their partners are.

"The joint-stock banks formed in the city of London offer a fair rate of interest for deposits; and if they go on successfully in doing this, they will confer no slight advantage on the community, and will become, as it were, so many savings' banks for the middle classes, and for the rich as well as the poor. But the responsibilities this system will bring along with it are neither few nor small. A bank with a numerous body of partners of undoubted wealth and integrity, that should give 2 per cent. interest on all deposits of £10 and upward, how short soever the period for which the deposit might remain in the bank, would, there is little doubt, speedily have ample funds at its disposal. In quiet and prosperous times the system would work exceedingly well; and the bank and the public would be vastly well pleased with each other. But when the cycle of prosperity has gone by, and the cycle of adversity has begun; when the waters are out, and the winds begin to blow—it is doubtful whether either the bank or its depositors may feel quite at ease. The former will probably raise the rate of interest; but it is doubtful whether that will have the wished-for effect. Should the exchange set against us, and the Bank of England be forced to narrow her issues, and should bankruptcy and a feeling of insecurity begin to prevail, as they have done hitherto on all similar occasions, a run for deposits may, and most probably will, be made upon the bank; and in such a case her situation, however well she may have been managed, will be most critical. She will be compelled to dispose of or pledge securities in a market where they may be all but unsalable; and it will be impossible for her suddenly to pull up in discounting, without exposing herself to the imminent danger of extra loss, by bringing on the stoppage of those who have been accustomed to trust to her for loans.

"It will be said, perhaps, that this is all imaginary, and that nothing of the sort ever occurs in Scotland! But it would really be about as much to the purpose to say that nothing of the sort ever occurs in Japan. London is the pivot on which the foreign exchanges turn, and when they become depressed many of the London depositors will do what the Scotch depositors never so much as dreamed of; that is, they will demand their deposits, convert them into gold, and either send this gold abroad, or get a profit from those who will. From this source of annoyance and loss the Scotch banks are perfectly free; and this, by exhausting the resources of the London banks, and subjecting the weaker ones to difficulties, occasions discredit, and, in the end, runs or panics. Nothing, therefore, can be more perfectly futile than to contend that because this system has proved profitable for the Scotch banks, it will also be profitable for the London banks. We do not presume to affirm that such will not, and we hope that it may, be the case. But it would be rather illogical to affirm, because wheat succeeds remarkably well in the vale of Gloucester, that it will succeed equally well on the Welsh mountains.

"The joint-stock banks may, if they do not already, endeavor to obviate some of the difficulties now stated, by declining to pay interest on deposits unless they lie for a certain time, or by stipulating for a certain notice before they are paid. But either the one condition or the other is subversive of what is meant by granting interest on deposits, and goes far to make the announcements to that effect little better than a hoax upon the public. All, or nearly all, the existing banks are banks of deposit in this sense of the word; that is, they give interest on deposits of a certain amount, provided they be not called for till after the lapse of an agreed-on period, and that the depositors give them no further trouble. But it is doubtful whether money deposited at 2 per cent. under such conditions, and still more under an engagement to give notice of demand, be as well laid out as if it were deposited with the Bank of England, or any other bank of undoubted solidity, at no interest, but payable on demand. Most men of business would, undoubtedly, prefer the latter. Nobody, indeed, not wishing to get into difficulties, would be disposed to deal with any bank that required notice of demand; and it is questionable whether any such stipulation should be sanctioned by law.

"The committee on joint-stock banks omitted all reference to what is by far the most prominent evil in our banking system—we mean the power conceded to all private and joint-stock banks and companies, whether with or without property or character, to issue paper money or notes payable on demand, without let or hinderance of any sort. This abuse should certainly be put down;" and we have already seen that this power can now be but little abused.

"*Responsibility ought not, in any case, to be limited.*—We protest against the proposal for allowing the partners in banks not issuing notes to limit their responsibility. Such a measure would be good for nothing, except to serve as a premium on every species of fraud. What check would there be, under such a system, to hinder the partners of a bank going on for a series of years dividing large profits, when perhaps they were really incurring a loss, until every farthing of its capital and deposits was absorbed? To talk of subjecting such persons to punishment as fraudulent bankrupts, on evidence derived from their books, is absurd; for, supposing that it was the intention of the parties to defraud, they might easily keep their books so that they could afford no information that was not false or misleading. The annexed list of joint-stock banking companies shows that there is no disinclination on the part of individuals to engage in such concerns, even with the present unlimited responsibility. And the way in which some of them are conducted proves sufficiently, if such proof were wanted, that the serious liabilities incurred by the partners are not more than enough for the protection of the public. To lessen them would be an act of gratuitous folly. If we are to interfere, let them be increased, not diminished. But in the case of banks not issuing notes, enough is done, if measures be taken to prevent deception, by letting the public know the partners in them, and making sure that they shall have no means of evading the responsibility attaching to their engagements. The first object may be secured by compelling all banking associations whatever to publish annually a list of the names and addresses of their partners, with the amount of their paid-up capital; and to accomplish the latter object, we have merely to abstain from interference, and to let the law take its natural course."

AN ACCOUNT OF THE NUMBER OF PRIVATE AND JOINT STOCK BANKS IN ENGLAND REGISTERED IN EACH YEAR, FROM 1820 TO 1842, BOTH INCLUSIVE.

Year.	Number of Private Banks.	Number of Joint-stock Banks.
1820 to 1821	521	—
1821 to 1822	526	—
1822 to 1823	547	—
1823 to 1824	547	—
1824 to 1825	544	—
1825 to 1826	554	—
1826 to 1827	465	6
1827 to 1828	456	7
1828 to 1829	460	11
1829 to 1830	439	15
1830 to 1831	436	19
1831 to 1832	424	25
1832 to 1833	416	35
1833 to 1834	416	47
1834 to 1835	411	55
1835 to 1836	407	100
1836 to 1837	351	107
1837 to 1838	341	104
1838 to 1839	332	108
1839 to 1840	332	113
1840 to 1841	321	115
1841 to 1842	311	118

Drawing on London.—The act 3 & 4 Will. 4, c. 83, repeals the regulation in the 7 Geo. 4, c. 46, prohibiting banks with more than six partners from drawing on London on demand, or otherwise, for sums of less than £50.—§ 2. For statistics of English joint-stock banks, see conclusion of article on BANKING.

IV. SCOTCH BANKS.—The act of 1708, preventing more than six individuals from entering into a partnership for carrying on the business of banking, did not extend to Scotland. In consequence of this exemption, several banking companies, with numerous bodies of partners, have always existed in that country.

Bank of Scotland.—This institution was projected by Mr. John Holland, merchant, of London, and was established by act of the Scotch Parliament (Will. 3, Parl. 1, § 5) in 1695, by the name of the Governor and Company of the Bank of Scotland. Its original capital was 1,200,000 pounds Scotch, or £100,000 sterling, distributed in shares of 1000 pounds Scotch, or £83 6*s.* 8*d.* sterling, each. The act exempted the capital of the bank from all public burdens, and gave it the exclusive privilege of banking in Scotland for twenty-one years. The objects for which the Bank was instituted, and its mode of management, were intended to be, and have been in most respects, similar to those of the Bank of England. The responsibility of the shareholders is limited to the amount of their shares. The capital of the Bank was increased to £200,000 in 1744, and was enlarged by subsequent acts of Parliament, the last of which (44 Geo. 3, c. 23) was passed in 1804, to £1,500,000, its present amount. Of this sum, £1,000,000 has been paid up. The last-mentioned act directed that all sums relating to the affairs of the Bank should henceforth be rated in sterling money; that the former mode of dividing bank stock by shares should be discontinued; and that for the future it should be transferred in any sums or parcels. On the union of the two kingdoms in 1707, the Bank of Scotland undertook the recoinage, and effected the exchange of the currency in Scotland: it was also the organ of government in the issue of the new silver coinage in 1817. The Bank of Scotland is the only Scotch bank constituted by act of Parliament. It began to establish branches in 1696, and issued notes for £1 so early as 1704. The bank also began, at a very early period, to receive deposits on interest, and to grant credit on cash accounts, a minute of the directors with respect to the mode of keeping the latter being dated so far back as 1729. It is, therefore, entitled to the credit of having introduced and set on foot the distinctive principles of the Scotch banking system, which, whatever may be its defects, is probably superior to every other system hitherto established. Generally speaking, the Bank of Scotland has always been conducted on sound and liberal principles; nor can there be a doubt that it has been productive, both directly and as an example to other banking establishments, of much public utility and advantage. It may be worth mentioning, that the act of Will. 3, establishing the Bank of Scotland, declared that all foreigners who became partners in the bank should, by doing so, become, to all intents and purposes, naturalized Scotchmen. After being for a long time forgotten, this clause was taken advantage of in 1818, when several aliens acquired property in the bank in order to secure the benefit of naturalization. But after being suspended, the privilege was finally canceled in 1822. We subjoin an *official* abstract of the constitution and objects of the Bank of Scotland, printed for the use of the proprietors; the terms and mode of transacting business are, of course, sometimes altered, according to circumstances:

I. The Bank of Scotland is a public national establishment, erected and regulated by the Legislature alone; and known expressly as a public bank in this kingdom; for the benefit of the nation, and for the advancement of agriculture, commerce, and manufactures, and for other objects of public policy.—*Will.* Parl. 1, § 5; 14 *Geo.* 3, c. 32; 24 *Geo.* 3, c. 8; 32 *Geo.* 3, c. 25; 34 *Geo.* 3, c. 19; 44 *Geo.* 3, c. 23. II. The statutory capital is at present £1,500,000 sterling. It is raised by voluntary subscription, and has been subscribed for. £1,000,000 has been called for, and paid in.—44 *Geo.* 3, cap. 23. III. Subscribers, if not under obligation to the Bank, may, at pleasure, transfer their right. If under obligation to the Bank, the obligation must be previously liquidated; or the proceeds of the sale, at a price to the satisfaction of the direcors, must be applied toward such liquidation. Transfers are made by a short assignment and acceptance thereof, both in a register appointed for that purpose. The expense, besides the government stamp, is 11*s.*—*Will.* Parl. 1, § 5. IV. Bank of Scotland stock may be acquired, in any portions by any person, community, or other lawful party whatsoever; without selection, exclusion, or limitation of numbers.—*Will.* Parl. 1, § 5; 44 *Geo.* 3, c. 23. V. Bank of Scotland stock may be conveyed by will, and, if specially mentioned, without expense of confirmation. It can not be arrested: the holder's right may be adjudged. Dividends may be arrested.—*Will.* Parl. 1, § 5. VI. The Bank of Scotland is a public corporation by act of Parliament. The Bank's transactions are distinct from those of the stockholders, and theirs from those of the Bank.—*Will.* Parl. 1, § 5. VII. The establishment is expressly debarred from any other business than that of banking.—*Will.* Parl. 1, § 5. VIII. The management is vested, by statute, in a governor, deputy governor, twelve ordinary, and twelve extraordinary directors. They are chosen annually, on the last Tuesday of March, by the stockholders having £250 of stock or upward. Those above £250 have a vote for every £250, to £5000, or twenty votes. No person can have more than twenty votes. The governor must hold at least £2000 of stock; the deputy governor £1500; and each director £750. They swear to be equal to all persons, and can not hold any inferior office in the Bank.—*Will.* Parl. 1, § 5; 14 *Geo.* 3, c. 32; 44 *Geo.* 3, c. 23. IX. The executive part is conducted by a treasurer, secretary, and other public officers, all sworn. Those having the official charge of cash find due security.—*Will.* Parl. 1, § 5. X. The board of directors sits for the general administration of the Bank, at the Bank's public head office in Edinburgh. The local business of that district is also conducted at that office. For the local business in the other parts of the kingdom, the Bank has its regular public offices in the principal towns. At each of these offices there is the bank agent or cashier, who gives due security, and conducts the Bank's business for that district in the manner after mentioned. There is also the Bank's accountant for that office, who is appointed by the directors.—*Will.* Parl. 1, § 5. XI. The Bank takes in money, at all its public offices, on deposit receipts or promissory notes, or on current deposit account. At the head office, drafts on London, or on any of the agencies, are given; at each agency, drafts on London, or on the head office, are given. All these documents are on *the Bank's check* (and *sealed with the Bank's seal*). They bear, in words, to be "For the Bank of Scotland;" or, "For the Governor and Company of the Bank of Scotland." These documents are signed, if at Edinburgh, by the treasurer, and countersigned by the principal accountant: if at an agency, they must be signed by the Bank's agent *as agent*, and *countersigned by the Bank's accountant* for that agency; otherwise they infer no obligation on the Bank.—*Resolution of Court*, 28th Feb. 1793. XII. Bills on London, Edinburgh, or any town where the Bank has its official correspondents, are discounted and purchased at all the Bank's public offices. The Bank's agents judge, in ordinary cases, of the bills presented; so that parties meet with no delay. The Bank does not sell, at any of its offices, the bills which it has discounted and purchased. Its agents can not indorse its bills, unless officially to the treasurer.—*Resolution of Court*, 23d Feb. 1789. XIII. Government stock and other public funds, transferable in London, may be purchased or sold, and dividends thereon may be received through the Bank. XIV. The Bank gives credit on cash accounts at any of its offices, on bond, with security. The security may be personal co-obligants, conjunctly and severally; or Bank of Scotland stock; or both; or such other security as may be specially agreed on. Applications for cash accounts are given in to the office where the cash account is wanted, and must specify the credit desired and the security proposed; and the individual partners, where copartneries are proposed. Cash accounts are granted by the directors only, and are not recalled unless by their special authority. It is understood that these credits are not used as dead loans, to produce interest only. In the fair course of business, the advantage of the Bank is consulted by an active circulation of its notes, and by frequent repayments to it in a way least affecting that circulation.—*Resolution of Court*, 6th Nov., 1729, and 23d Feb., 1789. XV. The Bank's dividend of profits has been for some considerable period six per cent. per annum, on its paid-up capital of £1,000,000 sterling. The dividends are paid regularly twice a year, without expense. They may be drawn either at the Bank's head office, or at any of its other offices, as most agreeable to the stockholder.

Most of the other Scotch banks are conducted on the same principles and in the same way as the Bank of Scotland, so that the details as to its management will nearly apply to them all. The *Royal Bank of Scotland* was established in 1727. Its original capital of £151,000 has been increased to £2,000,000. The *British Linen Company* was incorporated in 1746, for the purpose, as its name implies, of undertaking the manufacture of linen. But the views in which it originated were speedily abandoned; and it became a banking company only. Its capital amounts to £500,000. None of the other banking companies established in Scotland are chartered associations, with limited responsibility; the partners being jointly and individually liable, to the whole extent of their fortunes, for the debts of the firms. Some of them, such as the National Bank, the Commercial Banking Company, the Dundee Commercial Bank, the Perth Banking Company, etc., have very numerous bodies of partners. Their affairs are uniformly conducted by a Board of Directors, annually chosen by the shareholders. The Bank of Scotland began, as already stated, to issue £1 notes so early as 1704; and their issue has since been continued without interruption. "In Scotland," to use the statement given in the Report of the Committee of the House of Commons of 1826 on the Promissory Notes of Scotland and Ireland, "the issue of promissory notes payable to the bearer on demand, for a sum of not less than 20*s.*, has been at all times permitted by law; nor has any act been passed limiting the period for which such issue shall continue legal in that country. In *England*, the issue of promissory notes for a less sum than £5 was prohibited by law from the year 1777 to the epoch of the Bank Restriction in 1797. It has been permitted since 1797; and the permission will cease, as the law at present stands, in April, 1829."

There have been comparatively few bankruptcies among the Scotch banks. In 1793 and 1825, when so many of the English provincial banks were swept off, there was not a single establishment in Scotland that gave way. This superior stability seems to be ascribable partly to the formation of so many banks with numerous bodies of partners, which tends to prevent any company with only a few partners, unless they are known to possess considerable fortunes, from getting paper into circulation; partly to the less risk attending the business of banking in Scotland; and partly to the facility afforded by the law of Scotland of attaching a debtor's property, whether it consist of land or movables, and making it available to the payment of his debts.

In the Report already quoted, the last-mentioned topic is touched upon as follows: "The general provisions of the law of Scotland bearing upon this subject are calculated to promote the solidity of banking establishments, by affording to the creditor great facilities of ascertaining the pecuniary circumstances of individual partners, and by making the private fortunes of those parties available for the discharge of the obligations of the bank with which they are connected. There is no limitation upon the number of partners of which a banking company in Scotland may consist; and, excepting in the case of the Bank of Scotland and the two chartered banks, which have very considerable capitals, the partners of all banking companies are bound jointly and severally, so that each partner is liable, to the whole extent of his fortune, for the whole debts of the company. A creditor in Scotland is empowered to attach the real and heritable, as well as the personal estate of his debtor, for payment of personal debts, among which may be classed debts due by bills and promissory notes; and recourse may be had, for the purpose of procuring payment, to each description of property at the same time. Execution is not confined to the real property of a debtor merely during his life, but proceeds with equal effect upon that property after his decease. The law relating to the establishment of records gives ready means of procuring information with respect to the real and heritable estate of which any person in Scotland may be possessed.

No purchase of an estate in that country is secure until the seizin (that is, the instrument certifying that actual delivery has been given) is put on record, nor is any mortgage effectual until the deed is in like manner recorded. In the case of conflicting pecuniary claims upon real property, the preference is not regulated by the date of the transaction, but *by the date of its record.* These records are accessible to all persons; and thus the public can with ease ascertain the effective means which a banking company possesses of discharging its obligations; and the partners in that company are enabled to determine, with tolerable accuracy, the degree of risk and responsibility to which the private property of each is exposed."

Deposits.—As was previously observed, all the Scotch banks receive deposits of so low a value as £10, and sometimes lower, and allow interest upon them. "The interest," says the committee, "allowed by the bank upon deposits varies, from time to time, according to the current rate of interest which money generally bears. In the year 1826 the interest allowed upon deposits was 4 per cent." (At this moment [1846] the interest allowed on deposits is 3 per cent.) "It has been calculated that the aggregate amount of the sums deposited with the Scotch banks amounts to about £20,000,000 or £21,000,000." (It is believed to be now [1846] little, if any thing, under £28,000,000 or £30,000,000.) "The precise accuracy of such an estimate can not, of course, be relied on. The witness by whom it was made thought that the amount of deposits could not be less than £16,000,000, nor exceed £25,000,000, and took an intermediate sum as the probable amount. Another witness, connected for many years with different banks in Scotland, and who has had experience of their concerns at Stirling, Edinburgh, Perth, Aberdeen, and Glasgow, stated that more than one half of the deposits in the banks with which he had been connected were in sums from £10 to £200. Being asked what class of the community it is that makes the small deposits, he said the laboring class; from which it appears that the mode of conducting this branch of the banking business in Scotland has long given to that country many of the benefits derivable from the establishment of savings banks.

The system of cash credits has been very well described in the Report of the Lords' Committee of 1826 on Scotch and Irish Banking. "There is also," say their lordships, "one part of their system, which is stated by all the witnesses (and, in the opinion of the committee, very justly stated) to have had the best effects upon the people of *Scotland*, and particularly upon the middling and poorer classes of society, in producing and encouraging habits of frugality and industry. The practice referred to is that of cash credits. Any person who applies to a bank for a cash credit is called upon to produce two or more competent sureties, who are jointly bound; and, after a full inquiry into the character of the applicant, the nature of his business, and the sufficiency of his securities, he is allowed to open a credit, and to draw upon the bank for the whole of its amount, or for such part as his daily transactions may require. To the credit of the account he pays in such sums as he may not have occasion to use, and interest is charged or credited upon the daily balance, as the case may be. From the facility which these cash credits give to all the small transactions of the country, and from the opportunities which they afford to persons who begin business with little or no capital but their character, to employ profitably the minutest products of their industry, it can not be doubted that the most important advantages are derived to the whole community. The advantage to the banks who give these cash credits arises from the call which they continually produce for the issue of their paper, and from the opportunity which they afford for the profitable employment of part of their deposits. The banks are indeed so sensible that, in order to make this part of their business advantageous and secure, it is necessary that their cash credits should, as they express it, be frequently operated upon, that they refuse to continue them unless this implied condition be fulfilled. The total amount of their cash credits is stated by one witness to be £5,000,000, of which the average amount advanced by the banks may be one-third."

Recapitulation of Scotch Banks, September 1, 1855.—The following return shows the circulation of the Scotch banks, and the average amount of coin held during the four weeks ending the 1st September:

Name and Title as set forth in License.	Circulation authorized.	Average Circulation in Notes.	Average Gold and Silver Coin.
	£	£	£
Bank of Scotland............	300,485	375,184	[illegible]
Royal Bank of Scotland	[illegible]	[illegible]	[illegible]
British Linen Company	438,024	[illegible]	[illegible]
Commercial Bank of Scotland	374,880	476,407	[illegible]
National Bank of Scotland...	297,024	[illegible]	80,164
Union Bank of Scotland and Banking Company in Aberdeen......................	415,690	514,781	179,078
Edinburgh and Glasgow Bank	136,657	165,773	52,948
Aberdeen Town and County Banking Company	70,133	109,842	46,243
North of Scotland Banking Company	154,319	[illegible]	[illegible]
Dundee Banking Company ..	33,451	[illegible]	11,837
Eastern Bank of Scotland....	[illegible]	58,684	18,471
Western Bank of Scotland...	[illegible]	515,102	[illegible]
Clydesdale Banking Company	[illegible]	[illegible]	82,016
City of Glasgow Bank	[illegible]	[illegible]	[illegible]
Caledonian Banking Company	53,434	[illegible]	29,559
Perth Banking Company	[illegible]	[illegible]	18,174
Central Bank of Scotland....	[illegible]	[illegible]	24,772

V. Irish Banks.—"In no country, perhaps," says Sir Henry Parnell, "has the issuing of paper money been carried to such an injurious excess as in Ireland. A national bank was established in 1783, with similar privileges to those of the Bank of England, in respect to the restriction of more than six partners in a bank; and the injury that Ireland has sustained from the repeated failure of banks may be mainly attributed to this defective regulation. Had the trade of banking been left as free in Ireland as it is in Scotland, the want of paper money that would have arisen with the progress of trade would, in all probability, have been supplied by joint-stock companies, supported with large capitals, and governed by wise and effectual rules.

"In 1797, when the Bank of England suspended its payments, the same privilege was extended to Ireland; and after this period the issues of the Bank of Ireland were rapidly increased. In 1797, the amount of the notes of the Bank of Ireland in circulation was £621,917; in 1810, £2,266,471; and in 1814, £2,986,999. These increased issues led to corresponding increased issues by the private banks, of which the number was 50 in the year 1804. The consequence of this increase of paper was a great depreciation of it; the price of bullion and guineas rose to 10 per cent. above the mint price, and the exchange with London became as high as 18 per cent., the par being 8⅓. This unfavorable exchange was afterward corrected, not by any reduction in the issues of the Bank of Ireland, but by the depreciation of the British currency in the year 1810, when the exchange between London and Dublin settled again at about par. The loss that Ireland has sustained by the failure of banks may be described in a few words. It appears by the Report of the Committee on Irish Exchanges in 1804, that there were at that time in Ireland 50 registered banks. Since that year a great many more have been established; but *the whole have failed*, one after the other, involving the country from time to time in immense distress, with the following exceptions: first, a few that withdrew from business; secondly, four banks in Dublin; thirdly, three at Belfast; and, lastly, one at Mallow. These eight banks, with the New Provincial Bank, and the Bank of Ireland, are the only banks now existing in Ireland.

"In 1821, in consequence of 11 banks having failed nearly at the same time in the preceding year in the south of Ireland, government succeeded in making an arrangement with the Bank of Ireland by which joint-stock companies were allowed to be established at a distance of 50 miles (Irish) from Dublin, and the Bank was permitted to increase its capital £500,000. The act of 1 & 2 Geo. 4, c. 72, was founded on this agreement. But ministers having omitted to repeal in this act various restrictions on the trade of banking that had been imposed by 33 Geo. 2, c. 14, no new company was formed. In 1824 a party of merchants of Belfast, wishing to establish a joint-stock company, petitioned Parliament for the repeal of this act of Geo. 2, and an act was accordingly passed in that session repealing some of the most objectionable restrictions of it (the 5 Geo. 4, c. 73). In consequence of this act the Northern Bank of Belfast was converted into a joint-stock company, with a capital of £500,000, and commenced business on the 1st of January, 1825. But the remaining restrictions of 33 Geo. 2, and certain provisions contained in the new acts of 1 & 2 Geo. 3, and 5 Geo. 4, obstructed the progress of this company, and they found it necessary to apply to government to remove them; and a bill was accordingly introduced which would have repealed all the obnoxious clauses of the 33 Geo. 2, had it not been so altered in the committee as to leave several of them in force. In 1825 the Provincial Bank of Ireland commenced business, with a capital of £2,000,000; and the Bank of Ireland has of late established branches in all the principal towns in Ireland.

"The losses that have been sustained in Ireland by abusing the power of issuing paper have been so great, that much more is necessary to be done, by way of protecting the public from future loss, than the measure proposed in the year 1826 by Parliament for abolishing small notes, and the measure already adopted of allowing joint-stock companies to be established in the interior of the country. As the main source of the evil consists in the interference of the law in creating a national bank with exclusive privileges, the first step that ought to be taken for introducing a good system into Ireland is the getting rid of such a bank, and opening the trade of banking in Dublin. The next measure should be the requiring of each bank to give security for the amount of paper that is issued; for after the experience of the ignorance with which the Irish banks have conducted their business, and the derangement of the natural course of the trade by the long existence of the Bank of Ireland, it would be unwise to calculate upon a sound system of banking speedily supplanting that which has been established. Under the circumstances in which Ireland is placed, nothing would so much contribute to her rapid improvement in wealth as the introducing of the Scotch plan of cash credits, and of paying interest on deposits. By cash credits the capital which now exists would be rendered more efficient, and the paying of interest on small deposits would lead to habits of economy, and to the more rapid accumulation of new capital."—*Observations on Paper Money, etc., by Sir* Henry Parnell, p. 171–177.

The capital of the Bank of Ireland, at its establishment in 1783, amounted to £600,000, but it has been increased at various periods, and has, since 1821, amounted to £3,000,000. The Bank of Ireland draws on London at 10 days' date. She neither grants cash credits, nor allows any interest on deposits. She discounts at the rate of 5 per cent. In 1828 the currency of Ireland was assimilated to that of Great Britain. Previously to that period the currency of the former was 8½ per cent. less valuable than that of the latter.

Provincial Bank of Ireland.—This important establishment was, as already stated, founded in 1825. Its subscribed capital consists of £2,000,000, divided into 20,000 shares of £100 each, of which 25 per cent., or £500,000, has been paid up. Its head office is in London; and at present it has subordinate offices in Cork, Limerick, Clonmel, Londonderry, Sligo, Wexford, Waterford, Belfast, Galway, Armagh, Athlone, Coleraine, Kilkenny, Ballina, Tralee, Youghall, Enniskillen, Monaghan, Banbridge, and Ballymena. The last five have been opened since 1831. The entire management of the establishment is vested in the court of directors in London. The business of the branch banks is conducted, under the control of the head office, by the managers, with the advice and assistance of two or more gentlemen of respectability in the district, each holding 10 shares in the bank. The business consists of discounting bills; granting cash credits after the manner of the Scotch banks; receiving deposits, on which interest, varying according to circumstances, is allowed; in drawing and giving letters of credit on other places of Ireland, Great Britain, etc.; and of other details incident to banking. It has had several pretty severe runs to sustain. In the course of a single week, in October, 1828, about £1,000,000 in gold was sent from England to Ireland on account of the Provincial Bank! This prompt and ample supply effectually maintained the credit of the establishment, and did much to restore confidence.

The notes of the Provincial Bank have always been payable at the places where they are issued. The Bank of Ireland began to establish branches in 1825; but the notes issued by her branches were not, at first, payable except at the head office in Dublin. This distinction, which tended to throw the principal pressure of runs in the country on the Provincial Bank and other private companies, was abolished by the act 9 Geo. 4. Several joint-stock banks have been established in Ireland since 1825, especially in 1836. But the greatest of these, the Agricultural and Commercial Bank, which had nearly 4000 partners and 28 branches, was in no long time obliged to suspend payments. Some of the others have also been abandoned. There are comparatively few private banks in Ireland.

"Not many years ago there were upward of six hundred loan societies in Ireland, besides private pawnbrokers, who abounded in every town throughout the kingdom. Two hundred were enrolled under 6 & 7 Will. 4, one hundred and sixty-eight were under the direction of the Irish Reproductive Loan Fund, a society founded in 1822. These various loan associations were productive of very little good to the people, the rates of interest charged to their customers being nearly such as are charged at ordinary pawnbrokers' establishments."—Lawson *on Banking*.

The provisions in the act 8 & 9 Vict. c. 37, with regard to banking in Ireland, do not differ materially from those in the preceding act relating to Scotland. The prohibition that formerly existed against joint-stock banks carrying on business in Dublin or any where within 50 miles thereof is repealed; the charter of the Bank of Ireland is prolonged till January, 1855, when it may be dissolved on notice; notes of the Bank of England are declared not to be legal tender in Ireland; and notes for less than 20*s.* are not negotiable.

Average amount of Bank-notes in circulation of the several Chartered Banks of Ireland, and of Coin held during the four Weeks ending Sept. 27, 1856.

Name and Title.	Circulation authorized.	Average Circulation.	Average Coin held.
	£	£	£
Bank of Ireland	3,738,428	3,132,475	769,199
Provincial Bank........	927,667	959,855	284,134
Belfast Bank	281,611	402,660	240,177
Northern Bank	243,440	249,532	112,032
Ulster Bank............	311,079	403,847	135,365
National Bank	761,757	1,150,954	524,467
Carrick-on-Suir National Bank.................	24,084	30,075	7,620
Clonmel National Bank .	66,428	57,313	13,175

A List of the Joint-stock Banking Companies of Ireland in 1846, specifying the Dates of their Establishment, the Number of their Partners, the Amount of their paid-up Capital, the Situation of their Head Offices, and of their Branches, when they have any, with the fixed Issue of those authorized to issue Notes.

Banks.	When established.	Number of Partners.	Paid-up Capital.	Amount of fixed Issue.
Bank of Ireland[1]	1783	—	£3,000,000	£3,738,428
Belfast Banking Company[2]	Dec., 1827	255	125,000	281,611
Hibernian Bank, Dublin[3]	June, 1825	—	250,000	No Issue.
London and Dublin Bank[4]	1843	426	100,000	No Issue.
National Bank of Ireland[5]	24 Jan., 1835	877	450,000	761,757
" " Clonmel[5]	May, 1836	—	—	66,428
" " Carrick-on-Suir[5]	May, 1836	—	—	24,084
Northern Banking Company, Belfast[6]	1 Jan., 1825	179	150,000	243,440
Provincial Bank of Ireland[7]	Sept., 1825	891	500,000 New Shares, 40,000	927,667
Royal Bank of Ireland[8]	Sept., 1836	436	209,050	
Tipperary Joint-stock Bank[9]	1838	—	—	No Issue.
Ulster Banking Company, Belfast[10]	April, 1836	489	200,000	311,079
			Total......	£6,354,494

[1] Head Office, Dublin; Branches, Armagh, Ballinasloe, Belfast, Carlow, Clonmel, Cork, Drogheda, Dublin, Dundalk, Galway, Kilkenny, Limerick, Londonderry, Longford, Mountmellick, New Ross, Newry, Sligo, Tralee, Tullamore, Waterford, Westport, Wexford, and Youghal.

[2] Head Office, Belfast; Branches, Armagh, Ballymena, Ballymoney, Coleraine, Cookstown, Derry, Dungannon, Larne, Letterkenny, Magherafelt, Monaghan, Newtownlimavady, Newtownards, Portadown, Strabane, Tandragee, Dublin, Newry, and Castleblaney.

[3] Head Office, Dublin; Branch, Drogheda.

[4] Head Office, London; Branches, Dublin, Dundalk, Wicklow, Mullingar, Kells, Parsonstown, Carrick-on-Shannon, Carrickmacross, Athy, and Kinsale.

[5] Head Office, London; Branches, Dublin, Athlone, Ballina, Ballinasloe, Boyle, Carrick-on-Suir, Cashel, Castlerea, Charleville, Clonmel, Clonakilty, Cork, Dungarvan, Ennis, Enniscorthy, Fermoy, Galway, Kanturk, Kilkenny, Killarney, Kilrush, Middleton, Limerick, Longford, Loughrea, Mallow, Mitchelstown, Moate, Nenagh, New Ross, Rathkeale, Roscommon, Roscrea, Skibbereen, Tallow, Thurles, Tipperary, Tralee, Tuam, Waterford, Westport, and Wexford.

[6] Head Office, Belfast; Branches, Armagh, Ballymena, Coleraine, Clones, Carrickfergus, Downpatrick, Londonderry, Lurgan, Lisburn, Magherafelt, and Newtownlimavady.

[7] Head Office, London; Branches, Dublin, Armagh, Athlone, Ballina, Ballymena, Ballyshannon, Banbridge, Bandon, Belfast, Carlow, Cavan, Clonmel, Coleraine, Cork, Cootehill, Downpatrick, Drogheda, Dundalk, Dungannon, Dungarvan, Ennis, Enniscorthy, Enniskillen, Fermoy, Galway, Kilkenny, Kilrush, Limerick, Londonderry, Mallow, Monaghan, Newry, Omagh, Parsonstown, Sligo, Strabane, Skibbereen, Tralee, Waterford, Wexford, and Youghal.

[8] Dublin.

[9] Head Office, Clonmel; Branches, Athy, Carlow, Carrick-on-Suir, Nenagh, Roscrea, Thurles, Thomastown, and Tipperary.

[10] Head Office, Belfast; Branches, Armagh, Antrim, Ballymoney, Ballymena, Banbridge, Cootehill, Cookstown, Downpatrick, Enniskillen, Londonderry, Lurgan, Monaghan, Portadown, and Omagh.

VI. Foreign Banks.—To attempt giving any detailed account of the principal foreign banks would very far exceed our limits; we shall, therefore, only notice a few of the more celebrated.

The *Bank of Venice* seems to have been the first banking establishment in Europe. It was founded so early as 1171, and subsisted till the subversion of the republic in 1797. It was essentially a deposit bank, and its bills bore at all times a premium or *agio* over the current money of the city.

The *Bank of Amsterdam* was established in 1659. It was a deposit bank, and payments were made by writing off sums from the account of one individual to those of another. According to the principles on which the bank was established, it should have had at all times in its coffers bullion equal to the full amount of the claims upon it. But the directors privately lent about 10,500,000 florins to the States of Holland and Friesland. This circumstance transpired when the French invaded Holland, and caused the ruin of the bank.

The *Bank of the Netherlands* was established in 1814. It is formed on the model of the Bank of England, and has the exclusive privilege of issuing notes. The original capital of 5,000,000 florins was doubled in 1819. The king holds *one-tenth* of the shares. The affairs of the bank are managed by a president, secretary, and five directors, who are chosen every six months, but may be indefinitely re-elected. This bank discounts bills of exchange with three responsible signatures; it takes continuations on stock, and sometimes lends on bullion at such a rate of interest and to such an extent as may be agreed upon. It occasionally, also, makes loans on merchandise, but never at less than 5 per cent. Its notes vary from 1000 florins to 25 florins; that is, from £83⅓ to £2 1-12. The dividends have varied from 3 to 7 per cent. The shares are each 1000 florins. The responsibility of the shareholders is limited to the amount of their stock. Its original charter, which was limited to 25 years, was prolonged, in 1838, for 25 years more.

The *Bank of Hamburg* is a deposit bank, and its affairs are managed according to a system that insures the fullest publicity. It receives no deposits in coin, but only in bullion of a certain degree of fineness. It charges itself with the bullion at the rate of 442 shillings the mark, and issues it at the rate of 444 shillings, being a charge of four-ninths, or nearly one-half per cent., for its retention. It advances money on jewels to three-fourths of their value. The city is answerable for all pledges deposited with the bank; they may be sold by auction, if they remain 1 year and 6 weeks without any interest being paid. If the value be not claimed within three years, it is forfeited to the poor. The Bank of Hamburg is universally admitted to be one of the best managed in Europe.

France.—The *Bank of France* was founded in 1803. The exclusive privilege of issuing notes payable to bearer was granted to it for forty years, and was continued, by a law passed in 1840 (confirmed in 1852), till 1867. This law was preceded by a very able Report, drawn up by M. Dufaure, in which, among other questions, the policy of having only one bank of issue in Paris is examined, and decided in the affirmative. The capital of the Bank consisted at first of 45,000,000 fr.; but it was subsequently increased to 90,000,000 fr., divided into 90,000 shares or *actions* of 1000 fr. each. Of these shares, 67,900 passed into the hands of the public; 22,000, having been purchased up by the bank out of the surplus profits, were subsequently canceled; hence the capital of the bank consisted, previously to the Revolution of 1848, of 67,900,000 fr. (£2,716,000), exclusive of a reserve fund of 10,000,000 fr., since increased to 12,980,750 fr. But notwithstanding the laudable skill and caution with which her affairs were conducted, the bank could not avoid suspending payment under a decree of the Provisional Government of the 16th March, 1848, to which and to the city of Paris she had to make large advances. To set some limit to the abuses that might have taken place under the suspension, the maximum circulation of the Bank was fixed, by the decree now referred to, at 350,000,000 fr.; while, in the view of supplying a currency suited to the smaller class of payments, she was permitted to reduce the denomination of notes in circulation from 500 to 100 fr. At the same time, or soon after, the departmental banks, or banks which had been established in some of the principal provincial towns, were consolidated with, and made branches of the Bank of France. We subjoin a copy of the decree of the 27th of April, 1848, by which this amalgamation was effected.

Art. 1. The banks of France, of Rouen, Lyons, Havre, Lille, Toulouse, Orleans, and Marseilles are united.

Art. 2. The departmental banks above enumerated will continue in operation as branches of the Bank of France, conformably to the regulations stipulated in the decree of the 15th of May, 1808, and the ordonnance of the 25th of March, 1841.

The present number of the administrators of the departmental banks is maintained, as also the boards of discount, organized for the service of several of them.

The number of shares, the possession of which is at present required as a guarantee from the directors, censors, administrators, and members of the councils of discount of those departmental banks, is provisionally maintained.

Art. 3. The shares of those banks are annulled, and the holders shall receive in exchange shares of the Bank of France at a nominal value of 1000 fr. for a nominal value of 1000 fr.

Art. 4. In order to execute the above article the Bank of France is empowered to issue 17,200 new shares, which will increase its capital to 85,100 shares of 1000 fr.

Art. 5. By the cession of those new shares to the shareholders of the banks of Rouen, Lyons, Havre, Lille, Toulouse, Orleans, and Marseilles, the Bank of France shall become proprietor of the capital of those banks, and be made chargeable with their engagements. The reserve funds, existing in each of those banks, shall be added to the reserve fund of the Bank of France. The uniting of the landed and chattel property, resulting from the present article, shall be subjected to the fixed registry duty imposed on deeds of partnership.

Art. 6. The Bank of France is authorized to add to the *maximum* of circulation, fixed by the decree of the 15th of March last, the *maximum* of the circulation fixed for each of the departmental banks by the decree of the 25th of the same month.

From the date of the promulgation of the present decree the notes issued by the banks incorporated with the Bank of France shall be received throughout the republic as a legal tender by all the branches of the public treasury and private individuals. The holders of said notes shall have to present them to the Bank of France, or to its branches, within the following six months, in order to exchange them for notes of that bank. Beyond that period those notes shall cease to be current as a legal tender, but the Bank of France and its branches shall not be exonerated from the obligation of exchanging them.

Art. 7. The inspectors of the finance department, on an order of the minister, may verify the situation of the branch banks.

Art. 8. In future the branch banks of the Bank of France shall bear the following denomination: "Bank of France, Branch Bank of ——."

Banks.	Shares.	Francs.
Bank of Rouen	3,000	3,000,000
" Lyons	2,000	2,000,000
" Havre..........	4,000	4,000,000
" Lille	2,000	2,000,000
" Toulouse	1,200	1,200,000
" Orleans.........	1,000	1,000,000
" Marseilles	4,000	4,000,000
	17,200	17,200,000
Bank of France	67,900	67,900,000
	85,100	85,100,000

The banks of Bordeaux and Nantes were at first disposed strenuously to resist the project for their incorporation with the Bank of France. In the end, however, they gave way; and, in consequence, 6150 shares, and an additional capital of 6,150,000 fr., were added to the shares and capital of the Bank of France, making at present (1853), the former 91,250, and the latter 91,250,000 fr. The maximum circulation of the bank was at the same time increased from 350,000,000 to 452,000,000 fr.

On the whole, we are inclined to think that this conversion of the departmental banks into branches of the Bank of France is a considerable improvement. It gives an equality of value to the paper currency, which it could not otherwise have had, and makes it equally serviceable in all parts of the country. It is surprising, indeed, how soon the Bank of France recovered from the severe shocks to which she was exposed in 1848, and to what a degree she has regained the public confidence. But despite the able management of the bank, her intimate connection with the government makes her stability in a great degree dependent on that of the latter.

A decree of the 3d March, 1852, has prolonged the charter of the bank till 1867, and has authorized her to make advances on railway stock and on the bonds of the city of Paris. The issue of notes for 50 fr. and 25 fr. would, we incline to think, be a great improvement. There has been, within the last three or four years, a great accumulation of bullion in the coffers of the bank. Recently, however, it has been diminished notwithstanding a rise in the rate of interest.—**Seneuil,** *Traité de Banque*, p. 196–224, 2d ed., etc. No bills are discounted that have more than three months to run. The bank is obliged to open a *compte courant* for every one who requires it, and performs services for those who have such accounts similar to those rendered by the private banks of London to their customers. She is not allowed to charge any commission upon current accounts, so that her only remuneration arises out of the use of the money placed in her hands by the individuals whose payments she makes. This branch of the business is said not to be profitable. The bank advances money on pledges of different kinds, such as foreign coin or bullion, government or other securities, etc. It also undertakes the care of valuable articles, as plate, jewels, title-deeds, etc. The charge is ⅛ per cent. of the value of each deposit for every period of six months or under.

The administration of the bank is vested in a council-general of 20 members, viz., a governor and deputy-governor, nominated by the emperor; and 15 directors and three censors, chosen by the general body of the shareholders. The bank has a large surplus capital, and at present enjoys a high degree of credit.

"The circulation of the Bank of France has increased since 1848; first, in consequence of smaller notes being put into circulation (for notes of 100 fr. are now current); and, secondly, because of the establishment of branch banks facilitating intercommunication with all the principal cities of the empire. The circulation in 1853 and 1854 exceeded 500 millions. But in those years the amount of specie in the bank cellars exceeded the amount of the whole circulation, so that the substitution of paper for gold was not of so much service, or so economical to the country, as it might have been under other circumstances. Not less than the value of 10,000 francs is received as a deposit, and discount for forty-five days is deducted from the amount of the sum advanced; nor, if the deposit be redeemed the next day, is any part of the discount refunded. The paper of the Bank of France chiefly circulates in Paris and the neighborhood; at a distance from Paris its notes pass at a discount of one and a half per cent., as they are not received in payment of taxes or custom-house duties in seaports."—E. B.

New Financial Institution in Paris.—"The *Société Générale de Crédit Mobilier*, established by a decree of 18th November, 1852, is a species of a bank, the partners in which have not given their names. Its principal operations consist in purchasing or acquiring shares in public companies, provided they be *en sociétés anonymes;* secondly, in circulating its own securities for a sum equivalent to the shares or stock purchased; thirdly, in exchanging all actions and obligations so acquired; fourthly, in lending on public securities on the deposit of actions and obligations, etc. The capital of the society is fixed at 60,000,000 fr., and it is represented by 120,000 shares of 500 fr. each. The society can circulate its own 'obligations' for a sum six times as large as its capital."—E. B.

LIABILITIES AND RESOURCES OF THE BANK OF FRANCE FOR SEPTEMBER AND OCTOBER, 1856.

Liabilities.	Oct., 1856.	Sept., 1856.
	Francs.	Francs.
Capital of the Bank...........	91,250,000	91,250,000
Reserve of the Bank	12,980,750	12,980,750
Do. in landed property	4,000,000	4,000,000
Bank-notes in circulation	551,975,100	543,502,200
Do. of the branch banks	69,120,700	77,024,400
Bank-notes to order...........	4,273,286	4,423,524
Receipts payable at sight......	3,521,353	5,033,888
Treasury account current	101,412,547	118,818,302
Sundry accounts current	119,685,763	100,008,295
Do. with the branch banks....	23,379,947	25,475,446
Dividends payable	916,431	1,141,905
Discounts and sundry interests	11,247,898	7,480,220
Re-discount the last six months	1,629,993	1,629,993
Protested bills...............	23,350	15,862
Sundries....................	6,753,523	5,674,123
Total....................	1,002,170,644	998,458,913
Assets.		
Cash in hand	77,062,910	113,126,401
Cash in the branch banks	89,407,036	122,676,020
Commercial bills overdue	605,681	2,111,194
Bills discounted, not yet due..	271,955,426	221,308,498
Do. in the branch banks......	239,623,602	217,829,320
Advanced on deposit of bullion	3,726,900	1,749,400
Do. by the branch banks......	3,745,975	2,323,475
Advanced on public securities.	76,027,936	78,420,336
Do. by the branch banks......	11,914,950	11,876,100
Advanced on railroad securities	38,060,000	38,273,100
Do. by the branch banks......	17,211,100	17,180,900
Advanced to the State on agreement of June 30, 1848.......	55,000,000	55,000,000
Discount of Treasury bonds...	40,000,000	40,000,000
Government stock reserved ...	12,980,759	12,980,750
Do. disposable	52,190,045	52,299,795
Hotel and furniture of Bank...	4,000,000	4,000,000
Landed property of branch banks......................	5,256,495	4,908,307
Expenses of management.....	1,188,689	823,584
Premium on gold and silver...	2,128,594	1,496,313
Sundries....................	84,551	75,347
Total..................	1,002,170,644	998,458,913

Banks have also been established in Berlin, Copenhagen, Vienna, and Petersburg. Those who wish for detailed information with respect to these establishments may consult the 4th vol. of the *Cours d'Economie Politique* of M. STORCH, which contains a good account of the paper money of the different Continental states down to 1823. We also refer to other portions of this article; but in the mean time we lay before our readers the following details with respect to the Commercial Bank of Russia, established in 1818:

This bank receives deposits in gold and silver, foreign as well as Russian coin, and in bars and ingots. It has a department for transferring the sums deposited with it, on the plan of the Hamburg Bank. It discounts bills, and lends money on deposits of merchandise of Russian produce or origin. Its capital consists of 8,571,429 silver rubles. It is administered by a governor and four directors, appointed by government; and four directors, elected by the commercial body of Petersburg. The property in the bank is protected against all taxation, sequestration, or attachment; and it is enacted that subjects of countries with which Russia may be at war shall be entitled at all times to receive back their deposits without any reservation. It is also declared that at no time shall the bank be called upon for any part of its capital to assist the government. All deposits must be made for 6 months at least, and be repayable at or before that period, and not be less than 500 paper rubles: sums so deposited to pay ¼ per cent. The deposits, if in bars, ingots, or foreign specie, are estimated in Russian silver coin, and so registered in the attestation; and if not demanded back within 15 days of the expiration of 6 months, or the necessary premium paid for the prolongation, the owner loses the right of claiming his original deposit, and must take its estimated value in Russian silver coin. No bills are discounted that have less than 8 days or more than 6 months to run. The rate of discount is 6 per cent. No interest is allowed on money deposited in the bank, unless notice be given that it will be allowed to lie for a year, and 3 months' notice be given of the intention to draw it out, when *six* per cent. interest is allowed. The bank has branches at Archangel, Moscow, Odessa, Riga, &c.

By means of its capital and deposits, which in 1839 amounted together to 161,881,839 silver rubles, the bank effected in that year the following operations:

	Rubles.	Cop.
1. Repayments on deposits in transfer	[illegible]	40
2. Transfers from one city to another	[illegible]	26
3. Drafts purchased	[illegible]	64
4. Repayment of deposits at interest.........	[illegible]	91
5. Discount of bills of exchange.............	17,217,541	7
6. Advances on deposits of merchandise.....	[illegible]	65
7. Advances on the notes of other banks.....	650,001	13
8. Discount of notes of the Lombard	[illegible]	43
9. Advanced on fixed property by branch at Kieff	174,070	80

The net profit during the same year amounted to 656,501 silver rubles, and the reserve capital of the bank was then also 1,279,976 silver rubles.—*See* Supplement to the *Journal de St. Petersbourg* for 1839, p. 87.

Banks of Germany.—The Bank Royal of Prussia was founded at Berlin in 1765, upon the model of that of Hamburg. So it existed until 1846, when it was reorganized under a new charter, by which more extension was given to its operations. In accordance with this new constitution, which has been in force since the 1st of January, 1847, the issue of notes has been carried to fifteen millions of thalers (the thaler equal to 2*s.* 10¾*d.* sterling). In 1850 this issue was raised to twenty-one millions of thalers. The capital of the bank is always to be in proportion with the notes in circulation, two-sixths in silver, three-sixths in bills discounted, and the rest in loans on securities. The bank-notes are from twenty-five to fifty thalers each. The share of the government in the bank amounts, at most, to 500,000 thalers. The shareholders are entitled to an annual interest of 3½ per cent. upon the capital, and, after deduction of the sum set apart for the reserve or rest, which is not to exceed 30 per cent. of the capital, one moiety of the surplus profits is apportioned to them in addition, and the other goes to the treasury. The bank has branches in a great number of cities, as Breslau, Königsberg, Dantzic, Stettin, Magdeburg, Munster, Cologne, Memel, Posen, Stolpe, Elberfeld, Treves, Aix-la-Chapelle, Dusseldorf, Coblentz, Minden, Erfurt, Frankfort-sur-Oder, Stralsund, Kostin, Liegnitz, and Oppeln, and thus forms a vast network of financial operations through all the kingdom.

The private bank of the noblesse of Pomerania was founded at Stettin, in 1824, by an association of noble proprietors, with a capital of 1,000,000 thalers. After the crisis of 1830, this capital was carried to 1,534,500 thalers. The operations of this bank embrace discount, loans upon lodgments of merchandise, loans upon public and private securities, current accounts, and deposits with interest. Formerly, it issued promissory notes to bearer; but this privilege was withdrawn from it in 1835. There is a circulation of about ninety millions of thalers of mortgage notes in Prussia (these are, in fact, for one hundred and five millions). They have been issued, at different periods, by associations of proprietary nobles in various parts of the kingdom, and carry interest at 3½ per cent.

The National Bank of Vienna was founded in 1815, to re-establish order in the finances of Austria, and more particularly for the repurchase or the conversion of the paper money in circulation, the value of which was become almost nominal. The different creations of shares have raised its capital to about [illegible] florins. This capital is divided into 50,621 shares of 1500 florins each. The actual operations of the bank are discount; the issue of bank-notes, a privilege which it enjoys exclusively throughout the Austrian empire; loans upon deposits, and negotiations of loans. The bank pays an annual interest of 6 per cent. upon the primitive capital, and a dividend, after deduction of the reserve fund. Its privilege, or charter, extends to the year 1866. It has branches at Prague, Brunn, Troppau, Ogen, Temeswar, Kashan, Lemberg, Trieste, Innspruck, Goritz, Linz, and Hermstadt.

The Bank of Extraordinary Credit of Vienna was constituted in 1846 by imperial decree, and has for its object to devote a part of the sums destined for the redemption of the national debt to the purchase of certain shares in railway and other enterprises, in order to sustain useful undertakings, and communicate a greater impulse to them.

The Loan and Exchange Bank of Bavaria was founded at Munich, in 1835, by shares, under the surveillance and control of the government. It is privileged for ninety-nine years. The original capital was 10,000,000 florins, with liberty of increase to 20,000,000. In 1846 there was a new emission of shares of 500 florins. The net profits are divided as follows: Three per cent. as divided to the shareholders, and, of the surplus, three-fourths as extra dividend, and the remaining fourth carried to the reserve, until it shall reach to one-tenth of the capital. Three-fifths of the capital are employed in loans on mortgage. The other operations are discounts, loans on securities and ingots; the issue of bank-notes, whose amount is limited to four-tenths of the capital, and three-fourths of it to be covered by a value of double the sum in mortgage credits, or in silver. The bank has a branch at Augsburg.

The Royal Bank of Bavaria, first established at Ansbach, and now at Nuremberg, is one of the oldest establishments of the kind. Its operations are discounts, deposits, loans upon personal and other securities. The government is entitled to half the profits. It has branches at Ansbach and Bamberg.

The Royal Bank of the Court of Wurtemberg, founded in 1802 at Stutgardt, limits its operations to discounts and loans.

The Bank of Leipsic was founded in 1839, under the auspices of the government, with a capital of 1,500,000 thalers, divided into shares of 250 thalers, receiving 3 per cent. interest. Its operations are deposits, loans, and discounts. It has the right of issuing notes of 20 and 100 thalers each, of which the two-thirds should be guaranteed by values to the amount in specie or ingots.

There exists, besides, at Dresden, a loan bank, which makes advances to land proprietors and farmers for the payment of taxes, tithes, etc. Leipsic has also an institution of this kind under the name of "Union of Credit for the hereditary lands of the Saxon nobility."

It was in agitation, in 1846, to found at Dessau a great central establishment, to answer the purpose of a vast banking system for the north of Germany. It was proposed to endow it with an accumulation of capitals to the extent of from 50,000,000 to 100,000,000 thalers. But this gigantic project has resolved itself into a private enterprise, established in the beginning of 1847, under the title of the Provisional Bank of Anhalt-Dessau, with a capital of 2,500,000 thalers, divided in shares of 200 thalers. This establishment issues notes of 1, 5, 10, 20, 50, 100, 500, and 1000 thalers each. One-fourth the value of the bank-notes in circulation should be covered by an equivalent sum in specie.

The Bank of Hamburg was founded in 1619. The minimum deposit of a member desiring to open an account is 100 marks banco in bar silver, or in a bill, for the same sum, of one of the members of the bank, which is then transferred from the account of the latter to that of the former. Transfers can not take place for a less sum than 100 marks, except some days before Christmas, or in the middle of July. Hitherto, for each mark of fine silver of Cologne, the depositor was accredited with 27⅝ marks banco; while, in withdrawing his money for a similar sum, he was debited with 27¾ marks banco, so that the simple usage of the operation brought a cost of 9·20 per cent. A new regulation, which is to come into force on the 15th of August, 1857, imports that the mark of fine silver of Cologne shall be credited 27¾ marks banco, and debited at a similar rate after deduction of 1 per mille. Independently of this sort of business, the bank lends upon Spanish and American dollars, and sometimes also on copper. These are its only operations.

The association of the new loan, established equally at Hamburg, in 1839, possesses a capital of 100,000 marks banco, and does business prohibited to the bank, principally loans on securities, public funds, etc.

There have been numerous financial enterprises, lately started on the Continent of Europe, absorbing a heavy amount of capital hitherto available for other purposes. The following list of new banks in Germany represents a capital of nearly 115,000,000 dollars, which forms but a small part of the amount lately invested by German capitalists within the borders of their own country. The shares of all the banks named hereafter command a high premium, although but few of them have been sufficient time in operation to pay dividends.

List of Banks established in Germany since 1853.

Year.	Name.	Place.	Capital.
1853	Landes Bank,	Dessau,	4,000,000 Thalers.
1853	Braunschweiger Bank,	Brunswick,	2,500,000 Thalers.
1853	Bank fuer Handel und Industrie,	Darmstadt,	25,000,000 Guilders.
1854	Weimarsche Bank,	Weimar,	5,000,000 Thalers.
1855	Frankfurter Bank,	Frankfort-on-the-Main,	20,000,000 Guilders.
1855	Wiener Cr. Bank,	Vienna,	60,000,000 Guilders.
1856	Geraer Bank,	Gera,	3,000,000 Thalers.
1856	Thueringische Bank,	Sondershausen,	3,000,000 Thalers.
1856	Bank fuer Sued Deutschland,	Darmstadt,	20,000,000 Guilders.
1856	Coelner Bank,	Cologne,	1,000,000 Thalers.
1856	Bremer Bank,	Bremen,	2,500,000 Th. Gold.
1856	Hess. Landes Bank,	Homburg,	1,000,000 Guilders.
1856	Mittel Deutsches Cr. Institut,	Meiningen,	8,000,000 Thalers.
1856	Credit Anstalt,	Dessau,	8,000,000 Thalers.
1856	Credit Institut,	Leipsic,	10,000,000 Thalers.
1856	Disconto Gesellschaft,	Berlin,	5,000,000 Thalers.
1856	Coburg-Gothaische Cr. Gesellschaft,	Coburg,	10,000,000 Thalers.
1856	Cr. und Verisicherungs Gesellschaft,	Lubec,	3,000,000 Thalers.
1856	Privat Bank,	Magdeburg,	1,000,000 Thalers.
1856	Norddeutsche Bank,	Hamburg,	20,000,000 Marcs Bco.
1856	Vereins Bank,	Hamburg,	20,000,000 Marcs Bco.

"The mania for establishing Credit Mobiliers in Germany shows no signs of subsiding. To those of Vienna, Frankfort, Darmstadt, Leipsic, Dessau, and others, of which the shares are at premiums ranging from 10 to 90 per cent., there are now two additions which have been introduced at Berlin. The first consists of several second-rate merchants and bankers. The other, which is designated the Society of Commercial Credit, counts among its administrators some of the first mercantile names in Berlin. The capital is fixed at 15,000,000 thalers (or £2,250,000), of which the directors take 7,550,000 thalers at par, while the remainder are to be sold at a premium, which is to be carried to the credit of the company. Upon a subscription being opened for a portion of the amount, at 10 per cent. premium, applications were sent in to the extent of 140,000,000 thalers. The eagerness to obtain shares is attributable to the fact of the company having at its head commercial men who have always been known to be successful. The managers reserve to themselves 5 per cent. out of the profits, and the directors are to have 5 per cent. before any distribution whatever is made to the shareholders. The shares are of two hundred thalers each, and are already in great demand at 17 per cent. premium."—*London Times, August*, 1856.

Movements of the Imperial Bank of Austria, for the Years 1852–1855.

Transactions of the Bank in Florins.

During the Year.	Advanced to the Government.	Drafts.	Discounts.	Advances on Securities.	Indorsements.	Amount of Bills redeemed.
	Florins.	Florins.	Florins.	Florins.	Florins.	Florins.
1852	—	89,252,531	199,354,440	91,171,300	191,496,338	112,200
1853	—	84,985,637	231,935,293	107,750,500	296,943,698	30,600
1854	241,000,525	149,917,815	325,058,186	177,705,600	224,559,896	66,075
1855	—	154,085,575	414,188,043	282,006,450	244,479,407	22,475

At the close of the Year.	Claims on the Government.	Specie.	Circulation.	Notes and Bills of Exchange on hand.	Amount of pledged	
					Securities.	Deposits.
	Florins.	Florins.	Florins.	Florins.	Florins.	Florins.
1852	130,660,279	43,247,366	194,943,256	36,321,635	31,499,350	93,245,428
1853	121,710,790	44,881,364	188,309,217	53,447,837	41,865,364	85,764,908
1854	294,226,495	45,207,083	383,491,000	73,212,203	89,709,660	86,166,666
1855	253,175,172	49,410,555	377,880,275	86,764,715	154,649,506	52,586,229

Results.

	Total Amount of Specie Transactions.	Total		Surplus of Receipts.	Dividend.	Amount of the Reserve Fund.	Pension Fund.
		Receipts.	Expenditures.				
	Florins	Florins	Florins.	Florins.		Florins.	Florins.
1852	2,356,009,255	1,284,625,327	1,883,512,482	101,112,845	70	10,361,588	907,671
1853	2,324,942,752	1,273,106,264	1,852,949,333	120,156,931	83	10,361,588	936,349
1854	3,904,144,937	2,089,517,161	1,939,754,707	149,772,454	85	10,361,588	961,867
1855	3,397,338,028	1,862,101,449	1,684,999,033	177,102,416	73	10,361,588	992,439

VII. Banking in the United States.—The banking interest of the United States has attained an importance in the varied concerns of this widely-extended country, and is so interwoven with all our commercial, manufacturing and agricultural pursuits, that it must be conceded that it is a great motive power in our condition of national prosperity, and secondary in its influence only to that of the government itself. And yet there are few subjects of a practical nature on which the people of the United States have so widely differed in opinion as upon the policy of banks and the substitution of a paper currency, based even upon coin, for one purely metallic. On one side, the zealous friends of banks have sometimes overrated the utility of paper credit, and attributed to it a creative power which even gold and silver do not possess; on the other side, their opponents, without distinguishing between the uses and abuses of banks, discerned, in these useful and almost indispensable auxiliaries to commerce, manufactures and agriculture, nothing but mischief, and regarded them as impeding the wealth of the nation, and even as injurious to its morals as well as dangerous to its liberties. Both parties, perceiving the glaring errors of their adversaries, have been strengthened in their own opinions, and as each party has alternately come into power, it has established or subverted, encouraged or rejected, the present banking policy of the country. A comparison of the amounts of bank capital in several important years, from 1837 to 1856, will exhibit the fluctuations which have taken place during the last twenty years:

Years.	Capital.	Banks.	Circulation.
1837	$290,772,091	788	$149,185,890
1840	358,442,692	901	106,968,572
1843	228,861,948	691	58,563,608
1846	196,894,309	707	105,552,427
1850	217,317,211	824	131,366,526
1854	301,376,071	1208	204,689,207
1856	347,423,246	1371	177,157,412

These banks had, in the corresponding years, specie in their vaults, 38, 33, 33½, 42, 45, 59 and 60 millions of dollars, and the amount of specie in *circulation* steadily increased from 35 to 191 millions, in addition thereto, according to the most reliable estimates, viz.:

Years.	Deposits.	Loans and Discounts.
1837	$127,397,185	$525,115,702
1840	75,696,857	462,896,523
1843	56,168,628	254,544,937
1846	96,913,070	312,114,404
1850	109,586,595	364,204,078
1854	188,188,744	607,287,428
1856	237,964,981	634,183,280

It must be borne in mind that the two last crises in bank affairs occurred in the years 1837 and 1842–43, and their circulation, as it appears above, was reduced from $149,200,000 to $58,563,608, and their specie from $37,915,340 to $33,515,806. The consequence was a ruinous fall in prices of property, and many business men found it impossible to comply with their engagements, under the sudden contraction of bank loans from 525 to 254 millions of dollars.

The history of all our bank pressures and panics has been the same in 1825, 1837, and 1843, and the causes given in two simple words—*universal expansion;* and nothing but gold and silver possesses the conservative power to regulate the state of our currency or check the ruinous inflation to which our banks are prone, but for this check on their issues. All other kinds of property have but a fictitious value, which in periods of continued prosperity is enhanced beyond the limits of reason or common discretion. At such times the banks themselves have aided the popular delusion by stretching their utmost spread of canvas to court the favoring breeze; but when caught aback, are the most alarmed at the perils which they are sure to encounter. Instead of becoming auxiliary to others, they but increased the panic and aggravated the troubles, which foresight might have prevented. Experience has shown that the contraction which succeeds an uninterrupted prosperity is more disastrous than if the community had never enjoyed any bank extension. If the effect of these fluctuations was confined to the speculators who originated them, there would be little to excite public anxiety or sympathy; but the misfortune is, that they reach the industrial classes of society, and all who are dependent on their daily labor for support. When the banks fail to redeem their circulation, the laborer, the artisan and small dealer, who earn their ten or twenty dollars per week, are despoiled of their hard earnings, and it is not surprising that among these classes of society there should exist a jealousy of banks, when they are always in danger of receiving and holding bankrupt notes; since, in the interior, most of them are unacquainted with the character of the currency which is proffered to them in payment.

But the laborer and the operative not only suffer by the suspension of banks; they are in a greater or less degree affected by bank inflations. When money is abundant in what are termed *prosperous* times, their daily wages have never yet kept pace with the high prices of produce or manufactures. Nor do our seamen always participate in the advanced rate of freights; but when the price of every thing about us is enhanced.

we are accustomed to adhere to the same valuation of the wages of labor. If the standard of their value is rightly estimated in part by the cost of subsistence, the rate ought, in justice, to be advanced when prices are high, as well as to reduce the rate when the market is depressed; but the latter course is frequently adopted, while the former is submitted to with evident reluctance.

But are the banks *alone* to blame for these fluctuations of expansions and contractions? To a certain extent they are, but not wholly so; they are but auxiliaries. In periods of prosperity they have on hand money to loan, and dispense it freely while it is in their power, as it is their duty to do, in order to secure good dividends for their stockholders; but it was the excess of confidence out of the banks which first induced speculation, and the expansion of individual credit to its utmost tension. While money is redundant and capital unemployed, temptations are offered to the adventurous, and speculation becomes rife in stocks, lands, railroads, mines, and the countless "fancies" which promise such flattering results in such a brief period of time. Nor is this speculative spirit confined to our commercial cities; it pervades the whole country, and a fictitious value is attached to every thing animate and inanimate, movable or fixed, which possesses any value at all. The property thus enhanced in valuation, without any reasonable cause, is either sold to some irresponsible purchaser, or perhaps mortgaged as security for some other speculation; pay day comes round, the sober second thought discloses the infatuation, and the dreamer awakes to the appalling perception of his true condition. The property is *sacrificed;* in other words, it is sold for its specie value, and the speculator is ruined, involving in his fall the credulous individuals who have trusted in his supposed forecast or his plausible representations. All classes of the community feel the shock, and the general outcry is against the banks as the origin of the evil; but is it an evil?

It must be acknowledged by all that an uninterrupted course of prosperity caused by a redundancy of currency, and the consequent supply of bank facilities, would, in the end, be prejudicial to the true and permanent welfare of the country. We have had experience enough during our intervals of success to note the consequences of a prosperous career, and the benefits have never been equally shared by the community. Bold and reckless speculators, monopolists in every branch of trade, wealthy capitalists, and a few adventurers, may have amassed fortunes in some few instances, but ten times the number of each description have been *ruined;* and under any circumstances, the great mass of the community, the laboring classes, salaried officers, annuitants of every sort, professional men, medical, legal, and clerical, while they derive little benefit from the golden harvest, are inevitably doomed to suffer their full proportion of the losses which ensue.

The moral tone of society is also deteriorated and corrupted by the continuance of prosperity; luxury, with its enervating influence; extravagance, with its lavish expenditures, undermine the foundation of our moral strength, economy, and integrity, and corrupt not only our morals but our legislation. An extravagant style of living and habits of personal expenditure on the nameless artificial wants and luxuries of society, which are almost inseparable from suddenly acquired or even suppositive wealth, have no small share in creating a demand for money, which ultimately leads to ruin; first, by a loss of confidence and impaired credit; next, temporary sacrifices; and, finally, by bankruptcy. And it is better that it should be so, for the occasional sifting of the chaff from the wheat has always been followed by periods of well-regulated trade, reasonable profits, and that degree of thrift with which men of integrity and substance are contented. Trade flows on in its natural channels, neither impeded by artificial barriers nor impelled by the force of speculation. Reverses, then, are the surest safeguards against approaching ruin, and banks managed by conscientious and prudent directors are the great conservatives which arrest the proclivity of financial profligacy to national destruction. What reason is there, then, in the popular outcry in the dominant party against banks, when it is obvious that they are one of the strongest and best protectors of the interests of the industrial classes? "It is true that the banks are not beyond the reach of adversity; like other business corporations, they may be on the high tide of success, and tempests from distant quarters may sink them beneath the waters, without any fault of their own. Channels of trade, now full, may dry up; important departments of industry may be broken down; the earth may not yield its increase in unpropitious seasons; wars may arrest or reverse the great currents of trade; embargoes and non-intercourse may sweep commerce from the ocean; and when the whole country is overwhelmed with embarrassment by events so great and controlling in the commerce of the world, it can not be expected that the banks should escape."

From 1843 to 1850, there was at first a diminution and then an increase of capital, but the circulation steadily advanced each successive year, especially in 1848, occasioned by the large exportation of breadstuffs to Europe the preceding year, and the return of nearly twenty-five millions of specie, which gave to all the western banks the long-needed relief. During the financial year ending in June, 1847, our exports amounted to $158,000,000, of which $68,000,000 were in breadstuffs, and $54,000,000 in cotton, and exceeded our imports $12,000,000. This amount of exports was larger by $40,000,000 than in any preceding year (excepting in 1839, when the amount was $162,000,000), and about $30,000,000 more than in 1835–'36 or 1841. The amount of domestic exports has never been exceeded before nor since, with the exception of 1854, when the export of breadstuffs was nearly $66,000,000, and of cotton $94,000,000; the whole export having been, in 1847, $158,000,000, as above stated, and in 1854, $274,000,000; but in the latter year the imports exceeded the exports nearly $30,000,000; while in 1847 the latter were $12,000,000 greater.

We have stated these facts merely to show some of the causes of the fluctuations which periodically occur in our financial difficulties. It is common to attribute these difficulties to excessive importations; but this is not so. A tabular statement of the excess of imports over exports will aid us in our examination of this subject. Since 1800, there have been thirteen years when the exports have exceeded the amount of imports from two to five millions; in 1839, $41,000,000; in 1843, $20,000,000; and in 1847, $12,000,000.

Years.	Excess of Imports.	Years.	Excess of Imports.
1800	21,000,000	1828	16,000,000
1801	17,000,000	1831	22,000,000
1805	25,000,000	1832	14,000,000
1806	28,000,000	1833	18,000,000
1807	30,000,000	1834	22,000,000
1808	35,000,000	1835	28,000,000
1810	19,000,000	1836	61,000,000
1812	39,000,000	1837	23,000,000
1815	61,000,000	1840	27,000,000
1816	66,000,000	1850	42,000,000
1818	28,000,000	1853	37,000,000
1819	17,000,000	1854	29,000,000
1820	15,000,000		

In the intervening years the excess was from two to ten millions, but which our freights discharged by their earnings. With the exception, therefore, of 1836, none of our crises can with justice be attributed to *excessive importations.*

We do not, however, assert that our banks are inculpable, nor that they are not responsible for much of the mischief that this overtrading and speculative spirit has occasioned. When the course of our foreign trade is prosperous, and specie is not in demand for export, the banks have been and are strongly tempted to extend their loans, by the seeming impunity with which they can increase their profits, while the cheering influence of public prosperity has given a great spring to the spirit of enterprise, and by affording aliment to this spirit, they give it a force and vigor of mischief which it would not otherwise attain. Thus, without intending it, and in the mere pursuit of their own vocation, they stimulate the love of gain in all sorts of schemes and adventures. The wild and extravagant spirit of speculation is never found to prevail to such an extent as will be found in all places where there are banks of circulation, and especially in those cities and larger towns where banks are numerous. If banks would confine their discounts to the paper of those who are engaged in a regular course of business, and refuse accommodation to the rash, adventurous, and over-sanguine; if they would restrain their issues whenever the spirit of speculation was rife and rampant, they would do much to preserve the balance of trade, and keep the equilibrium between imports and exports. But while bank charters, for small capitals in country towns as well as larger ones for cities, can be so easily obtained, and often intrusted to the management of directors destitute of the knowledge even of the theory of banks, and especially of that *practical knowledge* so essential to a right management, the course pursued by them will inevitably be injurious to the community, and probably disastrous to those who own the stock.

We have in the United States at this period (1856) about 1400 banks, with capitals amounting to $344,000,000, and a circulation of $200,000,000. The discounted paper of these banks is about $634,000,000, and the amount of bonds and stocks held in Europe is probably near $300,000,000 more, making an aggregate of $934,000,000. Now the value of this immense amount of credit is affected by the condition of our money market, and a depreciation of ten per cent. of its amount is equal to the loss of one of our cotton crops. Should we allow a few reckless adventurers to trespass upon the rights of others, and by the agency of a few small banks, scattered throughout the country, disturb our financial equilibrium and depreciate the value of property, by causing needless fluctuations? Still, however, the multiplication is going on with fearful rapidity; some originating with parties who have surplus capital, and wish to facilitate their own and their neighbor's commercial transactions; with others, who wish to invest funds for the sake of the income; with another class, who are solicitous to create *bank capital*, as it is called, for the supply of their business wants, by an exchange of their own stock notes for the bills of their chartered banks; and last of all, by those whose sordid motive is to speculate on the community, by foisting upon it notes of circulation, and then decrying their value, to purchase them back again through other channels at a discount, or perhaps finally abandon them to their fate, without redemption, on any terms. Our banks are the offspring of twenty-seven different States, and are founded upon the three different systems of a specie basis, a safety fund, and the "free banking" principle, a deposit of stocks; but until some uniform system of bank circulation is adopted, we can not hope to escape the evils of our present heterogeneous currency. The issues of our banks ought to be regulated by the state of our foreign exchanges, restricted when gold is flowing out of the country, and expanded when it is coming in. As it is now, however, if the banks in our commercial cities curtail their circulation, the vacuum is soon supplied by the country banks, who eagerly avail themselves of the opportunity, and thus nothing is gained, but, on the contrary, much is lost by this substitution of a weaker currency; and when a pressure comes, these smaller banks add fuel to the flames, by their importunate cries for assistance and indulgence. The efforts of our banks on the sea-board can produce but little perceptible effect in contracting the currency, if the great mass of the interior banks persist in issuing their paper as long as they have confidence in their customers, or the public are willing to receive it. We therefore need a restraining or an overawing power, which can be exercised for the general good: and until we have this, the currency will continue to be fluctuating, both in quantity and quality.

An annual report on the condition of the banks throughout the Union is made to Congress by the Treasury Department. The resolution adopted in July, 1832, under which these annual reports are made, calls for "such statements and returns as may have been communicated to the Legislatures, governors, or other officers of the several States *within the year*, and made public." The want of uniformity of dates, however, is not the only deficiency in these annual reports; there is no specification of *immediate liabilities* and *deferred*, or of *immediate and deferred resources*—without a knowledge of which it is impossible to arrive at a true knowledge of the condition of the banks. It will be fortunate for the country if this subject should ever attract the attention of Congress and the State Legislatures, and they should be induced to unite in some common system of action, by which all the banks in the country should be required to make quarterly statements of their affairs at the *same specified dates, at the close of the day's business*, and upon a uniform and simple plan, so that no one who is acquainted with an ordinary account current could fail to understand them. Such, however, we fear, will never take place, and for the present we must be content with the imperfect, heterogeneous, and mystified statements which are annually furnished to Congress in the voluminous documents of the Secretary of the Treasury, with such condensed tables as the arts of finance and divination will enable him to make out, and we must abandon the idea of statistical exactness.

1800–1810.—The number of State banks in 1800 was thirty-two, having authorized capitals of $23,550,000, but it was not all paid in; and it has been stated that the capital of the first United States Bank, chartered in 1791 ($10,000,000), probably exceeded the paid up capital of the thirty-two local banks. Of these, eighteen were in New England, five in New York, two each in Pennsylvania, Maryland, District of Columbia and South Carolina, and one in Delaware. There are no reliable statements of the amount of circulation or specie on record prior to 1808, but estimates have been published by the Secretary of the Treasury, in 1855, which give the circulation at $10,500,000 in 1800, and gradually increasing to $18,000,000 in 1807, while the specie *in the country* was estimated at $17,500,000, running up to $20,000,000 during the same period: the amount in the banks, however, is not even conjectured. In 1808 the Bank of the United States had $4,787,000 in circulation, against $15,300,000 in specie; and the Secretary adds, "the policy of the banks in New England was widely different. They pushed their issues to the very limits of their credit, some of them issuing notes for even fractional parts of the dollar. The result was, that there was, in 1808–9, a grand explosion among the banks in New England, by which most of them were shattered, and some of them totally destroyed."

The first return of specie in the banks was in 1811, when the amount was $15,400,000 against a circulation of 28,000,000. This amount must have been mainly drawn from the United States Bank, whose charter expired the same year: for from the time of the embargo in 1808 to 1811, "when our produce could no longer be exported, all who had any engagements to meet in foreign countries—all to whom remittances abroad were advantageous, if not indispensable—transmitted specie as the commodity most easily concealed and transported. From this time the amount of specie diminished; the unsettled state of our commercial and political regulations with foreign powers during the three succeeding years presented a new accumulation; and soon after our declaration of war against Great Britain, in 1812, the banks throughout the Middle and Southern States, which had for some time been paying specie reluctantly and sparingly, suspended altogether their specie payments."—*South Carolina Bank Report.*

In 1814 all the banks in the Union, with the exception of those in New England, suspended payment, and the confusion and depreciation of their notes assisted the plan of re-establishing another United States Bank, which was finally accomplished in 1816, with a capital of $35,000,000, and a charter of twenty years' duration. This capital, as in the former bank, was paid "one-fourth in coin and three-fourths in stock, which the bank might sell at the rate of $2,000,000 per year." Though its affairs were mismanaged, and it sustained some heavy losses in the first years after its establishment, it was afterward conducted with great skill, prudence, and success. It established branches in nearly every State, and bought and sold bills of exchange between all parts of the Union to an immense amount, because the low rates of its premiums and discounts gave to it almost a monopoly of this branch of business. While it rendered this and other important services to commerce, it was the general financial agent of the government through nearly the whole term of its existence, and transmitted the public revenue to whatever points it was wanted with equal promptitude and certainty, and without charge. Its charter expiring in 1836, it was then dissolved, after ineffectual attempts in both houses of Congress, during two terms, to counteract the opposition of President Jackson, and to renew its charter. In June, 1832, the renewal of its charter passed the Senate by a vote of 28 to 20, and in July following the House of Representatives confirmed the vote by 107 to 85, but the president vetoed the bill a week afterward. The same corporation afterward obtained a charter from the State of Pennsylvania, but in 1841 it finally suspended payment, and its shares were sold during that year at $17½, and subsequently at $9, the same year. After the fate of the United States Bank was decided, in 1832, the number of local banks was greatly multiplied, and rose from 330 banks in 1830, with capitals amounting to $145,000,000, to 829 banks in 1838, with $317,000,000 capital. So great an increase, and the consequent distention of the circulation, contributed, with the excessive importations of the four preceding years, especially in 1836, to the general suspension which took place in May, 1837. At this period we commenced these remarks, and we will now advert to some of the local diversities in banking; for which purpose we will consider the State banks according to the geographical divisions of the United States, as the banks in each of the five divisions have some common features of resemblance. We shall then take up the several States where there is a material difference in each division.

New England.—Banking in the New England States has, with the exception of the Southwestern States, been carried on to a greater extent than in any other portion of the Union. The first attempt at banking among the colonies in New England was in the years 1739–40, when the "Land Bank" was established by about eight hundred subscribers, who pledged their real estate to the amount of their respective shares, and, after the choice of ten directors and a treasurer, agreed to issue £150,000 in bills, to be circulated as lawful money, each £1 note being equivalent to three ounces of silver; but it was soon after dissolved by act of Parliament, and each holder of the bills was entitled to a right of action against any individual partner for the amount, with interest. The first legitimate bank in Boston was instituted in 1784, the second in 1792, the third in 1803, all of which are now in existence; there were, however, four other banks in the State in 1800, one of which was the Essex Bank, in Salem, incorporated in 1799. There are no reliable tables of the aggregate condition of the banks prior to 1836; but from various sources we ascertain that the following tabular statements of the number of banks, and the amount of capital at the periods named, are nearly correct, in reference to New England:

Years.	Banks.	Capital.
1805	47	$13,353,000
1811	47	12,207,394
1815	63	19,053,902
1820	92	19,862,194
1830	172	35,297,869
1838	319	65,257,540
1850	312	66,299,185
1856	486	111,349,836

The annual reports of the Treasury for 1850 and 1854 present the following comparative views of the condition of the New England banks on the 1st of January:

States.	Banks.	Capital.	Circulation.	Specie.
1850.				
Maine.........	32	$3,098,000	$2,252,764	$339,231
New Hampshire	23	2,186,500	1,776,921	139,125
Vermont	24	1,826,975	2,322,962	120,798
Massachusetts .	119	34,630,011	15,700,935	2,749,917
Connecticut ...	36	8,928,264	4,511,570	575,656
Rhode Island ..	61	11,212,404	2,525,549	291,295
1854.				
Maine.........	60	$5,913,870	$5,317,750	$1,132,610
New Hampshire	35	3,376,000	3,021,579	180,239
Vermont	33	2,914,040	4,764,439	188,173
Massachusetts .	143	49,050,175	25,620,472	3,731,764
Connecticut ...	53	13,164,594	10,224,441	1,145,857
Rhode Island ..	77	15,917,429	4,835,529	259,699

Of the six States of New England, Rhode Island has the greatest amount of bank capital in proportion to its population, but its extensive manufacturing concerns require it all. Vermont has the smallest capital, but its circulation is proportionately the largest, as the preceding tables exhibit.

Prior to the commencement of the present century, and for several years afterward, the prosperous condition of the commerce of New England gave an impetus to trade, and a speculative spirit prevailed, and large invesments, for those days, were made in real estate and the construction of turnpikes. Money, in 1808, was in great demand, and at a high rate of interest, but during that and the succeeding year a great revulsion occurred; real estate and all other descriptions of property depreciated, and several banks failed. The Farmers' Exchange Bank of Rhode Island, with a circulation of $650,000, was among the number, and the entire amount was a total loss to the bill-holders, in February, 1809. The failure of this bank caused others to fall, and among them, the Farmers' Bank of Gloucester, the Coos Bank in New Hampshire, and others of less note. No shock of public or private credit had taken place, since 1783, which so alarmed the people of New England as did these failures.

Massachusetts.—After this period the amount of bank capital was diminished about one million of dollars, although the number of banks was, in 1811, the same as that of 1805, being forty-seven in both of those years. In 1811 the State Bank, with a capital of three millions, was chartered in Boston, and the Merchants' Bank in Salem, both of which were subscribed for by the dominant party of the day; and when war was declared in 1812, the State Bank subscribed $500,000 toward the first war loan of eleven millions, the Merchants' Bank $20,000, and the Providence Banks $80,000, which was the entire sum taken by the banks of New England of the first loan. Of the second loan of thirteen millions, in December, 1812, $9,230,000 was subscribed for by the banks throughout the country, and $3,870,000 by individuals; but the whole amount contributed by New England was only $2,311,500, of which Boston and Salem furnished $2,144,100. During the war of 1812–14, all the banks in New England maintained specie payments, while all the rest in the Middle, Western, and

Southern States suspended payment. The following table exhibits the accumulation of specie in Massachusetts in 1814:

Years.	Banks.	Capital.	Circulation.	Specie.
1805	16	$5,460,000	$1,553,824	$847,988
1810	15	6,685,000	2,098,491	1,347,722
1814	21	11,050,000	2,922,611	6,946,542
1815	25	11,462,000	3,464,241	2,740,511
1820	28	10,600,000	2,614,734	1,280,852
1825	41	14,535,000	5,994,264	1,038,986
1830	63	19,295,009	5,124,090	1,258,444
1835	105	30.410,000	9,430,35	1,136,357

As all the banks in the other New England States were founded on the same basis, it is fairly to be inferred that they were all well fortified with specie, but we can not find any specifications of their condition in any authentic shape. We give, however, a comparative view from 1820 to 1837, to show how rapidly both banks and banking capital were multiplied during this brief period of seventeen years: showing an increase between 1820 and 1830 of eighty banks and $15,335,675 capital, and between 1830–'37, of one hundred and sixty-three banks and $33,650,328 capital:

States.	1820.		1830.		1837.	
	Banks.	Capital.	Banks.	Capital.	Banks.	Capital.
Maine..................	15	$1,654,900	18	$2,050,000	59	$5,535,000
New Hampshire........	10	1,005,276	18	1,791,670	23	2,663,308
Vermont...............	1	44,955	10	432,625	20	2,200,000
Massachusetts..........	28	10,485,700	66	20,320,000	138	40,830,000
Rhode Island...........	30	2,982,026	47	6,118,397	64	9,100,581
Connecticut............	8	3,689,337	13	4,485,177	31	8,519,308
	92	$19,862,194	172	$35,197,869	335	$68,848,197

In the suspension of specie payments in 1837, all the New England banks concurred, but they all resumed in 1838; and in the suspension of 1839, only three banks in Maine (one of which resumed) suspended; one in New Hampshire partially, and sixty-three in Rhode Island, twenty-one of which immediately resumed payment; the remaining banks in the other five States all redeemed their bills.

The banks of New England were originally founded upon the only true principle of banking—a full paid up capital in coin, placed under the management of discreet and responsible directors. The caution which characterized these important personages in those early days superseded the necessity of providing against the cunning devices which modern financiering has discovered; and banks were regarded as the depositories of surplus wealth, concentrated for the ostensible purpose of accommodating the public by discounting short paper with ample security, and thereby yielding to the stockholders a satisfactory remuneration without any personal exertion or care. The trade of our country was then limited in its extent; manufactures were carried on by individual exertions only, and disposed of within the narrow precincts of their own neighborhood. The products of agriculture were exchanged for articles of domestic use, and our commerce, then in its infancy, was principally employed in the conveyance of our domestic productions, and the proceeds of our fisheries, to the West Indies, South America, and Europe, and returned home with such productions of those countries as were required for consumption or use; and for such operations bank facilities were not needed. But the unparalleled increase of the commerce and navigation of Massachusetts, Maine, and Rhode Island, as well as throughout the country at large, soon created a class of traders who purchased and held larger stocks of merchandise for their business, and whose transactions were profitably carried on between the merchant and the agriculturist, the importer and the consumer, the exporter and the producer. In proportion as trade and commerce increased, their operations called into requisition a larger amount of capital, and bank facilities were more and more needed. The stringent regulations of earlier days did not suit the wants of the community, and new banks were created with more liberal views, but still conducted with great caution. With every decade of years, the banking institutions have always kept pace with the legitimate wants of trade, and sometimes transcended them. They have now reached a point where it is desirable that they should rest a while, as the banks in New England are more than one-third of all the country in number, and but little less than one-third of its entire bank capital.

It is now upward of seventy years since the first bank was established in New England, and the country has passed through the various vicissitudes of prosperity and adversity, commercial seizures and embargoes, peace and war, growing out of the continental troubles in Europe; and when, after the general peace of 1815, the country emerged from its dark cloud of despondency and resumed her commercial pursuits, it was with a buoyancy which astonished the world with her unprecedented success. Since that period we have been in imminent peril of war, once with France, three times with Great Britain, once with Spain, and engaged in actual hostilities with Mexico, to say nothing of Austria and Peru, which were of minor importance; and although all these national troubles have, with but one exception, been amicably settled without an appeal to arms, still their effects have been felt in our financial circles, producing those sudden fluctuations which operate so disastrously upon the interests of trade. Throughout all these perilous periods the New England States have proudly sustained their banking system, yielding only once to the financial crisis of 1837, which prostrated every bank in the United States, for one brief year, and even then with reluctance. It must then be conceded that a system which has been subjected, for so long a period, to such various vicissitudes and severe experience and trial, must possess elements of vitality and strength which should entitle it to the confidence and support of the community, however antiquated it may appear to be, in comparison with those subtle theories which our modern financiers so strenuously advocate.

In reviewing the bank history of New England, we find many errors and omissions which have from time to time been corrected, as the various developments of bank failures were scrutinized by successive Legislatures in every State. The very first charter granted in Boston was *unlimited* in its duration, but it has since been restricted by consent, and expires in 1870. But the greatest error was in relation to the power of issuing notes. An overissue of paper is one of the greatest mischiefs of banks, and one to which they are most strongly tempted by the desire of increasing their profits; it is obviously wise, therefore, to impose a limit on these issues, which should not under any circumstances be transcended. But we find that when the first charters were granted, the Legislatures, being unfamiliar with the subject of banking, and learning probably from English books that the Bank of England considered it a safe rule to have in its vaults one-third as much specie as it had notes in circulation, they conceived that after having required the whole capital stock to be paid in specie, they were adopting the same rule as the Bank of England, by limiting the amount of circulation to three times the amount of the capital stock.

This provision having once found its way into some of the early charters, it was copied into others on the presumption that it had been tested by experience. In some of the States the only restriction was that the amount of their loans should not exceed three times the amount of their capital stock, or that their issues should not exceed that proportion; but both these restrictions are merely nominal, for there is not a bank in New England whose discounts have ever amounted to three times the capital. This error, however, has been remedied in all the States of New England, first by law, and secondly by the operation of the Suffolk Bank system, which exercises a constant watchfulness over the issues of every bank, and not one can venture upon an excessive issue without immediate exposure. The laws of Massachusetts, in relation to circulation and loans, are as perfect as legislation can make them; they limit the circulation to 25 per cent. beyond the amount of the capital paid in, and impose upon the stockholders an individual liability to the amount of their stock, for the redemption of the bills of the bank. The loans are limited to double the amount of the capital paid in, nor can they be extended beyond this amount, however large or permanent the deposits may be. Weekly returns from the banks in Boston, and monthly returns from all others in the State, are required to be made to the Secretary of State on the first Monday of the month, showing their true condition, under a penalty of $500 for every omission; and, finally, three commissioners are appointed, whose duty it is to visit every bank and savings bank "at least once in every two years, and to examine every new bank, and every bank whose capital has been increased, within a year after they go into operation, or after the stock shall have been paid in respectively." Maine, Vermont, and Connecticut have bank commissioners also, and with the aid of the proposed new "Bank of Mutual Redemption," should it go into operation, the currency of New England will be the safest in the Union.

There have been other errors in banking in past times, of which we have not yet taken notice. The Legislatures of the different States have not been sufficiently careful to discriminate between real and nominal capital; and while the stockholders have gone through the form of paying up the stock of the banks, it has been too often nothing but form. In some instances, stock notes have constituted the chief part of the capital; gold has been borrowed from other banks for the purpose of examination on pay day, and then returned to its rightful owners. The stock notes were the next day discounted by the new bank, its bills paid out therefor, and scattered far and wide for the purpose of circulation. Being new, curiosity would retain them for a while, until the bank could gather in its deposits, and these would enable it to redeem that portion of them which would be presented for specie payment.

Again, the banks have been too numerous, though the capital may have been real, and this part of the machinery has been not only more expensive, but more easily deranged. In consequence of the excessive competition induced by the undue multiplication of banks, arts and schemes have been resorted to for the purpose of obtaining a larger share of circulation, thereby enlarging their profits, the currency greatly distended, and the safety of the banks themselves endangered. In general, the same capital will be safer, as well as more profitable, if concentrated in one bank, than if distributed among several smaller ones. When the number of banks has been sufficiently enlarged to secure to the public the benefit of competition, it appears to be as unwise to multiply them any farther as it would be to make any unnecessary addition to the number of our colleges, churches, or any other public institutions.

The only innovations which have been attempted upon the banking system of New England have been introduced in Vermont, Massachusetts, and Connecticut, by the passage of free banking laws; but the experiment has signally failed, and the laws have become almost inoperative. The charters of the banks in Maine expire by limitation in 1857; those in Rhode Island are perpetual, and there, as in Massachusetts, stockholders are individually liable for the redemption of the circulation. The failures which have occurred have been numerous, but they have all originated either from a deficiency of the payment of the original capital, or by palpable mismanagement. It has been truly remarked by a keen observer, that "the personal character of the officers and stockholders of banks is intimately blended with their safety. At the start, good intentions prevail as a general rule, and the directors pay strict attention to business; gradually, however, the management passes into fewer hands, and sometimes into one only. Trade in money has its peculiar effects upon character, like all other occupations and avocations, from which effect only the most sterling men escape. Malpractice will grow as care and diligence slacken; so, from neglect or undue anxiety to make money, losses occur. This is the general feature of all banking; much of the safety of banks lies in the unremitting attention of directors and stockholders to the affairs of the bank."

The truth of these remarks will be admitted by those who were conversant with the circumstances attending the disasters of the following banks in Massachusetts: American, Kilby, Commonwealth, Oriental, Middling Interest, Cochituate, and many others in Boston; and the Newburyport, Woburn, Roxbury, Chelsea, Nahant, Dover, and others in the country. In Maine—Kennebec, Castine, Hallowell and Augusta, Wiscasset and others. In Connecticut—Eastern, Derby, Eagle of New Haven, Commercial Bank of Tolland, Bridgeport Manufacturing Company, and others. In New Hampshire—Hillsboro and Piscataqua. In Vermont—Windsor, Barrington, Agricultural, Green Mountain, etc. In Rhode Island—Burrillville, Eagle, Franklin, Mount Hope, etc. We have specified these banks because they are the most prominent and the most recent, and, with perhaps some few exceptions, owe their downfall to one of the two causes to which we have alluded, viz., fictitious capital or palpable mismanagement. The art of successful banking is in itself a *science*, not acquired with facility or mere observation, but by laborious study and application to its practical details and operations; and when we investigate the origin, foundation, and career of the various banks in New England, and the vicissitudes and political changes through which they have passed during the period which we have been considering, it appears marvelous that any of the earlier banks should have been conducted in safety through the mysteries and perplexities of currency in its frequent contractions and expansions, and of exchange in its constant fluctuations, produced by silent operations in distant markets, and imperceptibly, yet inevitably, influencing the monetary condition of their sphere of operations. And yet, in comparison with the whole number of banks in New England, how few of them have failed? And to what cause can we more probably attribute it than to the excellence of the *system* under which they are constituted—*a specie basis?*

MIDDLE STATES. *New York.*—In the early history of banking in New York, since 1800, politics and finance were so intermingled that the question of granting a bank charter was a matter of direct issue between the two political parties of the day; but prior to that period, in the establishment of the first banks, this state of partisan excitement did not exist, but in lieu of it there was a jealousy in regard to the incorporation of moneyed institutions; and after they were established, great caution was required to avoid the perils which their opponents had predicted would inevitably ensue. Fortunately, however, the first bank established in New York was managed with such ability and discretion that it disarmed all opposition, and became an important auxiliary to the government of the United States, by a loan of $400,000 at five per cent., thereby securing in its early career great popularity, as the bank owed no favor to the government, and had no interested motives in loaning the money. The organization of this bank (the Bank of New York) was, however, an association for banking purposes, rather than a regular bank. It commenced business in 1784 (its first application for a charter having been unsuccessful) without a charter, and discounted short paper at 6 per cent. per annum, which rate was advanced to 7 per cent. three years afterward. In 1791 a charter was granted, the act of incorporation having been drawn by General Alexander Hamilton, which was not materially altered before its expiration. Its authorized capital was $1,000,000, but it is now double that amount, and its annual dividends have usually been 8 to 10 per cent. per annum.

The next banks incorporated were the Bank of Albany in 1792, and the Bank of Columbia, which were chartered without any other opposition than that of the timid portion of the community, who had not forgotten the disastrous losses by the Continental system of paper money.

In 1799 the Manhattan Company was incorporated, with an unlimited charter, and was regarded as a partisan triumph; and from this period all projected moneyed institutions in the city of New York were advocated or opposed on political considerations only, and thus finance and politics became blended in the contest, which continued until the question of the construction of the Erie Canal diverted the gladiature of zealous politicians to this new area of strife. In 1801 the whole number of banks in the State was but five, whose authorized capitals were $4,722,000. In 1803 the New York State Bank at Albany was chartered, and in 1805 the Merchants' Bank in New York, having commenced business, however, two years previous to its being chartered. There were then, in 1805, but seven banks in New York State, the aggregate of whose capitals was only $5,430,000; but it has now 300 banks, having a capital of $96,000,000. In 1810 the Mechanics' Bank was chartered; in 1811, the Union, and the Farmers and Mechanics' in Albany; in 1812, the Phœnix, the City, and the Bank of America. The projectors of this latter bank originally applied for a capital of six millions of dollars, to supply the place of the United States Bank, whose charter had so recently expired, and offered for the charter a bonus to the State of $400,000 unconditionally: $100,000 in ten years, and $100,000 in twenty years, if, at the expiration of those terms, there should be no additional banking capital authorized by the Assembly in the city of New York. They further offered to loan the State one million of dollars, at 5 per cent., for the construction of the Erie Canal, and one million more at 6 per cent., to be reloaned to farmers and others on landed security.

As in the case of the Manhattan Company's application for a charter in 1799, all the arts of political intrigue were brought into requisition, but after a protracted and violent opposition the bill was finally passed as petitioned for; but a subsequent Legislature authorized the bank to reduce its capital to two millions of dollars, and at the same time reduced its bonus to the State to $100,000, as immediately after the charter was granted war was declared against Great Britain, and "with it came the long series of commercial disasters and financial troubles, and a general interruption of our foreign trade." In 1814 the banks in New York, in consequence of their liberal bonus to the government, and their excessive issues of paper consequent thereon, suspended specie payments, in common with all the other banks in the Middle, Western and Southern States. Six months after the suspension, the news of peace was received, but the banks did not resume specie payments; and instead of contracting their circulation, they increased it, and were encouraged to do so by the general government, who continued to receive their inconvertible paper for public dues, until February, 1817, when there was a partial resumption of specie payments, and the second United States Bank commenced its operations. After the peace in 1815, large amounts of specie were annually exported to the East Indies and China, and the premium on silver was from 15 to 18 per cent. The United States Bank resorted to *forced* importations of specie to supply the vacuum, and having spent $500,000 on one experiment, they wisely abandoned the scheme, and allowed trade to follow its natural channels. Between 1812 and January, 1818, about two hundred new banks were chartered in various parts of the Union, which distended the currency to its utmost point; but a day of reckoning was near at hand, and all further inflation was at an end. In the middle of 1818 the contraction commenced, and banks and individuals were swept away in one promiscuous mass of ruin. The disastrous effects of this local banking mania were felt until the close of 1820, and in many portions of the country for many succeeding years. The following tabular statement exhibits the banking capital of New York during this period of twenty years:

Years.	Banks.	Capital.
1801	5	$4,720,000
1805	7	5,430,000
1811	8	7,522,760
1815	26	18,546,818
1816	27	18,766,756
1820	33	18,988,744

but we have no means of ascertaining the amount of circulation or specie. The estimates of the whole country for 1815 were 208 banks, $82,260,000 capital, $70,000,000 to $110,000,000 circulation, $15,500,000 specie.

When the suspension of specie payments took place in 1814, a public meeting of the merchants and others interested was held, and they promptly sanctioned the measure, under the assurances of the banks, however, that whenever the war was terminated specie payments should be resumed. Doubtless this was the intention of the banks, as they commenced the curtailment of their loans immediately after their suspension; but when peace took place the redemption of this pledge was not demanded at the stipulated time, and the banks, regardless of all moral obligations, and stimulated by the prospect of large profits and enormous dividends, extended their circulation to an amount unexampled in the annals of folly. The "plenty of money," as it was called, was so profuse, that the bank directors were fearful that they could not find a demand for all the "money" they could fabricate, and not unfrequently solicited individuals to become borrowers, under promises of indulgence of the most liberal and tempting nature. Every city, town, and county had its own local currency, bearing no equivalent with, or fixed proportion to, any other; and a new and extensive class of brokers appeared, who still exist, and have ever been supported at the expense of those who have been defrauded by the banks of their just right, the *par value* of their notes.

When the United States Bank was incorporated, the city banks became alarmed for their safety, and made a retrograde movement, and, by a reduction of their loans immediately, occasioned great commercial distress. This temporarily produced a reduction of the currency, and the directors of the National Bank proposed to the State banks a resumption of specie payments on the 21st February, 1817, and the city banks, relying upon the forbearance which had been extended to them by a confiding but defrauded community, who for two years and a half had been paying 6 per cent. per annum for their depreciated and dishonored bank bills, assented to the arrangement, and specie payments were *nominally* resumed on the appointed day. But the resumption was merely nominal, for silver, both foreign and American, still commanded a premium over the par value of city bank-notes, and depreciation may result, as well from the forbearance of creditors in demanding their rights as from the refusal of banks to meet their engagements; and this arrangement was not a real resumption, but a mere change of one species of inconvertible paper for another of like character. As soon, however, as the directors of the National Bank had completed their arrangement for elevating this depreciated paper to the standard of their own convertible notes, instead of reviewing the experience of the past, or acting upon the general principle that circulation could not be extended beyond a certain limit, and that, when this point was reached, any further issues would occasion depreciation, and with the full knowledge that such was the actual state of existing affairs, they at once commenced issuing their own circulation, and in a few months added to the currency an amount greater than that which had previously been withdrawn. By their operations, the currency *nominally* convertible was depreciated below its former rate, and retrograded instead of advanced toward restoration. But the bank finally discovered its error when almost too late, and sought to retrieve it by withdrawing their circulation, reducing their loans, and curtailing all their other transactions, thereby causing a second pressure in October, 1818, which continued for more than a year, and in many parts of the country many years longer. If the city banks had availed themselves of the opportunity of curtailing their operations while the United States Bank was extending, it would have been financial wisdom; but the same cupidity controlled their movements, and they were also compelled to contract their issues, loans, and all other operations.

The banking system of New York was originally founded on the universal principle of a specie basis; but after the disasters of the period which we have just been reviewing, financiers and political economists were impressed with the belief that there was something defective in the system; that some reform was necessary in regard to the currency, and that unless a remedy was found, the whole banking fabric would ultimately be overthrown. The first innovation which was tried commenced in New York with the adoption of the "safety fund" system in 1829. It required from each bank an annual contribution of half per cent. of its capital to a common fund, to be deposited with the State Treasurer as a "bank fund," until it amounted to 3 per cent. of the capital of each bank, and was to be applied to the payment of the debts of any bank which might become insolvent which had contributed to the same; and in case the fund was at any time diminished by payment therefrom, the banks were again required to make their annual contributions, till each had in deposit the 3 per cent. on its capital stock. For a series of years this system was regarded with favor, but the sudden failure of 10 banks, with capitals amounting to $2,559,000, occasioned a loss of $1,548,560 for redemption of circulation, and $1,010,376 for the payment of the other liabilities of these insolvent banks. At the time of the failure, the fund amounted to $1,876,073, and the balance was paid by a 6 per cent. stock authorized by the State, the redemption of which stock was provided for by the subsequent contributions of the banks to the fund. Under this same law of 1829, three bank commissioners were appointed, with large powers, to supervise and inspect the several banks of the State. These officers were at first appointed, one by the governor and Senate, one by the city banks, and one by the country banks; but in 1837 the power of appointing the whole number was transferred to the governor and Senate, which placed these officers "within the vortex of the great political whirlpool of the State, and the place was sought for and conferred upon partisan aspirants, without due regard, in all cases, to their qualifications to discharge the delicate trust committed to them." In 1843 the Legislature abolished the office, conferring the power of examining the banks upon the controller of the State.

After nine years trial of the "safety fund" scheme, it was virtually abandoned, and another experiment was substituted in 1838, by the passage of the "free bank" law. By this system "every individual and association was authorized to engage in the business of banking; and on depositing with the controller the stocks of the United States, the stocks of any State which should be or be made equal to a 5 per cent. stock, or such stocks and bonds, and mortgages to the same amount on improved, productive, and unincumbered real estate, worth double the amount secured by the mortgage, over and above all buildings thereon, and bearing an interest thereon of 6 per cent. per annum, the controller was required to deliver to such individual or association an equal amount of bank-notes for circulation, duly numbered, registered and signed at his office." No specific amount was required from individual bankers before they commenced operations, nor were the stockholders liable in their individual capacity. The result was, that in the abundant supply of stocks of every description, banks were immediately created out of the cheapest materials, and bank-notes were furnished to the community with the most generous profusion. This extraordinary expansion produced the usual results, inflation of prices, extension of credits, and wildness of speculation; and to aid the delusion, the bonds of the Western and Southwestern States were freely supplied. But the crisis came with fearful results; first in the shape of non-payment of interest, next of great depreciation, and, finally, the repudiation of the State bonds, and the consequent failures of the banks which owned them. But these disasters did not discourage the people from a persistence in the scheme of free banking; on the contrary, the Legislature of 1840 preserved the system, by excluding the stocks of other States, after that date, and required the banks to deposit the stocks of New York and the United States only. Although the system has been materially improved by legislative enactments since it was first established (and almost every year furnishes some valuable amendment to its provisions and restrictions), and is now regarded with favor by prominent financiers, as affording ample security to bill-holders, yet even on this point there may linger some doubts. In periods of prosperity all would be well; but in the event of severe pressure and a panic, a sudden contraction of the currency, and a general withdrawal of all floating capital, the free banks would find it difficult, if not impossible, to convert their stocks and mortgages into the requisite funds to carry on their redemption; and the failure of even one of them would be disastrous to many. In confirmation of these remarks, we have only to recur to the controller's past reports, and ascertain what the results of the failures of some of these free banks were, and we find the following, among others: St. Lawrence Bank, securities $81,277, sold for $27,232 50; New York Banking Company, N. Y., securities $26,000, sold for $4,370; Erie County Bank, whose mortgages for $15,000 on property valued at $31,500, exclusive of buildings, were sold for $3,000; State Bank of New York, Buffalo, $5,000 Illinois 6's, sold for $812 50; and so on with the remaining 27 banks in his report of 1849. To illustrate the rapid progress which the banking interest has made within the last twenty years, we add the following table:

Years.	Banks.	Capital.
1838	100	$37,101,460
1850	198	48,618,762
1854	238	80,726,370
1856	300	96,000,000

Weekly returns of the condition of the banks in the city of New York were first made in September, 1849, and in October, 1853, a "clearing-house" was established for the city banks. The returns for two years, for 1853 to 1855, show an aggregate of exchanges of $11,875,996,450, and of balances settled of $600,273,826.

Pennsylvania.—The first bank which was established in this State was the Bank of North America, which was chartered by Congress on the 31st December, 1781, with a capital not to exceed ten millions of dollars, and without any limitation of duration. The charter was confirmed by the State in April, 1782, and it commenced its operations upon a capital, paid in, of $400,000, and as the country was deficient in notes of circulation, and its credit stood high, it was enabled to extend its issues vastly beyond its capital. The extensive circulation of the notes of the bank, occasioned by the disbursements of the government, which was a heavy borrower, emboldened its directors to overstep the bounds of discretion. The channels of circulation soon became surcharged, and the public, beginning to doubt the ability of the bank to redeem its notes on presentation, they were returned so rapidly for payment, that it was compelled to call upon its debtors for payment also. This reduction of loans occasioned a general pressure for money, bankruptcies, usurious extortions, the disappearance of specie, and the impossibility of procuring money at the legal rates of interest. Petitions were shortly afterward presented to the Legislature for the repeal of the charter, which was granted on the 13th September, 1785; but the bank continued its business, claiming the right to do so under the charter granted by Congress. In March, 1787, the Legislature revived its charter, limiting its capital to $2,000,000, of which only $830,000 were paid in, and its duration to fourteen years. In February, 1791, the first Bank of the United States was chartered, with a capital of $10,000,000, for twenty years, and on the expiration of its charter in 1811, it was wound up. In 1793 the Bank of Pennsylvania was chartered, with a capital of $2,000,000, for twenty years, with four branches; in March, 1804, the Philadelphia Bank, with a capital limited to $2,000,000, of which $1,800,000 were paid in, and limited to 1st of May, 1814, but afterward extended to 1824, with liberty to establish branches, and four of which were established; in March, 1809, the Farmers' and Mechanics' Bank, with a capital of $1,250,000, to continue till the 1st May, 1824. These were the only *incorporated* institutions in 1811, although there were others in the State, such as the Farmers' Bank of Lancaster, with a capital of $300,000, established in 1810, and several others in the city as well as in the State. The following circulation of the three chartered banks we give:

Banks.	Circulation. 1811.	Circulation. 1816.
Bank of Pennsylvania	$1,425,203	$1,400,356
Philadelphia Bank	713,309	654,420
Farmers' and Mechanics' Bank	804,730	504,700

In March, 1810, the Legislature enacted a law to prohibit unincorporated associations from issuing notes or pursuing any of the operations of banks; but in defiance of its provisions, the system was persevered in, and even companies incorporated for the purpose of constructing bridges departed from the spirit of their charters, converted themselves into banks, and issued notes for circulation. This mania for banking would soon have been checked by the return of the notes for payment, had not the war of 1812 intervened, and the cessation of the demand for specie for exportation to India and China removed the usual check at that period against excessive issues of bank paper. The apparent success of the Farmers' Bank of Lancaster, which, from the enormous extent of its issues, was enabled to divide 12 per cent. per annum, and to accommodate its stockholders *with loans to double the amount of their stock*, had a powerful influence on the public mind. During the session of 1812–'13, a bill was passed by the Legislature, by a majority of one in each branch, to incorporate twenty-five new banks, whose aggregate capitals amounted to $9,525,000, but it was vetoed by Governor Snyder, and returned with his objections, some of which were, that "it would, by readiness to give credit, invite to visionary speculations, divert men from useful pursuits, damp the ardor of industrious enterprise, and consequently demoralize the community." In March, 1814, the subject was renewed, and a bill was passed incorporating *forty-one* banks, with capitals amounting to upward of $17,000,000, of which only one-fifth part was required to be paid in. Although the bill passed both houses by large majorities, Governor Snyder returned this bill also, with his objections, but two-thirds of both houses voted for its passage notwithstanding; it became a law, and thirty-seven banks went into operation under its sanction.

The immediate commencement of a number of these banks, whose *bona fide* capital was little more than the first installment required, increased the amount of circulation, already too redundant, and the depreciation of the currency grew worse and worse, and all confidence in its convertibility was lost. The new banks *discounted stock-notes* to meet the *remaining installments*, and hence only one-fifth part of their capitals was ever paid in, as before stated. In our remarks upon the New York banks, we have commented upon the movements and operations of the United States Bank in 1817 and 1818, and their influence was, of course, more severely felt in the central point of its negotiations, Philadelphia. And here it would be most appropriate to glance at the rise, progress, and final doom of the second United States Bank; but so much has been written on the subject, and its history is so familiar to our readers, that we shall add no further remarks to those which have already been made in a previous portion of this review.

In 1819, 15 of the 37 banks chartered in 1814 failed, and in due time were officially announced as "dissolved, unlawful, and unincorporated," and there were at the same time 22 banks more in the State transacting business without charters. In 1820 there were 36 banks in existence, with capitals amounting to $14,681,780, and an indefinite number of "*freebooters.*" It is an unpleasant task to run over the next decade of years, from 1820 to 1830, for there is nothing cheering in the review; throughout almost this entire period there was a rapid succession of untoward events, leading to embarrassments, insolvency, litigation, dishonesty, and more flagrant crimes. It is a continuous history of bankruptcy throughout a large portion of the country, and of frauds upon the community without any previous parallel. Banks were *bribed* to fail, that the stockholders might pay their indebtedness in the currency of the same bank, after it had reached its minimum point of depreciation, commonly 50 per cent. "Money mills" were established in New York, Philadelphia, and other places, which were based on the system of the celebrated Malepar, the keeper of an *oyster cellar* in New York, who had the adroitness to swindle the community out of $500,000, by his notes of circulation, and whose motto was, "Make money, *honestly* if we can, but *rascally* if we must." In 1822 there was a pressing scarcity of money; in 1825 and 1826, convulsions and bankruptcies among the banks; in 1827 and 1828 among the banks and the manufacturers from New England to Georgia; but in 1829 and 1830 the gloom which had settled so long upon the country was dispelled, and a brighter prospect was unfolded. For the first time for eight years, the natural course of trade had brought a balance in specie of eight millions and a half of dollars into the country, and to Pennsylvania there is due a large share of this fortunate result, by her effective act for the suppression of the circulation of small notes within the borders of the State. Here was an illustration of the principles which have been always maintained by the ablest financiers of our country, "that we must widen the basis of our metallic currency by abolishing the use of small notes, so as to allow coin to take the place of them, as it inevitably would."

Another cause of this influx of gold in 1830, and its temporary retention in this country, was the partial cessation of the exportation of specie to India and China, occasioned by the substitution of bills of exchange, and letters of credit on London for the imports from those countries. On a review of the tabular statements of the capitals of the banks in Pennsylvania, there does not appear, with the exception of 1814, when the 41 banks were chartered, any extraordinary augmentation of banking capital.

Years.	Banks.	Capital.
1801	2	$5,000,000
1805	3	7,000,000
1811	4	6,153,000
1815	42	15,068,800
1820	36	14,681,780
1838	25	23,750,338
1845	51	16,154,600
1850	54	18,966,350
1856	57	21,281,464

During the four years of 1832–1836, the specie imports exceeded the exports more than thirty-six millions of dollars, owing to a combination of favorable causes, viz., high prices for cotton, an increase of English credits, foreign indemnities paid in gold, increased production of our Southern gold mines and the silver mines of Mexico, loans effected in Europe by the United States Bank, and various other operations in stocks and bonds. The consequence of this influx of gold was an increase of issues by the old banks, and the establishment of new ones. The number of banks in the country was estimated in 1830 at 329, with 110 millions of capital. In 1837 there were 788, including branches, and a capital of 290 millions.

In 1836 the Bank of England required payment from the "American houses" in London, which was resounded throughout our commercial cities, and shortly after Congress passed "the surplus revenue" bill, and the bank credits, which represented the surplus revenue, were transferred from place to place without any regard to the laws of trade. The combination of these circumstances was too much for the banks, and they all simultaneously stopped specie payments in May, 1837, as well as three of the leading American banking houses in London. The depreciation of bank-notes throughout the country varied from 12 to 25 per cent. The banks at the eastward adopted all needful measures to secure a speedy resumption of payments, but in the west and south an opposite policy was adopted, and new banks were created. During the residue of 1837 and 1838, the excess of specie imports over exports was eighteen millions of dollars, of which a part was sent by the Bank of England to enable the American banks to resume. In May, 1838, the banks in New York and New England resumed, and continued to pay specie. In August following, the banks of Philadelphia professed to pay specie; and in January, 1839, there was a *nominal* resumption throughout the United States. In October, 1839, the Philadelphia banks suspended a *second* time; resumed in January, 1841; suspended a *third* time 4th February following, and permanently resumed in March, 1842.

Maryland.—The first bank established in this State was the Bank of Maryland, which was incorporated in 1790, with a capital of $300,000. Next in the order of succession was the Bank of Baltimore, incorporated in 1795, with a capital of $1,200,000, of which $1,122,900 were paid in. In 1803 the Farmers' Bank of Maryland, with two branches, was chartered, with a capital of $1,000,000, of which $752,745 were paid in. Next,

		Capital.
The Union Bank of Baltimore ……	in 1804,	$3,000,000
The Bank of Hagerstown …………	in 1806,	250,000
The Commercial and Farmers' ……	in 1810,	1,000,000
The Farmers' and Merchants' …….	in 1810,	500,000
The Franklin Bank, Baltimore……	in 1810,	600,000
The Marine Bank, Baltimore …….	in 1810,	600,000
The Elkton Bank, Maryland…….	in 1810,	300,000
The Cumberland Bank, Alleghany ..	in 1812,	200,000
The Farmers' Bank, Cumberland and Worcester ………………	in 1812,	200,000
The City Bank of Baltimore………	in 1813,	150,000

and four others in 1814, one in 1815, and one in 1816, the aggregate capital of all of which was $13,300,000, of which only $8,506,595 were paid in.

The annexed tabular statement, derived from the Treasurer's reports and estimates, will exhibit the amount of banking capital in the State for the last fifty years, and presents a striking contrast to the banking mania of other Atlantic cities.

The progress of bank capital in Maryland has been less than in other States, viz.:

Years.	Banks.	Capital.	Years.	Banks.	Capital.
1792	1	$500,000	1836	21	$8,203,575
1801	2	1,600,000	1837	23	10,438,655
1805	4	5,800,000	1840	23	10,5[illegible]6,494
1811	6	4,8[illegible]5,[illegible]02	1845	22	8,858,332
1815	17	7,882,002	1850	23	8,704,711
1820	14	6,708,180	1856	30	11,180,821
1830	13	6,250,495			

Some of the banks specified in the preceding schedule failed in 1834, such as the Bank of Maryland, Farmers' Bank of Maryland, Elkton Bank, Havre de Grace Bank, Susquehanna Bridge and Banking Company, and various others; but the loss of their capitals was supplied by the enlargement of others, and is scarcely perceptible in the above returns. As an illustration of the vicissitudes of some of these banks, we select at random the history of the Franklin Bank, of Baltimore, chartered in 1810, with a capital of $600,000, for five years, and of which $415,000 only were paid in. In 1815 the charter was extended twenty years, and in 1821 ten years more, but a tax for the benefit of the school fund was imposed, of twenty cents on every hundred dollars of its stock. In 1834 the charter was extended from 1845 to 1857, and in 1835 the bank was authorized to double its stock, making its capital $1,200,000; but in 1840 it was discovered that its cashier had committed large frauds on the bank, and it was compelled to stop payment in 1841. After an examination of its affairs, the Legislature authorized a reduction of its capital to $301,595, and in 1853 it was increased again to $500,000. The adoption of the new Constitution in 1851 imposed upon stockholders in new banks, or in those whose charters might be renewed, personal liability for the debts or liabilities of such banks, to the extent of the stock held by them respectively. In 1852 the circulation of notes under five dollars was prohibited by law, under similar penalties to those in various other States, and we believe has had a favorable influence in creating a larger circulation of coin.

The banks of Maryland all suspended specie payments in 1814 and 1837, in common with all the others in the Middle, Western, and Southern States; and it would be superfluous to recapitulate the circumstances attending these events, as they have already been described in the preceding pages. The same causes occasioned and the same results followed in both periods. It will be recollected that in 1814 the New England banks did not suspend payment, and this produced great jealousy and acerbity of feeling, especially in Baltimore. In *Niles' Register*, in 1814, we find the following remarks: "If money (specie) be the evidence of commercial prosperity, Massachusetts was never half so well off as now. Some years ago, when the trade of the United States naturally sought the places where its commodities were to be had, *one* of the *Baltimore* banks had more specie than *all* the banks in Massachusetts combined; nay, probably more than there was in the whole State, whether in possession of the banks or of individuals; and so it will have again, when a regular and honest commerce shall succeed the British war and *Eastern smuggling.*" Instead of the "commercial prosperity of Massachusetts" being derived from "Eastern smuggling," the true cause may be found in the following abstract from the report of a committee of the Senate of Pennsylvania in 1819:

"The laws of the New England States had been so rigorous on the subject of banks, which were liable to a penalty of 12 per cent. per annum for the non-payment of their notes, that *no depreciation of their* currency took place. The consequence thereof was, that the difference between the New England prices of commodities, stocks and foreign bills of exchange, and those of Pennsylvania, was equal to the extent of the depreciation of the currency of the latter, and as our bank-notes were at that time redeemable on demand, the most profitable remittance which could be made to New England in exchange for her commodities was specie; and this demand created a run upon the banks which they were not able to withstand. The situation of the Southern and Western banks was precisely similar to that of our own; all had overissued, and a general depreciation had ensued. The same causes produced the same effects, and a general stoppage of payments of all the banks in the United States, except those of New England, took place in August and September, 1814. The New England demand, it is true, was increased by two causes, viz.: first, by facilities in foreign trade through neutral vessels, which were afforded them by an exemption from the blockade of the enemy; and, secondly, by a well-grounded apprehension that the Southern banks, from their extensive emissions, would necessarily become embarrassed. Certain it is, however, that all these causes combined could not have produced a general suspension of payment *had our banks observed the same caution in their issues as that which characterized the banks of the Eastern States.*" Again, in *Niles' Register* of 1821, we find the following remarks: "That country whose money currency is kept at *the highest rate of value* will have the greatest advantage in trade with other countries. The hand of labor is not injured by money being scarce; no interest of the country is injured, but the speculator and monopolizer. It is true that the scarcity of money checks imports, but it encourages exports; it is not so important in what the money consists, as that it should be at as high a rate of value as that of other countries."

New Jersey.—There are two other States in our subdivision of "Middle States"—New Jersey and Delaware—which claim our attention next. The increase in New Jersey was as follows:

Years.	Banks	Capital.
1805	2	$1,000,000
1811	3	789,740
1815	11	2,121,932
1820	14	2,130,949

From and after this period banks occasionally failed, and new ones created to take their places, and tabular statements would not exhibit the annual rise and fall of the moneyed institutions. In our ordinary "Bank-note Reporters" there may be found the names of about thirty of these banks, against three of which the word "fraud" appears, and among these is the "Morris Canal and Banking Company"—a concern which made no inconsiderable commotion in Wall Street at one period. Besides these failures, there is nothing in particular to note, until 1835, when the Legislature passed a law prohibiting the issue of small bills. From authentic sources, we learn that the New Jersey banks had in circulation $500,000 in bills of denominations below five dollars, and an equal amount in five dollar notes, being one-eighth part of the entire amount of small bills in circulation in the United States, and one-half of their own emissions.

In 1850, a general banking law was passed in New Jersey, which, like those adopted in other States, has subsequently been revised and amended. "The new banks established, or at least most of them, instead of being legitimate banks of discount as well as of issue, are simply *manufactories of paper money*, for the benefit of their owners residing in other States, having no affinities here, and of no advantage to New Jersey, save in the amount of tax on their capitals that may be paid into the State Treasury; and it is questionable whether that is not more than counterbalanced to the people of the State by the loss they sustain in the discount upon notes passing through their hands. As the profits to the owners depend entirely upon the depreciation and the circulation of their notes, it becomes desirable that the banks should be ostensibly located in places difficult of access, so that no one will be disposed to apply at their counters (if perchance they should have offices) for the specie or its equivalent; and the more distant and out of the way, the greater the discount they will bear, and the greater the accruing profit. And to extend their circulation, nothing is easier than to adopt the name and general appearance of some well-known bank, in good credit, keeping the place of issue as much in the background as possible. For example, locating a 'Delaware and Hudson Bank' amidst the sands and pines of Ocean County, making the *title* very prominent, but having the *place* quite the reverse, so that the inexperienced are readily induced to receive the notes." These banks are entitled to three days' grace upon any application for redemption, and of course they have ample time to procure the specie from Wall Street whenever they are pressed. In 1853 there were 24 regular banks in New Jersey, the aggregate of whose capitals was $4,080,815—whose charters expired in from one to twenty-one years. Besides these, there were fourteen "free banks," the aggregate of whose capitals was $1,026,966, and circulation $722,895. In his message of 1852, Governor Fort recommended the prohibition of the issue of any notes under five dollars; after two years, all under ten dollars, and in a few years all under twenty dollars, and then proceeds: "I am satisfied, however, that fifty dollars, as the minimum denomination of bank paper, should be our ultimate aim. If we excommunicate all small notes, whether of our own or other States, specie must necessarily flow in to supply their places. The smallness of our territory presents no serious objection; the constant trade with the large cities on our borders would supply us with an abundance of the precious metals, which no adverse policy of neighboring States could possibly prevent. *The State which soonest adopts the use of coin*, by the *expulsion of paper* in the smaller business transactions, *will outstrip all others in the permanent prosperity of every other branch of useful industry.* Bank explosions and individual bankruptcies would then be as rare as they are now frequent."

He further adds, "the persistent evasion of the law by some of the free banks calls for prompt and efficient action on the part of the Legislature. They *are of no advantage* to the business community, and add nothing to our reputation as a State. I would recommend that an inquiry be instituted in regard to these banks, to the end that such as do not conduct a regular and *bona fide* banking business be dissolved. This may be done by the Legislature, under the provisions of the 17th section of the general banking act."

The following statement shows the practical working of the general banking law:

Years.	Banks.	Capital.
1841	26	$3,8[illegible]4,816
1849	25	3,497,961
1850	24	[illegible]
1852	25	[illegible]
1854	24	4,080,815
1854	14 Free	[illegible]
1856	36	[illegible]

Delaware.—In the State of Delaware there was one bank in 1801, with a capital of $110,000—Bank of Delaware.

Years	Banks	Capital
1815	5	[illegible]
1820	6	974,000
1837	8	818,020
1849	2	210,000
1850	4, with 3 branches	940,000
1854	6, with 3 branches	680,000
1856	8, with 3 branches	1,690,000

Banking is done in this State on a specie basis, and we believe that the only failures which have ever occurred in it were the Bank of Milford, in 1854, and the Laurel Bank. In New England, as we have previously stated, there are 486 banks, with capitals amounting to $111,349,836, of which 170 banks and $59,060,000 are in Massachusetts.

WESTERN STATES. *Ohio.*—The first bank chartered in Ohio was in 1803, called the Miami Exporting Company, with a capital of $200,000. It was not a regular bank, but "its main purpose was to facilitate trade, then suffering under great depression." The Bank of Marietta was chartered in 1808, and subsequently the Bank of Chillicothe, the former with $500,000, the latter with $100,000 capital. Other institutions were soon after incorporated, and the following statement shows the progress of banking in the State:

Years.	Banks.	Capital.	Years.	Banks.	Capital.
1805	1	$200,000	1838	33	$9,247,296
1811	4	825,000	1840	37	10,507,521
1815	12	1,484,719	1845	8	2,171,807
1816	21	2,061,927	1850	56	7,129,227
1820	20	1,797,463	1856	60	6,995,250
1835	24	5,819,692			

Of the banks chartered in this State, 18 have been closed under various circumstances of disaster or want of success, and their bills are sold at 50 to 75 per cent. discount, and about 36 of them have failed, and their bills are reported as worthless. Two branches of the second Bank of the United States were established in Cincinnati and Chillicothe in 1817, and the State imposed a tax of $50,000 on each branch in 1819; but after a long controversy in the courts, it was decided at Washington that the tax was illegal, and the State submitted to the decree. In 1845 a new system of banking was introduced into the State, known as the "safety fund system," and under the same act, an "independent bank system." The former was based upon the New York system, but it was more perfect; it created a State bank, subdivided into about forty branches, under the supervision of a Board of Control, who furnish all the notes required for circulation; and to this board each branch is required to contribute 10 per cent. of the amount required for circulation, either in stocks of the State or of the United States, or the amount in money; to be applied by the board, in case of need, to the redemption of the notes of circulation of any one of the branches which may fail to redeem its bills; and each branch is required to contribute in the ratio of the circulation to which it is entitled, to the sum necessary for the redemption of the notes of the failing bank, to be remunerated from the safety fund as soon as the sale of the stocks in the hands of the board of control can be effected. Whenever a branch fails, all its property, notes and assets, pass into the hands of the Board of Control, who appoint a receiver to wind up its affairs, and distribute the proceeds among the stockholders after all the debts are paid. Of the 42 branches there are now 36 remaining, whose aggregate capital is $4,034,525; four branches have become insolvent and are closed, and one has withdrawn and become a private bank. The strength of this institution lies in the obligation of each branch to receive the notes of the others in payment of debts, and with a safety fund of 10 per cent., secured by a deposit of $808,000, to protect the circulation in the event of the failure of any one or more branches; the constant supervision of the Board of Control over all their movements, and the jealous vigilance of each other to protect themselves from loss by the mismanagement of others. All these furnish a guarantee of the circulation as perfect as can be desired; quarterly statements are required from each bank, which are regularly published by the Auditor of State, and the community at large have thereby a full knowledge of their true condition at desirable intervals. Under the old system, bank commissioners were appointed to examine the banks periodically, but the Board of Control now perform these duties. The independent banks are twelve in number, having a capital of $587,500, one of them having become insolvent, and two others are liquidating their concerns. These banks are required to deposit with the State Treasurer certificates of stocks, either of the State of Ohio or of the United States, for the entire amount of their circulation, which can not exceed three times the amount of their capital. These banks are annually examined by a commissioner appointed by the auditor, and quarterly returns of their condition must be furnished to him, and are published with those of the State Bank branches. The banks are all required to have 30 per cent. of the amount of their circulation always on hand, in gold or silver coin, or its equivalent in value, one-half at least being in gold or silver; "but deposits in any bank or banker's hands of established credit in the cities of New York, Boston, Philadelphia, or Baltimore, subject to drafts at sight, and payable in specie, shall be deemed equivalent to gold and silver." Of the banks chartered prior to 1845, but one remains in existence, the Ohio Life Insurance and Trust Company, whose operations are managed in two departments: the "Trust Department," and the "Banking Department." Its capital is two millions of dollars, and it was chartered in 1834, and at one time its circulation was nearly one million of dollars; but in 1842 the bank surrendered the right to issue notes, and its circulation has all been redeemed, excepting $4350, which have never been presented for payment, and a large portion of which probably never will be; as, for the past seven years, long intervals (in one instance, nearly eighteen months) have elapsed without the presentation of a single bill, and that for only five dollars. In 1851, the Legislature passed an act authorizing "free banking," and under its provisions 13 banks were established, the aggregate of whose capitals was $738,050, and a circulation was created of $769,397. At one period this was nearly one million of dollars larger; but in consequence of some of the bank plates having been stolen, an alarm was raised, and the notes of these banks were suddenly presented for redemption. A few months after the passage of the free bank law, the new Constitution of Ohio was submitted to the people and was adopted. By its provisions, the General Assembly were no longer authorized to grant banking powers to associations, until the people ratified any act passed for that purpose, and approved it by their votes, taken at the next general election after the passage of such acts. In addition to this fatal blow to all projected banks, in 1852, the General Assembly passed the notorious "tax law," which, under a forced construction, levied an exorbitant tax upon all the banks, and which for a time threatened destruction to every moneyed institution in the State. Fortunately, the Supreme Court of the United States overruled the decisions of partisan judges, and pronounced this outrageous tax *unconstitutional.* From the preceding, it appears that there are four classes of banks in Ohio, and each of them has furnished one or more instances of failure, occasioned more by imprudence and mismanagement than from any defect in the system under which they were organized. The experience of four years has taught the people of Ohio some severe lessons in regard to currency, which has been chiefly supplied to them by the banks of other States, and especially by Indiana; and a law has passed the Legislature, which is now before the people for adoption or rejection, during the present month, authorizing "the incorporation of the Bank of Ohio and other banks," in order to furnish additional banking facilities to the increased trade and population of this prosperous State. We are, however, not without apprehension that the "personal liability" clause, or thirty-fifth section of the act, will render it inoperative, even if the act should be ratified by the people.

Indiana.—Next in order comes the State of Indiana. This State was admitted into the Union in 1816, and in 1820 it had two banks, whose capitals amounted to $202,857. In 1834 the State Bank of Indiana was incorporated, with a capital of $1,600,000, and with ten branches, subsequently increased to thirteen in number. By the original charter, $160,000 were assigned to each branch, but they were subsequently authorized to increase the amount to $250,000 each. The branches were mutually liable for the debts of each other, but divided their own profits; each share was subject to a tax of 12½ cents for educational purposes, in lieu of all other taxes; but in case of an *ad valorem* system of taxation in the State, then the stock was liable the same as other capital, not exceeding, however, 1 per cent. altogether. No note under *five* dollars was allowed to be issued, and the Legislature reserved the right to restrict it to *ten* dollars within ten years. The capital of any branch might be increased by and with the assent and concurrence of the Legislature and the directors of the State Bank. The directors of the parent bank were to have charge of the plates and bank paper of the branches, and were empowered to deliver to them an amount of such paper not exceeding twice the amount of the stock subscribed for. One-half of the stock was subscribed for and owned by the State, for which they authorized bonds to be issued to the amount of $1,300,000, at 5 per cent., to realize the funds to pay for their half of the stock; the remaining half was to be subscribed for, and owned by individuals and corporations. The debts of each branch were limited to double the amount of capital paid in, exclusive of deposits. In January, 1836, an amendment was passed by the Legislature, and the discounts were allowed to be extended to twice and a half of the amount of the capital paid in. In 1841, the branches were authorized to issue notes of a less denomination than five dollars, not exceeding one million of dollars, on the payment of one per cent. for the privilege; and of its circulation, about $3,800,000, nearly one-sixth part was in small notes. After the resumption of specie payments in 1838, out of the 959 banks then in existence, 343 wholly suspended, and 62 partially so; of which latter number were those of the State Bank of Indiana, which did not again resume the payment of specie until October, 1841, when the branches held $1,127,518 in specie, to meet a circulation of $2,960,414, and deposits amounting to $317,890 only. Since that period the bank has maintained its credit inviolate, and under able management successfully effected a regular reduction of its suspended debt, which had rapidly accumulated during the inflation of business in former years, without ruinous sacrifices to the debtors of the bank. If we scrutinize the origin of this bank, we perceive at once that it was founded on false principles, and that the issue of the State bonds for $1,300,000, to provide for the payment of $800,000 of stocks, was a violation of the first article of the Constitution of the United States, which prohibits any State from issuing "bills of credit." "No State can coin money —no State (not even Congress itself) can make any thing a tender but gold and silver—no State can emit bills of credit." In direct opposition to these views, Indiana issued her bonds to procure her quota of stock, and for upward of twenty years has been participating in the profits of the institution. In November, 1851, a new Constitution went into operation, and in May, 1852, a general banking law was passed under its provisions; it is called "An act to authorize and regulate the business of banking." It was *liberal* enough in its details to suit *all* parties, and ninety-four banks were in a brief period in full operation, and supplying all the neighboring States, and especially Ohio, with every variety of pictorial bank-bills which the art of engravers could devise. In October, 1854, there were 84 of these banks whose bills could be found in any of the banks of Cincinnati, and the returns which were published of 67 of these exhibited $7,425,967 in circulation, and their authorized capitals $32,900,000. At one time the circulation was not far from nine millions of dollars, and as the securities deposited with the auditor (and for which bank-notes were exchanged dollar for dollar) might be Indiana 5 per cent. bonds, worth only about 95 per cent., the law presented strong temptations to bank operators. "A Board of Directors was not a necessary appendage to a bank, nor were the stockholders required to be citizens of the State." The result was, that after the oppressive tax law of Ohio had driven banking capital from that State, it was at once invested in the "free banks" of Indiana. The public were duly warned of the danger of this scheme of banking in the following suggestions: "Is it not obvious that a banker who issues ten times the amount of his capital in circulation does so for speculative purposes only? The temptation is great—for in periods of prosperity he can make 30 to $40,000 per annum by his circulation; and if the bank fails, he is only liable for $50,000, or the amount of his stock; and even this he might avoid by a timely transfer of his stock to irresponsible parties, and thus avoid personal responsibility altogether. But how long would it require to dispose of the $500,000 of Indiana 5 per cent. bonds in the New York market at par (at which rate they have been received by the auditor), in a period of panic, or even in a severe monetary crisis; and meanwhile, what would be the discount on the bills of his bank if driven into liquidation? Past experience has taught us that the community would suffer a loss of *twenty-five per cent. of their amount*, and we maintain that that is not legitimate banking which exposes a community to such a contingent hazard." Such was the *prediction* in 1854; what was the result? Of the 94 free banks of Indiana, 51 have *suspended*, and their bills are selling at from 25 to 75 per cent. discount in the city of Cincinnati. The charter of the State Bank of Indiana expires this year, but the Legislature, at their last session, chartered a new State Bank, with a capital of $6,000,000, having 15 to 20 branches, one in each specified district—the new bank purchasing the interest of the State in the old bank, and the capital to be paid in by the 1st of January, 1857.

Illinois.—Bank legislation in Illinois has been quite as extraordinary as in any other State in the Union. This State was admitted into the Union in December, 1818, but the first bank was established while it was under territorial government, in 1813, at Shawneetown, the whole territory then containing but 1500 inhabitants. In 1816 it was regularly incorporated, and, aided by the government deposits, it acquired extensive credit, paying specie for its bills until August, 1821, after the Kentucky banks had suspended; it was at length compelled to stop, and remained dormant until February, 1835, when the Legislature renewed its charter until 1st January, 1857. In the following month its capital, originally $300,000, was increased to $1,400,000, and subscribed for by the State; and their bonds, payable in 1861, were issued to provide the funds for this increase of capital.

The Constitution, in 1818, prohibited the establishment of any new banks except a State Bank and its branches; and in March, 1819, "the State Bank of Illinois" was incorporated, with a capital of $4,000,000, for 25 years, one-half to be subscribed for by individuals, and the balance by the State, whenever the Legislature thought proper. This charter was repealed in 1821, as no effort was made to carry it into operation, and another bank was chartered in lieu of it, with a capital of $500,000, for ten years, to be owned by the State and managed by the Legislature. The *capital* consisted of *its office furniture* and *bank-note plates only*; and $300,000 were directed to be issued and loaned on notes for one year, with mortgages as securities, and not exceeding $1000 to each individual. These notes were receivable for taxes and all debts due to the State or the bank. It had hardly commenced operations before its bills fell to 75 per cent.; shortly after to 50 per cent., and finally to 25 per cent., when they ceased to circulate at all. The members of the Legislature received their pay in the depreciated currency at the market value, and on one occasion received $9 per day for their services, which the State was compelled to redeem at par; and a loan of $100,000 received in these notes at par was paid out at fifty cents on the dollar.

In February, 1835, a new bank was incorporated, with a capital of $1,500,000, with the liberty to increase it to $2,500,000—the State taking $100,000 of the stock; but in March increased the capital $2,000,000; the whole of which the State subscribed for. The bank was allowed *fifty* days for the redemption of its bills, and was required to redeem the $100,000 loan above referred to. The career of this bank was brief; it was shortly compelled to suspend payment, and in 1842 it went into liquidation. After the suspension of specie payments in 1837, the State was without any banks until 1851, when a general banking law was passed, similar to that in the States we have already described. The bonds of all States paying 6 per cent. interest, United States stocks and Illinois bonds at 80 per cent. were received by the auditor in exchange for the notes of circulation, and the bank commenced operations. The *amount* of bank-notes is limited to the amount of the bonds in the hands of the auditor; but the denominations are optional, so that the *whole circulation* may be in *one dollar notes* if the parties choose to require them; but in case of failure to redeem them, they are subject to 12½ per cent. damages per annum, ten days having elapsed after specie is demanded, and the corporate privilege becomes forfeited. The stockholders are individually liable for all the debts and liabilities of the bank, and provision is made for the collection of the same, if occasion should require. The act does not limit the amount of capital, excepting that it shall not be less than $50,000 for each bank, nor the length of time, but leaves both optional with the applicants, who may designate any number of millions for any number of years, *unlimited* and *perpetual*. There are now fifty banks in Illinois, whose capitals amount to about $5,000,000, and thirteen of uncertain value, ranging from 10 to 75 per cent. discount.

These three States—Ohio, Indiana, and Illinois—all of which are usually called "Western;" but there are three more designated as "Northwestern"—Michigan, Iowa, and Wisconsin—which we include in the same division. Michigan was admitted into the Union of the States in January, 1837; and in 1838 there were 11 banks, with an aggregate capital of $1,400,000. During that year many more were created, as the following statement will show:

Years.	Banks and Branches.	Capital.
February, 1838........	43	$2,397,715
January, 1841........	4	1,000,000
January, 1843........	2	428,700
December, 1843........	5	719,100
December, 1844........	3	202,650
December, 1845........	6	815,697
December, 1846........	2	176,167
January, 1848........	1	139,450
January, 1849........	1	147,650
January, 1850........	5	392,500
January, 1854........	6	1,084,718
January, 1856........	5	1,100,000

The only banks which are now in existence in the State are the Michigan Insurance Company, the Peninsular Bank, and Farmers' and Mechanics' Bank, all of Detroit; the Bank of Macomb County, and Bank of Tecumseh in the interior. "Free bank laws" were adopted by this State in 1849, and personal liability is also imposed upon the stockholders. The Treasurer of the State has the supervision of the banks, and the custody of the securities deposited for the bank-note circulation.

Iowa.—Iowa was admitted into the Union in 1846, but at present this State is destitute of any incorporated banks. There is a private bank, called the Miners' Bank, at Dubuque, but its bills are not current, nor even salable in Cincinnati.

Wisconsin was admitted into the Union in 1848. The first bank was established in Milwaukie, in 1851, with a capital of $225,000. In 1852 the free banking law was adopted, similar to those in other States, receiving all State stocks paying 6 per cent., and first mortgage railroad bonds, on roads of their own State, at 80 per cent. of their par value, but not exceeding one-half of the cost of the road on which they are a lien, nor for more than one-half the amount of the circulating notes delivered. A tax of 1½ per cent. was imposed, and the personal liability of the stockholders, to the amount of their stock.

Years.	Banks.	Capital.	Circulation.
January, 1854........	10	$554,000	$519,814
July, 1854........	19	1,250,000	786,218
January, 1855........	22	1,400,000	940,000
January, 1856........	32	1,983,000	1,153,534
July. 1856........	38	2,635,000	1,443,215

There is a bank controller by law, who has the supervision of the banks, receives the securities, and issues the notes therefor. Bills under $5, of foreign banks, are prohibited from circulation.

SOUTHERN STATES. *Kentucky.*—This State was admitted into the Union in June, 1792, and the first bank was established in 1802, with a capital of $150,000, in Lexington, under the covert name of an *insurance company*, which was authorized to issue notes, payable to bearer. In 1804 a regular bank was incorporated, under the name of "The Bank of Kentucky," with a capital of $1,000,000. This bank suspended payment in 1814, but resumed it in 1815; in 1817 forty new banks were incorporated, with capitals amounting to $10,000,000, and had permission to redeem their notes with the bills of Kentucky banks, instead of specie. In 1818 the State was inundated with the paper of these banks; large loans were made, speculation was rife, and most of the bubbles which were set afloat collapsed within one brief year. The pressure became universal, and for "relief" the Legislature chartered a new bank, "The Commonwealth," with a capital of three millions, pledging the public faith for the redemption of its circulation; and as security held certain lands, south of Tennessee River, as a guaranty. If a creditor refused to receive this paper in payment, the debtor was authorized to "replevy the debt for the space of two years." The paper of the new bank fell 50 per cent., and creditors had the choice of the payment of one-half the amount of their claims, or a delay of two years in the settlement, with all the hazard of ultimate bankruptcy, and a total loss. The conflict of the two parties, known as the "relief" and anti-relief," or the "old court" and "new court," was the fiercest which ever agitated the State, but after five years struggle, the "old court" party triumphed, the replevin act was repealed, and the paper of the Commonwealth Bank was suppressed, and ultimately destroyed by successive acts of the Legislature. In 1833 the dominant party determined to supply the place and currency of the two branches of the United States Bank, at Lexington and Louisville, by the establishment of State banks; and in 1834 the Bank of Kentucky, with a capital of five millions, the Northern Bank of Kentucky, with three millions, and the Bank of Louisville, with five millions of dollars, were chartered, and are now in existence; but whose aggregate capitals are only $7,030,000, instead of the thirteen millions granted. In 1837 all these banks suspended payments in specie, but resumed again in 1839, and the Legislature chartered the Southern Bank of Kentucky. Shortly afterward, however, the banks suspended a second time, and the universal prostration of trade, the repudiation of their bonds by some of the States, and the universal derangement of the currency South and West, prevented the stock of the new bank from being taken up. The trading community was in a desperate condition, yet they staggered on under their oppressive load of debts; but by the liberal accommodations and indulgences of the banks, they were partially relieved, until 1843, when the pressure gradually diminished, and shortly afterward it ceased altogether. In 1842 the three banks resumed specie payments, and from a circulation of $2,800,000 in 1842, gradually extended their issues until 1850, when they amounted to $6,683,000. The Southern Bank of Kentucky had its charter amended, and in 1852 went into operation with a capital of $1,300,000. Since then charters have been granted to the Farmers' Bank, with $2,300,000 capital; the Commercial Bank, with $400,000; the Kentucky Trust Company, with an *unlimited* capital; and the Newport Safety Fund Bank, with $300,000 capital. Both of these institutions failed in 1854, and their notes are now selling at 50 per cent. discount; and the small notes of the latter bank at 90 per cent. With the exception of the charters of these two last banks, the legislation of Kentucky has been of a fixed character, and her circulation has ever been esteemed in the Western States as of the highest character. There are now 34 banks and branches in the State, the aggregate of whose capitals is $11,730,000, and circulation about $13,3000,000. In the session of 1854, it was proposed to charter six new banks, with capitals amounting to $6,100,000; but the governor having vetoed one of the bills of incorporation, the bills all failed to pass, and there for the present the matter rests.

Tennessee.—In 1807 the Nashville Bank was incorporated, with a capital of $200,000, afterward increased to $400,000, and after one or two suspensions it wound up with loss to all parties. In 1811 the Bank of the State of Tennessee was chartered, with a capital of $400,000, and nine other banks, with capitals of $200,000 to $400,000 each, and were permitted to become branches of the Bank of Tennessee. In 1819 the Farmers' and Mechanics' Bank of Nashville was chartered, with a capital of $400,000, but within a year it was insolvent. In 1820 the State Bank of Tennessee was established, with a capital of $1,000,000, on the basis of funds belonging to the State. This bank loaned money to individuals, in sums of $500 to each, on twelve months' credit, secured by a mortgage. The bank was *not required to have any specie*, but was authorized to sell $250,000 6 per cent. State stocks as its working capital. The proceeds of the Hiawasse lands, and some other securities, were pledged for the redemption of the circulation, and although its paper was rejected by two of the oldest banks in the State, and was 10 per cent. below par, yet the bank struggled on, and after six years it attained an available capital of $575,000 out of the proceeds of the pledged lands. The bank was finally wound up in 1832, with considerable loss to the State. The Union Bank was incorporated in 1832, with a capital of $3,000,000, the State owning one-third of the stock; in 1833 the Planters' Bank was incorporated, with a capital of $2,000,000; and in 1835 the Farmers' and Merchants' Bank of Memphis, with $600,000 capital. This latter bank for a short time enjoyed a high credit, but it attempted to do too much business, and failed in consequence. In 1838 the Bank of Tennessee was incorporated, with a capital of $3,226,976, all owned by the State, its nominal capital being $5,000,000. The State requisitions on this bank were so onerous, that its capital, in 1849, was reduced to $2,500,000. Subsequently to the charter of the Bank of Tennessee, in 1843, the Bank of East Tennessee, capital of $800,000; in 1848, the Lawrenceburg Bank, capital $100,000; 1852, the Citizens' Bank of Nashville and Memphis, capital $200,000, were chartered. In 1852 a free banking law was passed, similar in its provisions to those we have previously described, but, like those in other States, requiring amendments. Some eight or ten banks have been organized under it, but it is not very popular in the State. In addition to this, the Legislature, in 1853, chartered seven stock banks, with a view of supplying the vacuum which the winding up of the Bank of Tennessee would occasion, and which Governor Johnson recommended in 1855. The last returns of the banks in this State are in number 46, capitals $11,827,197, and all are under the supervision of a State controller.

Arkansas.—We have little to say of Arkansas, where there are no remaining banks to claim our attention, and proceed at once to *Mississippi*, where the theme is as fertile as their cotton crops are luxuriant. There were formerly two banks in Arkansas, the Real Estate Bank and the Bank of the State of Arkansas. They are both in the hands of trustees for liquidation, and are indebted to the State about $1,500,000, and interest to an equal amount for State bonds loaned to them, and still unpaid. This State was admitted into the Union in December, 1817, and it had then one bank, with a capital of $100,000. In 1820 this capital was increased to $900,000, and in 1830 it had but one bank, capital $950,600. At this period there were no banks in Kentucky or Missouri, only one in Tennessee, two in Alabama, and four in Louisiana.

Mississippi.—During this year the Planters' Bank of Mississippi was chartered, with a capital of $3,000,000, of which two-thirds were reserved for the State, and one-third allotted to individuals. In July, 1831, the State issued $500,000 6 per cent. bonds, and in March, 1832, $1,500,000 more, for her proportion of the stock. These bonds were sold at 13¼ per cent. advance, and yielded to the State a premium of $250,000. This was deposited in the bank as a sinking fund, to be increased by the dividends on the State's stock in the bank, from which fund the interest on the two millions of bonds was to be regularly paid. The bank paid 10 per cent. dividends up to September, 1839, when the State stock was transferred to the Natchez Railroad Company. The sinking fund was then $800,000 beyond the amount required to pay the interest on the State bonds. In 1836 to 1839, a large proportion of this fund was lost, and the remnants left were only $60,000, to which about an equal sum has since been added by the commissioners, by collections from the assets of the Planters' Bank. In 1835, the banking capital of the State amounted to $12,000,000, and such was the prosperous condition of the State, that it was proposed to add $10,000,000 more to the amount; and in the session of 1835–'36 about $17,000,000 in banks and railroads were chartered. In 1837 there were 18 banks in Mississippi, the aggregate capitals of which were $12,872,815, having a circulation of $5,073,425, and loans $24,351,414. But the end was not yet. In 1838 the Mississippi Union Bank was chartered, with a capital of $15,500,000, to be "raised by means of a loan, to be obtained by the directors of the institution." The governor was authorized to issue 7500 bonds of $2000 each, interest at 5 per cent., and payable in 12, 18, and 24 years, and for the payment of which the faith of the State was pledged. Two and a half per cent. in cash was required of individual subscriptions, and the balance secured by mortgages on real estate. In June, 1838, Governor M'Nutt executed and delivered to the bank 2500 of the proposed bonds. The three commissioners appointed under the charter negotiated these bonds with Mr. Biddle, who paid the commissioners of the bank $5,000,000 therefor, in five installments of one million each. This contract was guaranteed by the Pennsylvania Bank of the United States, on behalf of Mr. Biddle. Upon this sum of five millions, and $8000 received from individual subscribers, the bank based all its operations, and the deplorable issue of which we shall shortly state. In 1839 another series of bonds, for a similar amount, was issued to the bank for further "*active capital;*" but in 1840 the governor issued a proclamation, warning the community against advancing money on the hypothecation of these bonds, *on any terms not authorized by the charter.* In 1841 the governor communicated to the Legislature that this proclamation had prevented an *illegal* sale of these bonds, and with it the following interesting summary of the "condition" of the Union Bank:

Suspended debt, *in suit*	$2,680,000
Suspended debt, *not in suit*	1,777,000
Resources, chiefly *unavailable*	8,034,000
Specie on hand	4,349
Circulation	3,034,000

Nearly a year previous to this date the bank had become hopelessly insolvent. The governor's proclamation was followed shortly after by his *atrocious scheme* of "*repudiation*" of the $5,000,000 of the bonds of 1838, on the pretext of "alleged fraud and illegality," and communicated to the Legislature; to which they responded, "that the State of Mississippi *will* pay her bonds, and *preserve her faith inviolate!*" In the whole of this disastrous transaction, there is nothing but *disgrace;* Governor M'Nutt was the first open, avowed, and relentless assassin of American credit in Europe, and the "deep damnation of its taking off" originated a feeling of distrust and disquietude in financial circles, which will be forgotten only when John Law's *Mississippi scheme* has been surpassed in extravagance. Well and truly did the Senator from Mississippi utter that unforgotten sentence, "the moral sense of communities and of mankind will condemn us," unless a tax was raised for the payment of these bonds; and it may be safely asserted that the deepest injury ever inflicted upon the commercial and financial reputation of the United States was in this reprobated and dishonest act of "REPUDIATION." The Planters' Bank bonds were not *officially* repudiated, but the people of the State, in 1852, refused, by a majority of 4400 votes, to authorize a tax to pay them, and redeem "the plighted faith of the State." In July, 1854, the amount of these bonds, with interest, was $3,518,081, and the bonds of the Union Bank, for $5,000,000 and interest, may be added thereto, as the cost of banks to the State, independent of the individual loss that can be superadded thereto. The following tabular statement furnishes a sufficient warning of the fate of banks which are based upon fictitious capital. There were in the State in

Years.	Banks.	Capital.	Circulation.	Specie.	Loans.
1830	1	$250,600	$540,190	$77,000	$1,927,435
1837	18	12,872,815	5,073,425	1,369,000	24,351,414
1840	18	30,379,403	15,071,639	867,000	48,333,728
1842	17	9,261,200	2,374,189	11,000	13,349,481
1850	1*	....	....	....	....
1856	1	240,165	234,880	....	....

* "Unpaid capital, not worth reporting."

Louisiana.—We gladly turn away from this melancholy review of past disasters, and enter upon a scene of still larger operations in Louisiana. The State was admitted into the Union in 1812, but there was a bank capital in the Territory in 1805, of $500,000, which in 1815 was increased to $1,432,300, distributed among three banks; and in 1820 four banks, with $2,597,420. There are no reliable returns of the banks between 1820 and 1830; but as the increase of their number in the United States was but twenty-two, and of their capital only eight millions, we take Mr. Gallatin's report of four banks in 1830, as the actual number in Louisiana at that period, as "in all the Western and Southwestern States there were, in 1830, only eighteen banks, with capitals amounting to $9,462,268. By the 1st of January, 1837, the number of banks in these States was increased to 161, including branches, with paid up capitals of the amount of $88,699,974," of which Louisiana had 16 banks, with 31 branches, and $36,769,455 capital, $7,909,788 circulation, $11,487,431 deposits, $3,108,416 specie, and loans $59,108,741, which was the highest point of the operations of the banks. *Niles' Register*, of March, 1836, gives the following statement of bank capital in Louisiana at that date:

Years.	Capital.	Years.	Capital.
1811	$754,000	1834	$23,364,755
1815	1,432,000	1835	27,172,145
1820	2,597,420	1836	56,000,000
1830	5,665,980		

of which about thirty-two millions were paid in, and the circulation of six millions—less than the specie in the banks to redeem it. The official reports, however, exhibit a more correct view of the matter, and from it we copy the following table:

Years.	Banks.	Branches.	Capital.	Circulation.	Specie.	Loans.
1837	16	31	$36,769,455	$7,909,788	$3,108,416	$59,108,741
1840	16	31	41,711,214	6,443,783	3,163,243	48,646,799
1843	6	22	20,929,340	1,087,377	4,451,023	20,420.948
1846	6	22	17,598,910	4,206,788	6.636.394	21,582,744
1850	6	22	14,257,520	5,069,867	6,979,772	18,602,649

The banks in the last line, in 1850, were

	Capital.
Louisiana Bank	$3,992,200
Canal and Banking Company	3,163,750
City Bank	994.400
Louisiana State Bank	1,734,820
Mechanics' and Traders' Bank	1,704,350
Union Bank	2,668,000
Total	$14,257,520

Besides these, there were the Citizens' Bank and Consolidation Association, with liabilities amounting to $8,751,313, and assets, $8,000,971. In 1852 the new consolidation was adopted, and the Citizens' Bank charter was restored to the bank, which had been forfeited by its continued suspension. The charter of the City Bank expired in 1853: that of the Mechanics' and Traders' also expired. The latter reorganized under the general banking law. The provisions of the free banking law of Louisiana are such as will compel the banks to retain specie to the amount of one-third of their liabilities. In 1854 the returns were,

	Capital.
5 Banks	$15,870.486
3 Free banks	2,688,775

In 1856 there were nine banks, whose capitals amounted to $15,702,600. As New Orleans is the grand entrepôt of the products of the whole Western country, large banking facilities are requisite to expedite the cotton, sugar, and tobacco shipped annually from this great commercial mart, and to supply the demands of the planters during each successive season. For many years past there has been a deficiency of banking capital in New Orleans, in consequence of the restrictive limits of the banking policy of the State in relation to discounts, as the supply of specie in the banks has been always large enough to justify a much larger amount of circulation than has ever been issued. Under the general banking law, it is probable, from the general appearances of things, that this deficiency will no longer exist, but, on the contrary, there will be a tendency to an opposite extreme.

Statement of the Banks of New Orleans, Oct. 11, 1856.

ACTIVE MOVEMENTS.—LIABILITIES.			
Banks.	Circulation.	Deposit.	Due Distant Banks.
Bank of Louisiana......	$793,439	$2,417,644	$243,808
Louisiana State Bank...	1,292,100	2,925,270	99,858
Canal Bank............	908,175	692,895	174,586
Citizens' Bank.........	2,744,945	3,123,115	122,131
Mechanics' and Traders'	351,465	571,412	20,648
Union Bank...........	559,300	94[illegible],242	123,432
Southern Bank.........	158,6[illegible]0	178,691	....
Bank of New Orleans...	565,495	703,301	60,201
Total...........	$7,373,539	$11,741,570	$844,664

RESOURCES.			
Banks.	Specie	90 day Paper	Exchange.
Bank of Louisiana......	$1,360,283	$3,805,323	$254,619
Louisiana State Bank...	1,649,330	3,725,925	212,123
Canal Bank............	64[illegible],850	2,618,325	465,771
Citizens' Bank.........	1,915,503	5,135,112	756,196
* Mechanics' and Traders'	277,460	1,004,138	76,645
* Union Bank...........	366,702	1,484,994	442,416
* Southern Bank.........	132,486	573,298	153,444
* Bank of New Orleans...	326,350	1,942,480	187,776
Total...........	$6,674,973	$20,289,595	$2,578,960

* Free banks under the general law; the others are chartered banks.

Alabama was admitted into the Union in 1819, and in the following year there were three banks, whose capitals amounted to $469,112; in 1830, one bank, with $495,503 capital; and we give below the tabular statements of four years, to exhibit its bank history during the memorable epoch of 1836–'42.

In 1843 the banking capital was reduced to $1,500,000, the Bank of Mobile being the only institution until 1851. The State owned two-fifths of the stock, $600,000, for which it issued its bonds, and the bank paid the interest thereon. Since then the Southern Bank of Alabama, capital $500,000; Bank of Montgomery, $100,000; and the Northern Bank of Alabama, $200,000, have been organized. In 1850 a free banking law was passed, but there has been no advantage taken of its privileges, by establishing any such institution in the State. The Bank of the State has been winding up its affairs ever since the expiration of its charter, and it has furnished another illustration of the principle that there should be no interwoven interests of State and bank, or of politics and finance; they may be *correlative*, but not *conjoint*. The executive messages have fully argued this point, and there is no occasion for further comment.

Years.	Capital.	Circulation.	Specie.	Deposits.	Discounts.
1836	$6,558,969	$6,172,107	$1,562,4[illegible]4	$3,152,047	$15,0[illegible]0,5[illegible]5
1840	14,379,[illegible]55	7,211,141	1,58[illegible],510	2,827,622	24,18[illegible],58[illegible]
1841	14,[illegible]4[illegible],834	1,728,042	685,192	980,4[illegible]8	23,065,522
1842	3,067,700	19,871	28,204	629,659	2,948,929

With the State of Texas we shall close the remarks on the Southwestern division of the Southern States, with merely stating the fact that there is *one* bank in the State, at Galveston, having a capital of $322,000. This State was admitted into the Union in 1845, and although she has cost the country a vast amount of money, in prolonged debates in Congress, in the wasted hours of the excited masses of the people, in cities, towns, and villages, and the exhaustion of all the intense expletives that suppositive patriotism could invent, yet beyond those straws, after the payment of the hard money of the contract, we believe that the government have made a good bargain, and that her territory may be our favored pathway to the Pacific. We have done with the Southwestern division, when we have quoted a remark of Professor Tucker, twenty years ago, 1836. "The banking mania has prevailed in the Southwestern States beyond any other in the Union, not excepting New England, but in consequence of which, with the *most profitable agriculture in the United States*, the bank circulation has been the most depreciated, and they are still suffering the evils of a disordered currency."

Virginia.—The first notice of any bank in Virginia was in 1805, mentioned in Mr. Gallatin's report, capital $1,500,000. This was the Bank of Virginia, chartered in 1804, and which expires in April, 1857; its capital has been enlarged to $2,650,000. There was, it is true, a branch of the first Bank of the United States in Norfolk; but the paper of this bank rarely found its way into the interior of the country, where the currency was purely metallic. "The desk of every agriculturist in Virginia had some gold or silver to spare, if he was a prudent, industrious man; or he had something like money to spare in the hands of his merchant, who, in the days of which I am speaking, acted as a banker to his prospering customers. The currency being specie, was widely scattered through the land, and in diversified hands, so that its concentration at any particular point was impossible; and consequently its removal from the country could not happen to any great extent." The same writer proceeds: "No people had more cause to rejoice than the people of Virginia; but alas! the banks came, and all things became changed. Like the Upas-tree, they have withered and destroyed the healthful condition of the country, and inflicted on the people political and pecuniary disease of the most deadly character."

Such was the tone of public sentiment in the Southern States, originating with the establishment of the first United States Bank, and cherished by Virginia until the expiration of its charter in 1811, when, through fear that its sovereignty would not be represented at the funeral orgies, the Assembly, in January, 1811, passed a special resolve, "to instruct their senators and request their representatives to vote against the renewal of the charter of the United States Bank"—a puny little institution, on its last legs, with an embargo behind it, and a war before its last expiring moments. But in one brief year the mystery was explained: *Virginia wanted a bank of her own*, and in February, 1812, we perceive that the Farmers' Bank of Virginia, with a capital of $2,000,000, and with a right to issue $6,000,000 of circulation, was chartered; and with the Bank of Virginia (in which the State was interested $300,000), and the enlargement of capital to the old, and the creation of new banks, it certainly was very politic that the State should wish to avoid either the rivalry or the surveillance of a national institution. Three other banks followed in quick succession, with capitals amounting to four millions more, and there was no further outcry against paper money or banks, because the "Old Dominion" had adopted them. The charters of the two first banks prohibited the issue of notes under $5, which they adhered to, until it was found convenient to issue $7, $8, and $9 notes to supply the use of coin; and thus the intent of the law was frustrated. Our usual tabular statement furnishes the readiest mode of showing the banking operations of the State from 1820 to 1850:

Years	Banks	Capital	Loans.	Circulation.
1820	4	$5,212,192	....	....
1830	4	5,751,100	$7,699,000	[illegible]
1837	5	6,731,200	18,021,000	[illegible]
1840	6	10,28[illegible]	15,[illegible],000	[illegible]
1842	6	10,865,362	16,170,000	[illegible]
1848	6	9,684,970	17,[illegible],000	[illegible]
1850	6	9,731,370	18,163,000	[illegible]
1854	16	12,796,436	24,915,000	[illegible]
1856	60	13,734,800	....	.

With the exception of 1837, there does not appear to be any extravagant banking; but in January of that year the proportion of loans to capital was larger than that of any other State in the Union—being 50 per cent. above the average rate of all the banks, and its circulation in excess by a larger ratio, 214 to 91 average proportion of circulation to capital. In 1851 the general banking law was passed, and as the chartered banks expire, they have been required to comply with the general rule of securing their circulation by a pledge of public stocks. The Bank of Virginia and the Farmers' Bank charters expire in 1857; but they have been wisely renewed upon their old basis, "as the experiment of 'independent banking' has not so triumphantly vindicated the sound wisdom of the principle as to induce the public to sacrifice a system which has operated, in the main, equally to the advantage of the State and the community. There is certainly nothing in the financial condition of the State to warrant any hazardous experiments with its monetary relations."

North Carolina.—The first bank incorporated in this State was the Bank of Cape Fear, in 1804, with a capital of $250,000, located at Wilmington. Its charter has been extended, and its capital increased by various enactments. It has now $2,000,000 of capital, of which the State owns $532,200; and its present charter expires, by limitation, in 1880. It has seven branches. The Bank of the State of North Carolina was originally incorporated in 1833, with a capital of $1,500,000. It is now $2,000,000, of which the State owns $500,000; and its charter expires in 1860. It has nine branches. In 1834, the Merchants' Bank, $300,000 capital; in 1847, Commercial Bank, $300,000; in 1849, Bank of Fayetteville, $800,000; in 1850, Bank of Washington, $400,000, and Bank of Wadesborough, $200,000 capitals, were severally incorporated; and the whole number in the State at present is 29 banks and branches, the aggregate of whose capital is $6,050,000. In one of the late reports of the Bank of North Carolina we find the following remark: "By successful management, this bank has obtained a position and influence which scarcely any State institution ever possessed, and certainly none in North Carolina. After passing *uninjured* through the crisis of 1837, under the able guidance of its first president, Mr. Cameron, it rapidly acquired confidence and strength, and now stands pre-eminent among the State institutions of our land." We are happy to add that there are no "free bank" laws in this State.

South Carolina.—The first bank established in this State was the Bank of South Carolina, chartered in 1792, with a capital of $1,000,000. In the appendix to Mr. Woodbury's report of the banks in 1837, he states the South Carolina banks as follows:

Years.	Banks.	Capital.	Years.	Banks.	Capital.
1792	1	$675,000	1811	4	$3,475,000
1801	2	3,000,000	1815	5	3,730,900
1805	2	3,000,000	1820	5	4,475,000

But we believe that the account we subjoin is the correct one:

Years.	Name.	Banks.	Capital.
1792	Bank of South Carolina..........	1	$1,000,000
1802	State Bank of South Carolina....	1	1,000,000
1810	Union Bank....................	1	1,000,000
1810	Planters' and Mechanics' Bank ..	1	1,000,000
1812	Bank of the State of South Carolina	1	1,123,357
Making an aggregate capital, in 1820, of......			$5,123,357

The Bank of the State of South Carolina was a purely State institution, and had no private stockholders. It was originally founded for the purpose of furnishing temporary aid to planters, by loans of $2000 to each, and for many years was a mere "loan institution." In 1820 the capital of this bank was pledged as security for the redemption of the bonds of the State, issued to carry out a system of internal improvements recently undertaken. The consequence was, that the bank was immediately converted into a commercial institution, and conducted on corresponding principles. In 1833 it was deemed "expedient and beneficial, both to the citizens and to the State, to recharter the bank until 1856," but to be wound up in 1860. It has now a surplus of assets over its liabilities of over two millions and a half of dollars, and the last of their bonds due in London is payable in 1868, commonly known as the "fire loan," and is little short of $500,000.

In regard to this bank we will transcribe some extracts from Governor Seabury's message to the Legislature in 1849, which we commend to the notice of some rabid politicians who succeeded in hunting down the United States Bank: "The Bank of the State of South Carolina is a dangerous institution, anti-republican in its character and tendency, and the evils inevitably arising from the connection between a moneyed corporation and the State increase and ramify the longer the rights and privileges of the former are extended. The political history of South Carolina has too long presented the anomalous spectacle of its constituted authorities pertinaciously upholding a State corporation, *while it denounced any union between a bank and the Federal government.* I also desire, in this place, to express my settled conviction that the Bank of the State was founded on a false and pernicious principle; that to grant to the members of a community, almost exclusively devoted to rural pursuits, unusual facilities for commanding money, is to inflict upon them and their posterity an unmitigated evil."

In glancing over the Treasury Reports for 1850 and 1854, we notice that the Bank of the State of South Carolina had $1,169,541 in circulation in the first-named year, and in the second $1,654,561. By what right did they issue these bills? In an article on the currency in *Hunt's Magazine*, in 1842, by Professor Tellkampf, we find the following remarks: The Constitution of the United States declares, "that no State shall coin money, emit bills of credit, or make any thing but gold and silver a tender in payment of debts." It is a known and settled principle, founded on philosophy, that no one can transfer to another a right which he does not himself possess. "*Nemo plus juris in alium transferre potest, quam quod ipse habet.*" Since no State can coin money or emit bills of credit (under which paper money is included), can they make any thing but gold and silver a tender for the payment of debts? No State has a right to make money, no matter whether gold or silver, or any other material; and therefore it can not transfer the right to banks by charter. Wherefore, these charters are wholly unconstitutional. Congress only has the right, and that is the only power which can confer it.

Other banks have been subsequently chartered in South Carolina, as follows:

		Capital.
In 1835,	Bank of Charleston	$3,160,800
" 1838,	Southwestern Railroad and Banking Company	869,426
	Commercial Bank, Columbia	800,000
	Bank of Hamburg	500,000
	Merchants' Bank of Cheraw	400,000
	Bank of Camden	377,500
	Bank of Georgetown	200,000
	Farmers' and Exchange Bank	999,900
	Bank of Newberry	300,000

and some others, numbering altogether 20 banks and branches, having an aggregate capital of $16,600,000.

The annexed tabular statement finishes our notice of these banks:

Years.	Banks.	Capital.	Circulation.	Deposits.	Specie.	Loans.
1836	10	$7,936,318	$7,488,727	$4,021,210	$2,500,427	$16,316,319
1837	12	8,636,118	7,223,616	5,048,477	1,664,786	18,899,838
1842	11	11,472,922	2,932,154	1,743,000	1,355,178	13,890,033
1846	11	11,036,260	3,911,360	2,353,168	1,723,561	14,181,722
1850	14	13,139,571	8,741,765	3,322,132	1,711,902	20,601,137
1855	19	16,603,253	6,739,623	2,871,095	1,283,284	23,149,098

Georgia.—In Georgia, the first bank which appears in Mr. Woodbury's report is, in 1811, one bank, capital $210,000; in 1815, two banks, capital $623,580; in 1816, three banks, capital $1,502,600; in 1820, four banks, with an aggregate capital of $3,401,510; and the following table shows that Georgia has had her full share of banking business, notwithstanding her frequent complaints of dependence upon Charleston for facilities, and her own want of bank capital. There were in the State, in

Years.	Banks.	Capital.	Circulation.	Deposits.	Specie.	Loans.
1830	9	$4,205,029	$2,719,356	$1,382,634	$1,500,141	$6,252,474
1837	32	11,438,828	8,058,739	2,943,632	2,860,326	16,602,215
1840	39	15,098,694	5,518,822	1,985,413	1,300,694	10,786,221
1843	24	10,250,702	1,972,215	1,056,842	1,206,571	5,451,751
1846	22	8,970,789	2,471,264	1,318,266	1,104,235	5,549,232
1849	18	12,595,010	4,118,419	1,657,099	1,547,626	6,958,166
1853	18	12,957,600	9,518,777	2,523,227	1,576,813	13,567,409
1855	21	13,413,100	6,698,869	2,034,455	1,451,880	11,648,559

These statements give a very imperfect idea of the real state of financial operations in Georgia. For instance, in the report of 1849, the Central Bank, the property of the State, which had for ten years been winding up its concerns, had its capital included, $1,480,000, and the two railroad companies, capitals $6,694,000, making, in the aggregate, $8,174,000, which should be deducted from the banking capital, as above stated, when the return would be, in 1849, fifteen banks.

Capital........	$4,420,764	Specie.........	$1,404,706
Deposits.......	1,373,786	Loans.........	5,502,714
Circulation	3,619,749		

The banking community are indebted to a distinguished representative from Georgia (the late Richard Henry Wilde) for the introduction and adoption of the resolution in Congress by which we have our annual reports on the banks of the United States. Imperfect as these reports are, they illustrate the importance of having more attention bestowed upon them, even if their preparation should require an additional bureau at Washington.

Florida.—We come now to Florida, the last State in the Southern division, and which was admitted into the Union in 1845. Under its territorial government, it had, in 1838, five banks, with an aggregate amount of capital of $2,113,302, $774,040 circulation, $145,842 specie, $493,623 deposits, and $2,652,614 loans. These were located at Pensacola, Tallahassee, Appalachicola, and Magnolia, but they are all broken and worthless. A law was passed in 1849 authorizing a bank at Tallahassee, but we believe that it was not organized, and we know of no regular bank in the State.

Missouri.—This State was admitted into the Union in 1821. There was one bank in existence prior to this date, the operations of which were disastrous, but the first we find in the regular reports is the State Bank of Missouri, at St. Louis, with one branch, in 1837, and a capital of $533,538, circulation $28,000, and specie $466,000. This is now the only bank in the State, although it has increased the number of its branches to meet the increasing demand for banking facilities. We give a tabular statement of its operations, during a series of years, from 1837 to 1856:

Years.	Branches.	Capital.	Circulation.	Deposits.	Specie.	Loans.
1837	1	$533,538	$028,000	$819,000	$466,000	$1,103,000
1840	2	1,116,123	410,000	1,174,000	562,000	2,077,000
1843	3	1,200,588	731,000	1,116,000	1,260,000	951,000
1846	5	1,200,582	2,195,000	1,296,000	1,453,000	2,558,000
1849	5	1,208,167	2,569,000	1,735,000	2,427,000	5,152,000
1850	5	1,208,751	2,594,000	1,377,000	1,902,000	3,165,000
1856	5	1,216,400	2,805,000	1,331,000	1,355,000	4,300,000

This bank is owned by the State to the extent of $954,205, and the balance by individuals, and its charter will expire in February, 1861, having been extended to that date by act of 1856. A committee on banks formerly recommended a sale of the State's interest in the bank, and the charter of a new one with $5,000,000 capital. The constitution allows but one bank and branches, and, of course, without its alteration free banks can not be introduced. It will be perceived that the bank has always had on hand a large supply of specie for the redemption of its circulation, and has consequently always enjoyed a high reputation. It has maintained specie payments since its incorporation, although its circulation was necessarily restricted, while many of the banks of the East and West were under suspension during the years 1837–1840. We trust that it may continue a fortress of strength to resist the encroachment of free banking principles, which are now pervading several of the States, and furnish an enduring evidence of the profit and security of banks based upon a specie capital.

California.—We are not aware of any incorporated banks in the State of California; and it only remains for us to speak of those of the District of Columbia. The first bank established at Washington was in 1792, with a capital of $500,000; in 1802, there were two banks, $1,500,000; in 1805, three banks, $2,000,000; in 1811, four banks, $2,341,395; in 1815, ten banks, $4,078,295; in 1820, thirteen banks, $5,525,319 capitals.

Years.	Banks.	Capital.
1830	9	$3,879,574
1837	7	2,204,445
1842	6	1,786,920
1844	6	1,649,280

The charters of all these banks expired some years since, and passed into the hands of trustees for the benefit of the stockholders. The Farmers and Mechanics' Bank, Georgetown, the Bank of the Metropolis, Bank of Washington, and Patriotic Bank of Washington, are of the above class, and are about the only banks whose bills are current on any terms, and they are looked upon with distrust out of their own neighborhood.

Conclusions.—The past financial history of the United States abounds with examples and warnings; but the misfortune is, that they are apt to be unheeded and forgotten. How many of our merchants now on the stage of active enterprise have an intimate acquaintance with the past history of commerce *in our own country during the present century*, if, indeed, they know that which relates to their own business, beyond the last twenty years?

How few statesmen and financiers of these modern days of high attainments are familiar with the financial events of 1836–'42! Those who retain a fresh remembrance of that financial crisis will ever dread a recurrence, and be inspired with caution, prudence, and distrust. But the race of these "conservatives" is fast passing away, and the counsels of the few remaining are almost derided. Junior partners, or successors, and "Young America," fill their places, and now take the lead. The past is disregarded, and similar errors will probably eventuate in similar disasters.

Our illustrious statesman, Daniel Webster, who has left for our use invaluable lessons of political wisdom, in his celebrated speech at Trenton, in 1844, uttered these words: "We are well instructed by experience; but let us not be lost to experience. Let not all the good, all the comforts, all the blessings, which now seem in prospect for all classes, be blighted, ruined, and destroyed, by running into danger which we may avoid. The rocks before us are all visible—all high out of water. They lift themselves, covered with the fragments of the awful wrecks and ruin of other times. Let us avoid them. Let the master and the pilots, and the helmsman and all the crew, be wide awake, and give the breakers a good berth."

In 1832, Mr. Biddle, the President of the United States Bank, was examined by a committee of the House of Representatives, of which Mr. Cambreleng, of New York, was chairman. To one of the interrogatories he answered in the following language: "The idea, at the present day, of doing the business of this country *without banks* would be equal to the project of renouncing canals, and railroads, and steamboats, and all the other improvements belonging to trade. That banks do occasional mischief there can be no doubt; but until some valuable improvement is found which supplies unmixed good, this is no objection to them, and, constituted as they now are, the banks of the United States may be considered safe instruments of commerce. On the whole, it seems wiser to retain the established institutions of the country, instead of resorting to *doubtful* and *hazardous experiments.* What is wanted, I think, in our banking system is this: first, to widen the basis of our metallic circulation, by *abolishing the use of small notes*, so as to allow coin to take the place of them, as it inevitably would; and, secondly, to annex to the non-payment of specie by the banks so heavy a penalty, say an interest of 12 per cent., as in the case of the Bank of the United States, or 24 per cent., as in some of the Jersey banks, as would deprive the banks of all temptation to incur the risk of insolvency."

Nearly a quarter of a century has elapsed since these remarks were made by the "moneyed autocrat of Philadelphia," and the very principles avowed by him are now the adopted dogmas of his former opponents. We believe that it is now generally admitted that, in order to carry on successfully the extensive business of this country, we require a solid, stable, and uniform currency. It is undeniable, also, that a system like banking, which has constituted a prominent engine of trade, commerce, and manufactures in all civilized communities, must possess intrinsic, fixed, and ascertained principles; the discovery, development, and application of which, in the most equitable and advantageous manner, should be the leading object of those who exercise any agency in the creation or management of our moneyed institutions.

The early antipathy of our people against banks was a blinded prejudice; the retrospect of half a century discloses many great evils and abuses, springing from multifarious causes not imputable to the system, but rather fungous excrescences, which a luxuriant growth has produced. Frauds without number have been perpetrated, undiscovered and hopeless; thousands and millions of dollars have been scattered in thoughtless profusion by Boards of Directors, who knew nothing of the first elements of banking, and loaned their paper promises to oblige their friends, taking a worthless written individual promise for an equally worthless printed bank-note. But what of all these things, and many more which might be added, the great extension of credit, consequent upon the increased banking facilities, *unrestrained* as they have *formerly* been, has been beneficial to all classes, to the farmers and mechanics not less than to the merchants. "Young Americans," men of industrious, enterprising, and energetic characters, have left the comforts of their parental homes, and by the aid of bank capital have found the facilities by which they could convert boundless forests and untrodden wilds into cultivated farms and villages, within the precincts of which they have established schools and churches, erected work-shops and factories, and clustered around them the civilization, the comforts, and refinements which are now spread over our Western States. True it is, that this expansion of bank facilities has cast its dark shadow as well as its sunlight. In many a city and town, thousands have been ruined by the recklessness or improvidence of those who have made haste to be rich, and many a possessor of an ample fortune, acquired by a life-long labor, has gone down to his grave in sadness, sorrow, and deprivation, by the violent explosion of those fearful volcanoes which periodically have scattered burning lava and ashes over the golden vistas which speculation had conjured up.

But the question now arises, When are our experiments in banking to end? We have tried national banks, specie banks, safety-fund banks, free banks, and bogus banks; and we have a sub-treasury scheme, and untold treasures of gold in California, but these are merely chaotic materials, moving in space at random—no single mind directs their movements, and the result will probably be "confusion worse confounded." Where, then, are we to look for succor? We can discover but one sure point, and that is the general government, who alone have the power to exercise a salutary control over the currency of our whole country, through the agency of that grand regulator of exchange, an exchequer system, aided, if need be, by that pet of the government, the present sub-treasury scheme.

From the following table of the number of banks, amount of capital, and circulation, it will appear that the number of banks has doubled in a period of nearly twenty years; while the capital and circulation have increased only about 30 per cent. in the same time, which ratio is not equal to the growth or increase in wealth of the country.

TREASURY REPORT.

Years.	Banks.	Capital paid in.	Circulation.
1837	758	$290,000,000	$149,000,000
1838	829	319,000,000	116,000.000
1839	840	327,000.000	135,000,000
1840	907	363,000,000	107,000,000
1841	784	313,000,000	107,000,000
1842	692	260,000,000	83,000,000
1843	691	228,000,000	58,000,000
1844	696	210,000,000	75,000,000
1845	707	206,000,000	89,000,000
1846	707	196,000,000	105.000,000
1847	715	203,000,000	105,000,000
1848	751	204,000,000	128,000,000
1849	782	207,000,000	114,000,000
1850	824	217,000,000	131,000,000
1851	879	227,000,000	155,000,000
1852	..	....	....
1853	..	....	....
1854	1208	301,000,000	204,000,000
1855	1307	332,000,000	187,000.000

Our task is ended, when we have acknowledged the sources from which this compilation has been derived. From Condy Raguet and Professor Tucker's works on *Banks and Banking*, from *Niles' Register*, the *Bankers'* and *Hunt's Magazines*, liberal extracts have been made, and all the tabular statements have been derived either from the *Bankers' Magazine* or the reports of the Secretary of the Treasury. The admirable Index to *Periodical Literature*, by the accomplished librarian of the Boston Athenæum, has been an efficient guide to authorities and essays which might otherwise have escaped our attention, and has fully verified the motto on his title-page,

"Qui scit ubi sit scientia, habenti est proximus."

Bank of the United States.—The old Bank of the United States was incorporated by an act of Congress, approved February, 1791. By the limitation of the charter, it was to expire on the 4th of March, 1811. This, like the Banks of England, France, and Sweden, was a bank of deposit, discount, and circulation, with a capital of $10,000,000.

Those European writers, both British and French, who have eulogized this institution as being purely commercial, and distinguished from those of England

and France by not being connected with the government, or an engine of finance, can not have read the charter, the preamble to which begins thus: "Whereas the establishment of a bank will be very conducive to the conducting of the national finances, will tend to give facility to the obtaining of loans for the use of the government in sudden emergencies, and will be productive of *considerable advantages* to trade and industry in general," etc. Instead of being a merely commercial establishment, therefore, it was essentially and mainly of a financial and political character, and it was on this ground that its constitutionality was defended; the right of Congress to grant such a charter being claimed mostly upon the strength of that clause of the Constitution which gives to Congress the power necessary for carrying into execution the powers enumerated, and expressly vested in that body. The origin of this establishment was, therefore, similar to that of the Bank of England, and the resemblance is not limited to the general purposes of its institution, for, as the Bank of England originated in a loan to the British government, so the act by which the old Bank of the United States was chartered provided that the sums subscribed by individuals and corporations should be payable one-fourth in gold and silver and three-fourths in the public debt certificates. The President of the United States was authorized to subscribe for two millions of the stock in behalf of the United States. The directors, being twenty-five, were chosen by the stockholders without any interference on the part of the government in the election; but the government reserved the right of inspecting the affairs of the Bank, and for this purpose the Secretary of the Treasury was authorized to demand of the president and directors a statement of its concerns as often as he might see fit. The corporation was authorized to establish branches in any part of the United States. The only restriction as to circulation was, that the amount of debts due from the corporation by bond, bill, note, or otherwise, besides the debts due for deposits, should never exceed $10,000,000; and in case of excess, the directors by whose agency such debt should be incurred were made personally answerable. This bank went into operation, and had a most powerful agency in establishing the credit of the government, facilitating its financial operations, and promoting the interests of industry and commerce. Congress having refused to renew the charter, it expired, by its own limitation, in 1811. But during the war which ensued the want of a national bank was severely felt, not only as an agent for collecting the revenues, but more especially for transmitting funds from one part of the country to another, and then it might have been a useful auxiliary to the public credit by supplying temporary loans in cases of emergency. So thoroughly convinced were the public of the necessity of such an institution, that the members of the same political party from which the constitutional objections had been made to the old Bank, and which had refused to renew its charter, passed an act of Congress, which was approved by the President, April 10, 1816, chartering the second Bank of the United States, with a capital of $35,000,000, upon principles and with provisions very similar to those contained in the former charter. For this charter the government demanded and received a bonus of $1,500,000 from the stockholders. The government became a stockholder in the same proportion as in the former bank, taking one-fifth, or $7,000,000 of the stock. The direction of the institution was left to the stockholders, as in the old bank, except that the government reserved the right of appointment and removal at pleasure, by the President, of five directors out of the twenty-five, the other twenty being elected by the stockholders. The government also reserved the right to demand a statement of the concerns of the institution by committees of either branch of the Legislature. One quarter of the subscription to the stock was payable either in gold and silver or United States stock, at the option of subscribers. The $7,000,000 to be subscribed by the government was payable either in gold and silver, or public stock, at an interest of 5 per cent., at the option of the government. The transactions of the corporation were limited to making loans and trading in the precious metals, and the sale of such goods or proceeds of such lands as should be pledged.

Branches were established in various parts of the Union. No other similar corporations could be chartered by the government, except banks in the District of Columbia, with a capital not exceeding in total $6,000,000, during the period for which the charter was granted, namely, to the 3d of March, 1836. The bank was prohibited from purchasing any part of the public debt, taking interest over 6 per cent., or loaning to the government over $500,000, or to any State over $50,000; and the debts of the bank were in no case to exceed the amount of deposits by more than $35,000,000. And in case of refusing specie payment of its notes or deposits in specie, the bank was made liable to pay interest at the rate of 12 per cent. per annum. The bank was also obliged, by its charter, to give the government the necessary facilities for transferring the public funds from place to place within the United States without charging commissions, or claiming any allowance on account of the difference of exchange, and to transact all the business of commissioners of loans whenever required so to do. The bank was prohibited from issuing bills under the denomination of $5.

The bank commenced operations on the 7th of April, 1817; and soon after entered into a compact with the State banks for a simultaneous resumption of specie payments, which took place on the 20th February, 1817. Every effort was made to push its paper into circulation. Its discounts were increased in one month from $3,000,000 to $20,000,000; and in October, nine months after going into operation, they had increased to $33,000,000. Of course, with this immense expansion, the currency depreciated; prices of every thing ranged high; speculation, especially in stocks, was rife. The management of the bank was very bad; money was lent on the stock of the bank to its par value, and so persons of no means became stockholders—pledging the stock for the loan with which they bought the stock. The branches which had been made at all points, North, East, West, and South, were issuing notes, limited by the ability to make them. In obedience to a fixed law of action and reaction being equal, a revulsion soon came, and, owing to the mismanagement of the directors, it was increased. The branches met with great losses: at Baltimore, for instance, from the improper conduct of the officers, it was estimated at $1,671,221; and the aggregate losses of the parent bank up to the 6th of March, 1819, exceeded $3,500,000. The dividends in the same time amounted to $4,410,000; of this sum $1,348,553 was received for interest on public debt held by the bank, which made the profits on the banking operations less by half a million than its losses. These losses, and the fluctuations caused by the difficulties of the bank in the currency and in money affairs generally, created a strong feeling against the bank, which added to the party who held that the bank was unconstitutional and inexpedient.

In the sessions of 1831-'32 the bank made application to Congress for a renewal of the charter; and a bill was passed incorporating anew the bank. This was vetoed by President Jackson. It was then reconsidered by Congress, but failing to obtain the constitutional majority of two-thirds, it was finally rejected, July, 1832.

The removal of the government deposits from the Bank of the United States by the President, September 23, 1833; the adoption, in consequence, by Congress of what was afterward called the "deposit-bank system," as a means of safely keeping the public money; the resolution of the Senate that the removal was uncalled for, and the responsibility assumed by the President unconstitutional, etc., introduced by Mr. Webster, and passed March 28, 1834; the passage of the act of June 23, 1836, for the distribution of the surplus revenue among the different States of the Union; the issue by the Secretary of the Treasury of the famous specie circular of July 11, 1836; the incorporation of the Bank of the United States by the Legislature of Pennsylvania early in the same year; the derangement in the currency of the country, which led, in May, 1837, to the general suspension of specie payments by the banks; the resumption of specie payments by the banks in the summer of 1838, with the adoption of the "free-banking system" by the State of New York, and several others, were events which may be regarded as being intimately connected with the suspension of the Bank of the United States.—E. A.

"When it was finally settled that no recharter of the national bank was to be obtained, a plan was projected to combine the advantages of the long-established correspondence, name, and machinery of the former bank, by incorporating its stock with a new institution under the name of "The President, Directors, and Company of the Bank of the United States of Pennsylvania," which was chartered on the 18th of February, 1836, by the Legislature of that State. The transfer of the funds of the old institution was made into the new State bank. More than 15 per cent. was restored by the government beyond its subscription at the period of the transfer, and 3½ per cent. had been paid to the same source every six months for a long course of years. In consequence of the advantages to be derived from the new institution, the stockholders were content to subscribe anew in the new State bank; and it is alleged that all of them might, at this juncture, have received their investments back, not only at par, but with a large advance. This the government actually did, and no power was enjoyed by the government that was not shared by every individual. Indeed it was alleged by Mr. Nicholas Biddle (who held the administration of the affairs of the State bank, as he had done in the national bank), as recently as April, 1841, that the State institution was prosperous down to the end of his administration in March, 1839. The downfall of the State institution, however, soon occurred, bringing disaster upon the stockholders. From March, 1839, to March, 1841, the stock of the State bank declined from 116 to 17 per cent., and this loss fell in considerable part upon those who had been the original stockholders of the national bank. The stock is now quoted from $1 to $2 per share. The new institution did not rest upon the broad foundation of national aid, and of course had not the confidence possessed by the national bank."—HUNT'S *Merch. Mag.*

A bill for establishing a Fiscal Bank of the United States passed the House of Representatives, August 6, 1841; vetoed by President Tyler, August 16. Another bill for a Fiscal Corporation vetoed September 9, 1841, followed by a resignation of all the Cabinet, except Mr. Webster, which ended for a time all efforts to obtain under any name a new national bank.

CANADA.—There are eight banks in Canada besides the Bank of British North America, which has its chief office in England, and spreads its branches all over British America. This bank, which was incorporated in 1840, has a capital of £1,000,000 sterling. Of the eight more strictly colonial banks, four are in Lower and four in Upper Canada. The most important of these is the Bank of Montreal, with a present capital of £1,500,000 currency. The three other banks in Lower Canada are, the City Bank of Montreal, with a capital of £300,000; the Banque du Peuple in Montreal, with a capital of £300,000; and the Quebec Bank, with a capital of £500,000. The banks in Upper Canada are, the Bank of Upper Canada, Toronto, incorporated 1821, with a present capital of £1,000,000; the Commercial Bank of the Midland District, Kingston, incorporated 1832, capital £1,000,000; the Gore Bank, Hamilton, incorporated with a capital of £100,000; and the Niagara District Bank at St. Catherines, with a capital of £500,000.

Almost all of these institutions have branches in various parts of the country, and issue notes, payable on demand, from one dollar upward. The least denomination of the notes of the Bank of British North America is four-dollar notes, representing £1 colonial currency. The greater number of these institutions are now understood to be paying from 6 to 7 per cent. per annum upon their paid-up stock; and the stock of the most successful among them was selling, in April, 1854, at from 16 to 25 per cent. premium. All accounts are kept in Canada in pounds, shillings, and pence, provincial currency. The present one pound of provincial currency is about equal to 16*s.* 4*d.* sterling, or four dollars United States currency. The English sovereign is equal to 24*s.* 4*d.* currency; the shilling within a fraction of 1*s.* 3*d.*; and the half-crown about 3*s.* 1½*d.* colonial currency. The bank capital of Canada was largely increased by act of 1854, viz.:

Names.	Former Capital.	Addition, 1854.	Capital, 1856.
	£	£	£
Bank of Montreal	1,000,000	500,000	1,500,000
Bank of Upper Canada ..	500,000	500,000	1,000,000
Comm. Bank of Canada .	500,000	500,000	1,000,000
City Bank, Montreal	225,000	75,000	300,000
Banque du Peuple	200.000	100,000	300,000
Quebec Bank	250,000	250,000	500,000
Total	2,675.000	1,925,000	4.600,000

FRIENDLY SOCIETIES.—Friendly Societies are associations, mostly in England, of persons chiefly in the humbler classes for the purpose of making provision by mutual contribution against those contingencies in human life, the occurrence of which can be calculated by way of average. The principal objects contemplated by such societies are the following: the insuring of a sum of money to be paid on the birth of a member's child, or on the death of a member or any of his family; the maintenance of members in old age and widowhood; the administration of relief to members incapacitated for labor by sickness or accident; and the endowment of members or their nominees. Friendly societies are, therefore, associations for mutual assurance, but are distinguished from assurance societies, properly so called, by the circumstance that the sums of money which they insure are comparatively small.

Although the period when such societies originated appears to be unknown, their existence in ancient times is unquestionable. They were numerous in England among the Anglo-Saxons, but from the general want of learning at so early an age, and the difficulty of preserving written documents even of the highest importance relating to a period so remote, it can not be expected we should now possess any very complete records of their history or proceedings. Writers of credit, however, have mentioned several of these fraternities or "guilds" as existing both before and subsequently to the Norman Conquest, and their rules, which are still preserved, are highly interesting, from their similarity to those of the friendly societies of the present day. "These guilds or social corporations," observes an excellent writer, "seem, on the whole, to have been friendly associations made for mutual aid and contribution to meet the peculiar exigencies which were perpetually arising from burials, legal exactions, penal mulcts, and other payments and compensations." —TURNER'S *Anglo-Saxons.* Some of them had for their objects the bestowal of annual charity, the payment of stipends to poor persons, the entertainment of poor strangers and travelers, and various other works of a like charitable and benevolent character.

Banks of the United States, 1857.—The following is a summary of the liabilities and the resources of the banks of each State in the Union, according to the official returns in or near January, 1857.—*From the Finance Report of the Secretary of the Treasury, December.* 1857.

States.	LIABILITIES							
	No of Banks.	No. of Branches.	Date.	Capital.	Circulation.	Deposits.	Due other Banks.	Other Liabilities.
Maine	76	..	Jan., 1857	$8,135,735	$4,641,646	$1,994,782	$145,983	$121,743
New Hampshire	49	..	Dec., 1856	4,831,000	3,677,689	1,058,803	....	....
Vermont	41	..	July, 1856	3,856,946	3,970,720	797,535	7,348	317
Massachusetts	172	..	Oct., 1856	58,598,800	26,544,315	23,437,256	4,807,601	931,868
Rhode Island	98	..	Dec., 1856	20,275,899	5,521,909	3,141,657	1,475,221	650,703
Connecticut	70	1	April, 1856	18,913,372	9,197,762	4,090,835	875,287	911,478
New York	310	1	Sept., 1856	96,381,301	34,019,633	96,907,970	29,014,125	6,767,333
New Jersey	46	..	Jan., 1857	6,582,770	4,759,855	4,891,970	1,488,658	....
Pennsylvania	71	..	Nov., 1856	23,609,344	17,368,096	27,593,534	4,215,515	127,059
Delaware	8	3	Jan., 1857	1,428,185	1,394,094	868,414	147,250	....
Maryland	31	..	Jan., 1857	12,297,276	5,155,046	9,611,324	1,895,284	679,701
Virginia	19	38	Jan., 1857	13,863,000	12,685,627	7,397,474	722,507	98,255
North Carolina	12	16	Jan., 1857	6,425,250	6,301,262	1,170,026	224,821	6,645
South Carolina	18	2	Jan., 1857	14,837,642	10,654,652	3,592,733	3,518,462	3,355,119
Georgia	19	4	Jan., 1857	15,428,690	9,147,011	3,126,550	1,663,429	872,644
Alabama	4	..	Jan., 1857	2,297,800	3,177,234	2,423,260	703,443	5,000
Louisiana	9	10	Dec., 1856	21,730,400	9,194,139	13,478,729	965,585	2,207,583
Mississippi	1	..	Jan., 1857	336,000	556,315	83,435	....	....
Tennessee	22	18	Jan., 1857	8,451,422	8,401,948	4,875,346	944,917	951,262
Kentucky	8	27	Jan., 1857	10,596,305	13,682,215	4,473,378	2,983,373	50,000
Missouri	6	..	Dec., 1856	1,215,405	2,780,380	1,188,982	111,984	....
Illinois	42	..	Oct., 1856	5,872,144	5,534,945	1,002,399	210,483	157,981
Indiana	33	13	Oct., 1856	4,123,080	4,731,705	1,852,742	272,815	177,309
Ohio	61	..	Nov., 1856	6,742,421	9,153,629	6,543,420	1,202,961	392,758
Michigan	4	..	Dec., 1856	841,489	670,549	1,347,956	118,962	52,649
Wisconsin	49	..	Jan., 1857	2,955,000	1,702,570	3,065,762	....	1,290,480
Nebraska Terri'y	4	..	Jan., 1857	205,000	353,796	125,291	1,749	....
Total liabilities	1283	133	....	$370,834,686	$214,778,822	$230,351,352	$57,674,333	$19,816,850

States.	RESOURCES.							
	Loans.	Stocks.	Real Estate.	Other Investments	Due by other Banks	Notes of other Banks.	Specie Funds.	Specie.
Maine	$13,277,620	....	$138,251	....	$1,158,276	$375,216	....	$705,143
New Hampshire	8,846,421	....	75,893	....	741,475	136,504	....	236,013
Vermont	7,602,951	$114,589	135,268	$52,881	1,142,104	43,146	$39,440	288,858
Massachusetts	101,132,792	....	1,426,392	....	7,574,791	5,248,379	....	4,555,571
Rhode Island	28,679,843	128,539	478,652	70,133	1,255,322	1,281,754	....	548,548
Connecticut	28,511,149	1,216,630	453,132	488,138	3,432,975	367,319	246,248	1,006,413
New York	205,892,499	24,027,533	6,868,945	....	12,179,160	2,935,205	22,678,628	12,898,771
New Jersey	13,380,085	581,773	224,711	288,296	2,237,204	710,072	....	819,926
Pennsylvania	52,287,234	2,301,626	1,206,569	393,730	5,146,330	5,719,234	1,583,696	5,973,138
Delaware	3,021,378	33,076	130,000	1,065	506,514	40,680	195,601	146,367
Maryland	22,293,554	758,278	402,217	23,528	1,894,791	1,666,663	9,168	3,522,561
Virginia	24,899,575	3,184,966	872,368	484,682	2,405,211	1,509,089	13,402	3,092,741
North Carolina	12,636,521	94,116	192,475	7,913	846,416	366,076	1,378	1,156,913
South Carolina	28,227,370	3,268,876	631,273	698,662	1,180,938	539,497	....	1,197,774
Georgia	16,649,201	2,248,083	8,368,280	534,619	1,368,971	1,480,570	31,928	1,702,108
Alabama	6,545,209	142,201	78,148	1,252	665,302	504,287	....	1,139,312
Louisiana	31,200,296	4,794,885	2,470,683	1,493,905	6,416,728	....	...	6,811,162
Mississippi	657,020	519	11,413	....	257,505	26,503	....	7,912
Tennessee	16,893,390	2,450,308	590,715	24,169	2,380,700	1,069,408	62,767	2,094,032
Kentucky	23,404,551	739,126	465,907	363,924	4,115,430	840,959	....	4,406,106
Missouri	4,112,791	....	98,254	....	75,991	196,910	....	1,215,184
Illinois	1,740,671	6,129,613	52,832	....	3,953,450	433,717	19,297	635,810
Indiana	7,039,691	1,694,357	227,599	380,911	1,338,418	557,238	68,598	1,420,076
Ohio	15,233,241	2,749,686	310,145	687,337	2,749,558	1,199,863	30,007	2,016,814
Michigan	1,903,603	588,389	60,110	11,145	245,061	150,489	9,141	92,762
Wisconsin	5,280,634	2,025,160	150,315	1,892	453,771	701,161	73,222	542,938
Nebraska Terri'y	418,097	....	3,975	2,151	120,804	15,069	210	136,325
Total resources	$684,456,887	$59,272,329	$26,124,522	$25,950,336	$65,849,205	$28,124,008	$25,081,641	$58,349,838

Since the early portion of this article was prepared for the press, important events have occurred both in Europe and the United States, involving the stability of the banking concerns of both continents. The above tables contain the latest official returns of the liabilities and resources of the banks of the Union, and may be considered as a fair exhibit of the condition of these institutions in the several States at the beginning of the year 1857. The unfavorable condition of the foreign trade of the Union, added to a redundant bank circulation, led to a large export of specie from the United States during the nine months ending September, 1857. A panic followed these continuous exports, which was accompanied by a sudden reduction of bank loans during the months of August and September in the Atlantic cities, producing in September a suspension of the banks of Philadelphia, Baltimore, Washington, and other cities; and in October, 1857, to a suspension of those of the cities of New York, Boston, and other portions of the Union. Those of Ohio, Kentucky, Illinois, Indiana, and a portion of those in South Carolina, New Orleans, Pennsylvania, Missouri, etc., and one in New York city, being the exceptions. On the 14th December following, a resumption of specie payments took place throughout New York and New England; a measure soon after adopted by those of Pennsylvania, Maryland, and other States.

The suspension of specie payments in the United States was followed by the failure of several provincial banks in England and Scotland; and by an order in council on the 12th November, authorizing the temporary suspension of the Bank Charter Act, whereby the bank was authorized to enlarge its issues, if necessary, beyond the chartered prescribed limits. This necessity did not, however, arise; but the announcement had the effect at once to allay the panic prevailing in England at the time. The rate of interest adopted by the bank was raised to 10 per cent. temporarily. In Scotland, the City of Glasgow Bank, and Western Bank of Scotland, suspended, and are now in process of liquidation. The Borough Bank of Liverpool also failed, together with numerous small banks in the interior.—For recent discussions as to the principles of banking and the currency, the reader is referred to the *Bankers' Magazine*, New York, 1850–1858: *London Quarterly*, 1857–58.

VIII. Savings Banks.—These banks were originally established in England for the receipt of small sums deposited by the poorer class of persons, and for their accumulation at compound interest. They are there managed by individuals who derive no benefit whatever from the deposits. All moneys paid into any Savings Bank established according to the provisions of the acts 9 Geo. 4, c. 92, and 7 & 8 Vict. c. 83, are ordered to be paid into the Banks of England and Ireland, and vested in Bank annuities or Exchequer bills. The interest payable to depositors is not to exceed 2*d.* per cent. *per diem*, or £3 0*s.* 10*d.* per cent. *per annum.* No depositor can contribute more than £30, exclusive of compound interest, to a Savings Bank in any one year; and the total deposits to be received from any individual are not to exceed £150; and whenever the deposits, and compound interest accruing upon them, standing in the name of any one individual, shall amount to £200, no interest shall be payable upon such deposit so long as it shall amount to £200. The commissioners for the reduction of the national debt have the disposal of the sums vested in the public funds on account of Savings Banks.

This system began in 1817; and on the 20th of November, 1850, there was due to depositors, including interest accruing on deposits, £31,208,322. It farther appears that from the 6th of August, 1815, down to the 20th of November, 1842, the public paid on account of interest and charges on the sums due to Savings Banks and Friendly Societies under the act 9 Geo. 4, c. 92, £14,070,341 2*s.* 6*d.*, and that the dividend received during the same period on the stock and other public securities in which the commissioners for the reduction of the national debt invested the said sums, amounted to £12,039,781 8*s.* 6*d.*, leaving a balance of £2,030,559 14*s.*, which consequently may be said to be the sum which the system has cost the public.—*Parl. Paper*, No. 258, Sess. 1843. But the reduction of the interest on deposits in 1844 from 2½*d.* to 2*d.* per cent. *per diem*, has either entirely or in a great measure obviated this source of loss.

The principle and object of Savings Banks can not be too highly commended. In the metropolis, and many other parts of England, public banks do not receive small deposits, and until recently they did not pay any interest on them. And even in Scotland, where the public banks allow interest upon deposits, they do not generally receive less than £5 or £10. But few poor persons are able to save even this much, except by a lengthened course of economy. The truth, therefore, is, that until Savings Banks were established, the poorer classes were every where without the means of securely and profitably investing those small sums they are not unfrequently in a condition to save; and were consequently led, from the difficulty of disposing of them, to neglect opportunities for making savings, or, if they did make them, were tempted, by the offer of high interest, to lend them to persons of doubtful characters and desperate fortunes, by whom they were, for the most part, squandered. Under such circumstances, it is plain that nothing could be more important, in the view of diffusing habits of forethought and economy among the laboring classes, than the establishment of Savings Banks, where the smallest sums are placed in perfect safety, are accumulated at compound interest, and are paid, with their accumulations, the moment they are demanded by the depositors. The system is yet little more than in its infancy; but the magnitude of the deposits already received sets its powerful and salutary operation in a very striking point of view.

We subjoin a copy of the rules of the St. Pancras Savings Bank, which may be taken as a model for similar institutions, inasmuch as they have been drawn up with great care, and closely correspond with the provisions in the acts 9 Geo. 4, c. 92, and 7 & 8 Vict. c. 83.

1. *Management.*—This bank is under the management of a president, vice-presidents, trustees, and not less than fifty managers, none of whom are permitted to derive any benefit whatsoever, directly or indirectly, from the deposits received, or the produce thereof. One or more of the managers attend when the bank is open for business.

2. *Superintending Committee.*—A committee of not less than ten managers, three of whom form a quorum, is empowered to superintend, manage, and conduct the general business of this bank; to add to their number from among the managers; to fill up vacancies in their own body, and to appoint a treasurer or treasurers, agent or agents, auditors, an actuary and clerks, and other officers and servants, and to withdraw any such appointments, and to appoint others, should it be considered necessary so to do. The proceedings of this committee are regularly laid before the general meetings of the bank.

3. *Elections.*—The superintending committee is empowered to add to the number of managers, until they amount to one hundred and twenty, exclusively of the president, vice-presidents, and trustees; and any vacancies of president, vice-presidents, and trustees are to be filled up at a general meeting.

4. *General Meetings.*—A general meeting of the president, vice-presidents, trustees, and managers of this bank shall be held once a year, in the month of February. The superintending committee shall lay before every such meeting a report of the transactions of the bank, and state of the accounts. The superintending committee for the succeeding year shall be elected at such general meeting; and failing such election, the former committee shall be considered as reappointed.

5. *Special Meetings.*—The superintending committee are authorized to call special general meetings when they think proper; and also, on the requisition of any ten managers, delivered in writing to the actuary, or to the manager in attendance at the bank; and of such meeting seven days' notice shall be given.

6. *Liability of Trustees, Managers, Officers, etc.*—No trustee or manager shall be personally liable except for his own acts and deeds, nor for any thing done by him in virtue of his office, except where he shall be guilty of willful neglect or default; but the treasurer or treasurers, the actuary, and every officer intrusted with the receipt or custody of any sum of money deposited for the purposes of this institution, and every officer, or other person, receiving salary or allowance for their services from the funds thereof, shall give good and sufficient security, by bond or bonds, to the clerk of the peace of the county of Middlesex for the just and faithful execution of such office of trust.

7. *Investment and Limitation of Deposits.*—Deposits of not less than *one shilling*, and not exceeding *thirty pounds* in the whole, exclusive of compound interest, from any one depositor, or trustee of a depositor, during each and every year ending on the 20th of November, will be received and invested, pursuant to 9 Geo. 4, c, 92, s. 11, until the same shall amount to *one hundred and fifty pounds* in the whole; and when the principal and interest together shall amount to *two hundred pounds*, then no interest will be payable on such deposit, so long as it shall continue to amount to that sum. But depositors whose accounts amounted to or exceeded *two hundred pounds* at the passing of the said act, on the 28th of July, 1828, will continue to be entitled to interest and compound interest thereon.

8. *Interest to be allowed to Depositors.*—In conformity with the act 7 & 8 Vict. c. 83, an interest at the rate of 2*d.* per cent. per day, being £3 0s. 6*d.* per cent. per annum *(the full amount authorized by the said act*), will be allowed to depositors, and placed to their accounts as a cash deposit, in the month of *November* in each year. Depositors demanding payment of the whole amount of their deposits in this bank will be allowed the interest due on such deposits up to the day on which notice of withdrawing shall be given, but no interest will be allowed, in any case, on the fractional parts of a pound sterling.

9. *Description and Declaration.*—Every person desirous of making any deposit in this bank shall, at the time of making their first deposit, and at such other times as they shall be required so to do, declare their residence, occupation, profession, or calling, and sign (either by themselves, or, in case of infants under the age of seven years, by some person or persons to be approved of by the trustees or managers, or their officer) a declaration that they are not directly or indirectly entitled to any deposit in, or benefit from, the funds of any other Savings Bank in England or Ireland, nor to any sum or sums standing in the name or names of any other person or persons in the books of this bank. And in case any such declaration shall not be true, every such person (or the person on whose behalf such declaration may have been signed) shall forfeit and lose all right and title to such deposits, and the trustees and managers shall cause the sum or sums so forfeited to be paid to the commissioners for the reduction of the national debt; but no depositor shall be subject or liable to any such forfeiture on account of being a trustee on behalf of others, or of being interested in the funds of any Friendly Society legally established.

10. *Trustees on behalf of others.*—Persons may act as trustees for depositors, whether such persons are themselves depositors in any Savings Bank or not, provided that such trustee or trustees shall make such declaration on behalf of such depositor or depositors, and be subject to the like conditions in every respect as are required in the case of persons making deposits on their own account, and the receipt and receipts of

such trustee or trustees, or the survivor of them, or the executors or administrators of any sole trustee, or surviving trustee with or without (as may be required by the managers) the receipt of the person on whose account such sum may have been deposited, shall be a good and valid discharge to the trustees and managers of the institution.

11. *Minors.*—Deposits are received from, or for the benefit of, minors, and are subject to the same regulations as the deposits of persons of 21 years of age and upward.

12. *Friendly and Charitable Societies.*—Friendly Societies, legally established previous to the 28th of July, 1828, may deposit their funds through their treasurer, steward, or other officer or officers, without any limitation as to the amount. But Friendly Societies formed and enrolled after that date are not permitted to make deposits exceeding the sum of £300, principal and interest included; and no interest will be payable thereon, whenever the same shall amount to, or continue at, the said sum of £300 or upward.

Deposits are received from the trustees or treasurers of Charitable Societies, not exceeding £100 per annum, provided the amount shall not at any time exceed the sum of £300, exclusive of interest.

13. *Deposits of Persons unable to attend.*—Forms are given at the office enabling persons to become depositors who are unable to attend personally; and those who have previously made a deposit may send additional sums, *together with their book*, by any other person.

14. *Depositors' Book.*—The deposits are entered in the books of the bank at the time they are made, and the depositor receives a book with a corresponding entry therein; which book must be brought to the office every time that any further sum is deposited, also when notice is given for withdrawing money, and at the time the repayment is to be made, so that the transactions may be duly entered therein.

15. *Withdrawing Deposits.*—Depositors may receive the whole or any part of their deposits on any day appointed by the managers, not exceeding *fourteen* days after notice has been given for that purpose; but such deposits can only be repaid to the depositor personally, or to the bearer of an order under the hand of the depositor, signed in the presence of either the minister or a church-warden of the parish in which the depositor resides, of a justice of the peace, or of a manager of this bank.

The depositor's book must always be produced when notice of withdrawing is given.

16. *Money withdrawn may be re-deposited.*—Depositors may withdraw any sum or sums of money, and re-deposit the same at any time or times within any one year, reckoning from the 20th day of November, provided such sum or sums of money re-deposited, and any previous deposit or deposits which may have been made by such depositor in the course of the year, taken together, shall not exceed, at any time in such year, the sum of £30 additional principal money bearing interest.

17. *Return or Refusal of Deposits.*—This bank is at liberty to return the amount of the deposits to all or any of the depositors, and may refuse to receive deposits in any case, where it shall be deemed expedient so to do.

18. *Arbitration of Differences.*—In case any dispute shall arise between the trustees or managers of this bank, or any person or persons acting under them, and any individual depositor therein, or any trustee of a depositor, or any person claiming to be such executor, administrator, or next of kin, then, and in every such case, the matter so in dispute shall be referred to the barrister at law appointed by the commissioners for the reduction of the national debt, under the authority of the 9 Geo. 4, c. 92, s. 45; and whatever award, order, or determination shall be made by the said barrister, shall be binding and conclusive upon all parties, and shall be final, to all intents and purposes, without any appeal.

Government Annuities by Depositors in Savings Banks.—The act 2 & 3 Will. 4, c. 14, enables depositors in Savings Banks and others to purchase government annuities for life or for years, and either immediate or deferred. At present these annuities are limited to £30 a year. The money advanced is returnable in case the contracting party does not live to the age at which the annuity is to become payable, or is unable to continue the monthly or annual installments. That this measure was benevolently intended, and that it may be productive of advantage to many individuals, can not be doubted; but we look upon all attempts, and particularly those made by government, to get individuals to exchange capital for annuities, as radically objectionable, and as being subversive of principles which ought to be strengthened rather than weakened.—*See* FUNDS. We subjoin

An Account of the Number of Savings Banks, the Number of Depositors, and the Amount of Deposits, in England, Wales, Scotland, and Ireland, on the 20th November, 1850.

	England.			Wales.			Scotland.			Ireland.			United Kingdom.		
	No. of Depositors.	Investments.	Average Amount.	No. of Depositors.	Investments.	Average Amount.	No. of Depositors.	Investments.	Average Amount.	No. of Depositors.	Investments.	Average Amount.	No. of Depositors.	Investments.	Average Amount.
		£	£		£	£		£	£		£	£		£	£
	563,089	3,415,592	6	11,296	77,689	7	78,711	374,459	5	24,873	179,201	7	677,969	4,046,941	6
	213,754	6,635,688	31	5,659	171,763	30	15,946	463,267	29	15,772	481,799	31	251,131	7,752,517	31
	95,033	6,560,915	69	2,246	153,299	68	4,175	280,854	67	5,056	340,721	67	106,510	7,335,789	69
	32,689	3,929,660	120	719	85,917	119	849	100,296	118	1,352	159,867	118	35,609	4,275,740	120
	17,682	3,021,194	171	334	55,787	167	276	48,427	175	622	104,459	168	18,914	3,229,867	170
	2,370	539,650	228	46	10,679	232	3	1,121	373	29	6,259	216	2,448	557,709	228
Number and amount of individual depositors in savings banks..........	924,617	24,102,699	26	20,300	555,134	27	99,960	1,268,424	13	47,704	1,272,306	27	1,092,581	27,198,563	25
Number and amount invested by charitable institutions in account with savings banks	11,359	592,948	51	279	17,780	64	681	25,014	37	413	19,351	47	12,912	655,093	51
Number and amount invested by Friendly Societies in account with Savings banks	6,740	959,498	142	395	75,755	192	159	31,625	199	212	10,448	49	7,506	1,077,326	144
Total	942,716	25,655,145	27	20,974	648,669	31	100,800	1,325,063	13	48,329	1,302,105	27	1,112,999	28,930,982	26
Invested by Friendly Societies with the Commissioners of National Debt ..													586	2,277,340	..
												Gross Total..................	1,113,585	31,208,322	..

Bankok, or **Bangkok,** the capital of Siam, situated about 20 miles from the sea on both sides the River Menam, but chiefly on its left or eastern bank, in lat. 13° 49′ N., long. 101° 10′ E. The Menam opens in the centre nearly of the bottom of the Gulf of Siam. There is a bar at its mouth, consisting, for the most part, of a mud flat 10 miles in length. The outer edge of this flat, which is little more than 200 yards broad, is sandy, and of harder materials than the inner part, which is so soft, that when a ship grounds on it during the ebb, she often sinks 5 feet in the mud and clay, which supports her upright, so that she is but little inconvenienced. The highest water on the bar of the Menam, from February to September, is about 13½ feet; and in the remaining 4 months somewhat more than 14 feet; a difference probably produced by the accumulation of water at the head of the bay after the southwest monsoon, and by the heavy floods of the rainy season. On account of the deficiency of water on the bar, vessels sent to Bangkok had better, perhaps, not exceed 200 or 250 tons burden. In all other respects the river is extremely safe and commodious. Its mouth is no sooner approached, than it deepens gradually; and at Paknam, two miles up, there are 6 and 7 fathoms water. This depth increases as you ascend, and at Bangkok is not less than 9 fathoms. The only danger is, or rather was, a sand-bank off Paknam, bare at low water; but on this spot a battery has been erected within the last few years, affording at all times a distinct beacon. The channel of the river is so equal, that a ship may range from one side to another, approaching the banks so closely that her yards may literally overhang them. The navigation is said to be equally safe all the way up to the old capital of Yuthia, 80 miles from the mouth of the river.

The city of Bangkok extends along the banks of the Menam to the distance of about 2½ miles; but is of no great breadth, probably not exceeding 1½ miles. On the left bank there is a long street or row of floating houses—each house or shop, for they are in general both, consisting of a distinct vessel, which may be moored any where along the banks. Besides the principal river, which at the city is about a quarter of a mile broad, the country is intersected by a great number of tributary streams and canals, so that almost all intercourse at Bangkok is by water. The population has been computed at 50,000 or 60,000, half of whom are Chinese settlers.

The total area of the kingdom of Siam has been estimated at 190,000 square miles, and the population at only 2,790,500, principally resident in the rich valley of the Menam. Of the entire population, it is supposed that not less than 440,000 are Chinese. The common necessaries of life at Bangkok are exceedingly cheap. A cwt. of rice may always be had for 2*s.*, and very often for 1*s.* Other necessaries, such as salt, palm-sugar, spices, vegetables, fish, and even flesh, are proportionally cheap. The price of good pork, for example, is 2¼*d.* per lb. A duck may be had for 7*d.*, and a fowl for 3*d.* The neighborhood of Bangkok is one of the most productive places in the world for fine fruits; for here are assembled, and to be had in the greatest perfection and abundance, the orange and lichi of China, the mango of Hindostan, and the mangostein, durian, and shaddock of the Malay countries.

Trade.—The foreign trade of Siam is conducted with China, Cochin China, Cambogia, and Tonquin, Java, Singapore, and the other British ports within the Straits of Malacca, with an occasional intercourse with Bombay and Surat, England and America. The most important branch of the foreign trade is that with China, which is wholly carried on in vessels of Chinese form, navigated by Chinese, the greater portion of them being, however, built in Siam. The imports from China are very numerous, consisting of what are called in commercial language "assorted cargoes." The following is a list of the principal commodities: coarse earthen-ware and porcelain, spelter, quicksilver, tea, lacksoy (vermicelli), dried fruits, raw silk, crapes, satins, and other silk fabrics, nankeens, shoes, fans, umbrellas, writing paper, sacrificial paper, incense rods, and many other minor articles. Not the least valuable part of the importations are immigrants.

The exports from Siam are also very various, including, among others, black pepper, sugar, tin, cardamoms, eagle-wood, sapan-wood, red mangrove bark, rose-wood for furniture and cabinet work, cotton, ivory, stick-lac, rice, areca-nuts, salt fish; the hides and skins of oxen, buffaloes, elephants, rhinoceroses, deer, tigers, leopards, otters, civet cats, and pangolins; of snakes and rays, with the belly-shell of a species of land tortoise; the horns of the buffalo, ox, deer, and rhinoceros; the bones of the ox, buffalo, elephant, rhinoceros, and tiger; dried deer's sinews; the feathers of the pelican, of several species of storks, of the peacock and king-fisher, etc.; and, finally, esculent swallows' nests. The tonnage carrying on the China trade amounts in all to probably about 130 junks in number, a few of which are 1000 tons burden, and the whole shipping is not short of 35,000 tons.

The trade with the different countries of the Malay Archipelago is, also, very considerable. In this intercourse, the staple exports of Siam are sugar, salt, oil, and rice; to which may be added the minor articles of stick-lac, iron pans, coarse earthen-ware, hogs lard, etc. The returns are British and Indian piece goods, opium, with a little glass ware, and some British woolens from the European settlements, with commodities suited for the Chinese market—such as pepper, tin, dragon's blood, rattans, biche-de-mer, esculent swallows' nests, and Malay camphor from the native ports.

The total exports of clayed sugar and black pepper, the staple articles of Siamese export, may be estimated, the former at about 10,000 tons, and the latter from 3500 to 4000 tons.

Bankrupt and Bankruptcy. Bankrupts, in England, first law enacted regarding them, 35 Henry VIII. 1543. Again, 3 of Elizabeth, 1560; again, 1 James I. 1602; again, 1706; and more recently. It was determined by the King's Bench that a bankrupt may be arrested except in going and coming from any examination before the commissioners, May 13, 1780. The lord chancellor (Thurlow) refused a bankrupt his certificate because he had lost five pounds at one time in gaming, July 17, 1788. Enacted that members of the House of Commons becoming bankrupts, and not paying their debts in full, shall vacate their seats, 1812. The new bankrupt bill, constituting a new bankrupt court, passed October, 1831.—*Statutes at Large.*

NUMBER OF BANKRUPTS IN GREAT BRITAIN AT DIFFERENT PERIODS.

1700	38	1820	1358
1725	416	1825	2683
1750	432	1830	1467
1775	520	1835	954
1800	1339	1840	1308
1810	2000	1844	1064

It would really, therefore, as it appears to us, be for the advantage of creditors, were all penal proceedings against the persons of honest debtors abolished. The dependence placed on their efficacy is deceitful. A tradesman ought rather to trust to his own prudence and sagacity to keep out of scrapes, than to the law for redress: he may deal upon credit with those whom he knows; but he should deal for ready money only with those of whose circumstances and characters he is either ignorant or suspicious. By bringing penal statutes to his aid, he is rendered remiss and negligent. He has the only effectual means of security in his own hands, and it seems highly inexpedient that he should be taught to neglect them, and put his trust in prisons.

It is pretty evident, too, that the efficacy of imprisonment in deterring individuals from running into debt has been greatly overrated. Insolvents who are honest must have suffered from misfortune, or been disappointed in the hopes they entertained of being able, in one way or other, to discharge their debts. The fear of imprisonment does not greatly influence such persons; for when they contract debts they have no doubt of their ability to pay them. And though the imprisonment of *bona fide* insolvents were abolished, it would give no encouragement to the practices of those who endeavor to raise money by false representations; for these are to be regarded as swindlers, and ought, as such, to be subjected to adequate punishment. At present, indeed, the law is much too indulgent to this description of persons. Traders or others who endeavor to obtain goods or loans of money, whether by concealing or misrepresenting the real state of their affairs, are, in fact, about the very worst species of cheats; and the temptation to resort to such practices, and the facility with which they may be carried into effect, should make them, when detected, be visited with a proportionally increased severity of punishment, on the principle laid down by Cicero, that *ea sunt animadvertenda peccata maxime, quæ difficillime præcaventur.*

While, however, the law of England has always given the creditor an unnecessary degree of power over the debtor's person, it did not, till very recently, give sufficient power over his property. In this respect, indeed, it was so very defective, that one is almost tempted to think it had been intended to promote the practices of fraudulent debtors. The property of persons subject to the bankrupt and insolvent laws was, it is true, nominally placed at the disposal of assignees or trustees, for the benefit of their creditors; but when a person possessed of property, but not subject to the bankrupt laws, contracted debt, if he went abroad, or lived within the rules of the King's Bench or the Fleet, or remained in prison without petitioning for relief, he continued most probably to enjoy the income arising from that property without molestation.

ACCOUNT OF THE NUMBER OF BANKRUPTCIES GAZETTED IN EACH YEAR, FROM 1847 TO 1852 INCLUSIVE.

Districts.	1847.	1848.	1849.	1850.	1851	1852.
Liverpool	155	109	113	66	96	72
Manchester ...	164	145	80	66	69	58
Birmingham ..	158	173	195	102	93	106
Leeds	140	119	94	70	90	78
Bristol........	126	152	98	52	56	49
Exeter........	63	85	52	38	35	27
Newcastle.....	52	60	50	32	22	33
Total country..	859	903	582	426	462	482
London	800	705	574	411	473	399
	1659	1608	1256	837	935	882

France.—In June, 1838, the French law of bankruptcy and insolvency was abrogated, and an entirely new law was promulgated, which now forms Book III. of the "Code de Commerce."

United States.—The power of making uniform laws on the subject of bankruptcy in the United States, is, by the Constitution, conferred upon Congress, and was generally understood to be exclusively vested in that body. This power was exercised by Congress in 1800, by the enactment of a bankrupt law, limited to five years, and which was repealed by act of December 19, 1803.—KENT. The Congress of the United States legislated a second time on the subject of bankruptcy, by an act, passed in August, 1841, to establish a uniform system throughout the Union, which took effect on the 2d February, 1842, but was repealed March 3, 1843. The repeal of this act scarcely affected any existing interests, as almost every debtor had hastened, in anticipation of the possibility of its repeal, to take advantage of it voluntarily. At present there is not any bankrupt system under the general government of the United States, and the several States are left free to institute their own bankrupt systems, under certain limitations. The Supreme Court of New York had declared the bankrupt act of Congress to be constitutional (Justice Bronson dissenting), but the U. S. District Court of Missouri declared it to be unconstitutional.

Barbadoes, or **Barbados,** is one of the West India islands belonging to Great Britain, and the oldest of her settlements in that part of the world. The exact date of its discovery is unknown, but it was probably not later than the early part of the sixteenth century. The Portuguese are supposed to have been the first Europeans that visited this island, as it lay almost directly in their course to and from Brazil. They, however, had not regarded it as holding forth sufficient inducements for colonizing, as when first visited by the English in 1605 it was destitute of inhabitants, and covered with thick forests. The first English vessel that arrived there was the *Olive Blossom*, the crew of which took possession of the island in the name of King James, by erecting a cross upon the spot where Jamestown was afterward built, and cutting upon the bark of a tree that stood near, "James, K. of E. and this island"—James, king of England and this island. The favorable accounts which Sir William Courteen, a London merchant, afterward received of the island from one of his ships that had touched there, induced him to attempt a settlement. He accordingly fitted out two large vessels under the protection of Lord Ley, afterward Earl of Marlborough, who had obtained a grant of this island from James I. One only of these ships arrived at its destination on 17th February, 1625, and landed 40 English, and 7 or 8 negroes, who laid the foundation of a town, which, in honor of their sovereign, they called Jamestown.

Barbadoes is the most eastern of the Caribbee islands, lying 78 miles due east of the island of St. Vincent, between lat. 13° 2′ and 13° 19′ N., and long. 59° 26′ and 59° 39′ W. It presents almost the form of an irregular triangle; its greatest length, in a direction north by west, is nearly 21 miles, and its extreme breadth from east to west is 14½ miles. Its circumference, excluding the sinuosities of the bays, is 55 miles, and its area 106,470 acres, or about 166 square miles. In size, and in some measure in its outline, it bears a considerable resemblance to the Isle of Wight. It is almost encircled by coral reefs, which in some parts extend seaward for nearly three miles, and prove very dangerous to navigation.

The chief staple articles produced in Barbadoes for export are sugar, arrow-root, aloes, and cotton. The following table gives the value of the imports and exports for the years 1849, 1850, and 1851:

Years.	Imports.	Exports.	Tonnage.
1849	£591,478	£791,740	85,731
1850	734,358	831,534	[illegible]
1851	789,977	887,627	[illegible]

Carlisle Bay, the port or harbor of Barbadoes, forms an open roadstead, which is much exposed to the wind when blowing from the south and southwest. It is spacious, and capable of containing upward of 500 vessels of all sizes. It affords, however, no protection during gales; and at such times vessels at anchor generally prefer putting to sea, to running the risk of being driven ashore.—E. B.

Barcalao, or **Bacalao,** the Spanish name for cod.

Barcelona, the capital of Catalonia, and the principal town of Spain on the Mediterranean, lat. 41° 22′ 58″ N., long. 2° 8′ 11″ E. It is a strongly fortified, well-built city. The population is supposed to amount to about 120,000. Barcelona is eminently distinguished in the history of the Middle Ages for the zeal, skill, and success with which her citizens prosecuted commercial adventures at a very early period. She would seem also to be entitled to the honor of having compiled and promulgated the famous code of maritime law known by the name of the *Consolato del Mare*; and the earliest authentic notices of the practice of marine insurance and of the negotiation of bills of exchange are to be found in her annals. Catalonia has continued, amidst all the vicissitudes it has undergone, to be the most industrious of the Spanish provinces. Several extensive manufactures have been established in Barcelona, especially of cotton; and no fewer than 23 steam-engines were erected in Catalonia in 1842, the greater number being in Barcelona. Latterly, however, her commerce, owing to a variety of causes, but principally to oppressive restrictions on the importation of foreign goods, the emancipation of South America, and internal dissensions, has very much declined.

Imports.—The principal articles of import are raw cotton, sugar, coffee, cocoa, and other colonial products, principally from Cuba and Porto Rico; salted fish, hides, and horns; iron and hardware, etc. Most species of manufactured goods are prohibited; but it is needless to add that they are, notwithstanding, largely imported into this as into most other parts of Spain. The trade with the colonies, France, and the coasting trade is pretty active. The imports from England are not very considerable, and the exports little or nothing. In 1842, no fewer than 3667 vessels entered the port; but these were mostly coasters of small size, the burden of the whole being only 189,117 tons.

Exports.—The principal exports are wrought silks, soap, fire-arms, paper, hats, laces, ribbons, steel, etc. But no vessels, except a few that take on board manufactured goods for the Spanish West Indies, are loaded here; and even this trade is much fallen off. Upward of 2000 hands used formerly to be employed in the city in the manufacture of shoes for the colonies; but their export has now nearly ceased. The principal articles of native produce that Catalonia has to export are most conveniently shipped at Villanova, Tarragona, and Salon. They consist of wine, brandy, nuts, almonds, cork, bark, wool, fruits, etc. Of these, Cuba takes annually about 12,000 pipes of wine, worth at an average £4 per pipe, and about 3000 pipes of brandy, worth £8 per do.; South America, 16,000 pipes of wine, and 6000 do. brandy; the north of Europe, 2000 pipes of wine, and 2000 do. brandy. A good deal of brandy is sent to Cadiz and Cette: most part of the former finds its way into the wine vaults of Xeres; and the latter, being conveyed by the canal of Languedoc to the Garonne, is used in the preparation of the wines of Bordeaux. From 25,000 to 30,000 bags of nuts are annually sent from Tarragona to England. Tarragona also exports about 12,000 bags of almonds. The ships belonging to the port carry on no foreign trade except to the Spanish West Indies; they are few in number, and are daily decreasing. Those engaged in the coasting trade are usually of very small burden. We have derived these details from various sources; but principally from British *Consular Returns*, and from *Inglis's Spain in* 1830, vol. ii. p. 384–387, and 362.

Barilla (Du. *Soda;* Fr. *Soude*, *Barille;* Ger. *Soda*, *Barilla;* It. *Barriglia;* Port. *Solda*, *Barrilha;* Russ. *Socianka;* Sp. *Barilla;* Arab. *Kali*), carbonate of soda (*see* ALKALIES), is found native in Hungary, Egypt, and many other countries. It is largely used by bleachers, manufacturers of hard soaps, glass-makers, etc. The barilla of commerce consists of the ashes of several marine and other plants growing on the seashore. The best, or Alicant barilla, is prepared from the *Salsola soda*, which is very extensively cultivated for this purpose in the *huerta* of Murcia, and other places on the eastern shores of Spain.—TOWNSEND'S *Travels in Spain*, vol. iii. p. 195. The plants are gathered in September, dried, and burned in furnaces heated so as to bring the ashes into a state of imperfect fusion, when they concrete into hard, dry, cellular masses of a grayish blue color. Sicily and Teneriffe produce good barilla, but inferior to that of Alicant and Carthagena. Kelp, which is a less pure alkali, is formed by the incineration of sea-weed. *See* KELP.

The Saracens established in Spain seem to have been the first who introduced the manufacture of barilla into Europe. They called the plants employed in its preparation *kali;* and this, with the Arabic article *al* prefixed, has given rise to the modern chemical term alkali. Prime quality in barilla is to be distinguished by its strong smell when whetted, and by its whitish color. Particular attention should be paid to have as little small or dust as possible. The manufacture of artificial soda (*soude factice*), now very extensively carried on, occasioned an extraordinary decline in the imports of barilla, the quantity entered into Great Britain for home consumption in 1834, amounting to 237,712 cwt., having been reduced in 1841 to 47,380 cwt. Considerable quantities used formerly to be imported from Teneriffe, but it now comes principally from Alicant in Spain, and Sicily. Thus, of 1744 tons imported into Great Britain in 1850, 836 came from Spain, 753 from Italy (Sicily), 109 from the United States, and none from the Canaries. The duty on barilla, after being reduced in 1842 from 40*s.* to 5*s.* a ton, was wholly repealed in 1845. But even this judicious measure has not had so much influence over the consumption of the article as was expected. In 1852, the imports amounted to 1807 tons, or 36,140 cwt., none of which was re-exported.—*Parl. Paper*, 1853.

Bark, the outer rind of plants. There is an immense variety of barks known in commerce; as, cinnamon, Peruvian bark, oak bark, quercitron, etc. The term "bark" is, however, generally employed to express either Peruvian bark or oak bark, and it is these only that we shall notice in this place.

1. *Peruvian or Jesuits' Bark* (Fr. *Quinquina;* Ger. *Kron-china;* Du. *China-bast;* Sp. *Quina*, *Quinquina;* Lat. *Quinquina Cortex Peruvianus*). There are three principal species of this bark known in commerce, which have been elaborately described by Dr. A. T. Thomson, from whose account the following particulars are selected. The first species is the *pale* bark of the shops. It is the produce of the *Cinchona lancifolia*, and is the original cinchona of Peru. It is now very scarce. It is imported in chests covered with skins, each containing about 200 pounds, well packed, but generally mixed with a quantity of dust and other heterogeneous matter. It consists of pieces 8 or 10 inches long, some of them being scarcely one-tenth of an inch thick, singly and doubly quilled, or rolled inward, the quills generally being in size from a swan's quill to an inch and a half. It is internally of a pallid fawn or cinnamon hue, but approximates, on being moistened, to the color of a pale orange. When in substance it has scarcely any odor, but during decoction the odor is sensible, and agreeably aromatic. The taste is bitter, but not unpleasant, acidulous, and austere. The second species, or red bark, is obtained from the *Cinchona oblongifolia*, growing on the Andes. It is imported in chests containing from 100 to 150 pounds each. It consists of variously sized pieces, most of them flat, but some partially quilled or rolled. The internal part is woody, and of a rust red color: it has a weak peculiar odor, and its taste is much less bitter, but more austere and nauseous, than that of the other barks. The third species, or yellow bark of the shops, is obtained from the *Cinchona cordifolia*, growing in Quito and Santa Fé. It is imported in chests containing from 90 to 100 pounds each, consisting of pieces 8 or 10 inches long, some quilled, but the greater part flat. The interior is of a yellow color, passing to orange. It has nearly the same odor in decoction as the pale; the taste is more bitter and less austere, and it excites no astringent feeling when chewed. The goodness decreases when the color varies from orange yellow to pale yellow; when of a dark color, between red and yellow, it should be rejected. It is needless to add, that bark is one of the most valuable medical remedies. The Indians were unacquainted with its uses, which seem to have been first discovered by the Jesuits. It was introduced into Europe in 1632, but was not extensively used till the latter part of the seventeenth century. According to Humboldt, the Jesuits' bark annually exported from America amounts to from 12,000 to 14,000 quintals. Of these, 2000 are

furnished by Santa Fé, and 110 by Loxa; Peru furnishing the remainder, which is shipped at Callao, Guayaquil, etc.

2. *Oak Bark* (Fr. *Ecorce de la Chêne;* Ger. *Eichenrinde;* It. *Corteccia della Quercia;* Lat. *Quercus cortex*). The bark of the common oak is a powerful astringent, and is preferred to all other substances for tanning leather. The bark of the larch is now, however, used for the same purpose. Though the importation of oak bark into England for tanning has somewhat declined, it is still very considerable. It is impossible, however, to state its exact amount, inasmuch as a species of oak bark, called quercitron, the produce of the *Quercus tinctoria*, imported from abroad, and used to give a yellow dye to silk and wool, is mixed up in the custom-house returns with bark for tanning. The latter, which is by far the most important, is brought principally from Belgium and Holland, Germany, Italy and Spain, Norway and Australia. Quercitron is found principally in the United States. The quality of bark differs—according to the age and size of the tree, the season when it is barked, etc.—so much that its price varies from £5 to £10 a ton. The duty on bark for tanning and dyeing, which previously to 1842 was 8*d.* a cwt., after being then reduced to 3*d.*, was repealed in 1845. In 1852 the imports and exports of Peruvian bark were respectively 18,207 and 10,092 cwt. During the same year was imported 403,930 cwt. bark for the use of tanners and dyers, of which only 146 cwt. was re-exported. But in addition to the above were imported, in 1852, 2515 tons divi divi, and 13,871 tons valonia, of which very little was re-exported. Belgium, Holland, the United States, Germany, Italy, and Norway furnish by far the largest portion of the imports of oak bark. We are indebted for the discovery and application of the useful properties of quercitron to Dr. Bancroft. The doctor obtained a patent for his invention in 1775; but the American war breaking out soon after, deprived him of its advantages. In consideration of this circumstance, Parliament passed, in 1785, an act (25 Geo. 3, c. 38) securing to him the privileges conveyed by his patent for 14 years. At the expiration of the latter period the House of Commons agreed to extend the doctor's privilege for an additional 7 years, but the House of Lords rejected the bill. Like too many discoverers, Dr. Bancroft profited but little by his invention, though it has been of great use to the arts and manufactures of the country.—J. R. M. *See* BANCROFT *on Permanent Colors*, vol. ii. p. 112, and the *Report of the Committee of the House of Commons on Patents*, Appendix, p. 175.

Barley (Fr. *Orge;* Ger. *Gerstengraupen;* Du. *Ryg;* It. *Orzo;* Sp. *Cebada;* Russ. *Fatschmea;* Lat. *Hordeum;* Arab. *Dhourra;* Hind. *Jow*), a species of bread-corn (*Hordeum*, Linn.), of which there are several varieties. It is extensively cultivated in most European countries, and in many of the temperate districts of Asia and Africa. It may also be raised between the tropics; but not at a lower elevation than from 3000 to 4000 feet, and then it is not worth cultivating. Large quantities of barley have been, for a lengthened period, raised in Great Britain. Recently, however, its cultivation has been supposed, though probably on no good grounds, to be declining. In 1765 Mr. Charles Smith estimated the number of barley consumers in England and Wales at 739,000; and as a large proportion of the population of Wales, Westmoreland, and Cumberland continue to subsist chiefly on barley bread, we are inclined to think that this estimate may not, at present, be very wide of the mark. But the principal demand for barley in Great Britain is for conversion into malt, to be used in the manufacture of ale, porter, and British spirits; and though its consumption in this way has not certainly increased proportionally to the increase of wealth and population, still there does not seem to be any ground for supposing that it has diminished. Barley is also extensively used in fattening black cattle, hogs, and poultry. It now generally follows turnips, and is a very important crop in the rotation best adapted to light soils. The produce varies, according to soil, preparation, season, etc., from about 20 to 60 or 70 bushels an acre. The most usual crop is from 28 to 36 or 38 bushels. Barley is a tender plant, and easily hurt in any stage of its growth. It is more hazardous than wheat, and is, generally speaking, raised at a greater expense; so that its cultivation should not be attempted except when the soil and climate are favorable for its growth.—For further details as to its consumption and culture, *see* SMITH'S *Tracts on the Corn Trade*, 2d ed. p. 182; BROWN *on Rural Affairs*, vol. ii. p. 42; LOUDON'S *Encycl. of Agriculture*, etc.

Barometer and **Thermometer.** Torricelli, a Florentine, having discovered that no principle of suction existed, and that water did not rise in a pump owing to nature's abhorrence of a vacuum, imitated the action of a pump with mercury, and made the first barometer in 1643, and Descartes explained the phenomena. Wheel barometers were contrived in 1668; pendent barometers in 1695; marine in 1700. The invention of the thermometer is ascribed to several scientific persons all about the same time. Invented by Drebbel of Alcmaer, A.D. 1609.—BOERHAAVE. Invented by Paulo Sarpi, 1609.—FULGENTIO. Invented by Sanctorio in 1610.—BORELLI. Fahrenheit's thermometer was invented about 1726; and the scale called Reaumur's soon after, 1730. The mode of construction, by substituting quicksilver for spirits, was invented some years subsequently.

Barra, or **Vara**, in *Commerce*, a long measure used in Portugal and some parts of Spain, to measure woolen and linen cloths and serges. In Valencia, 13 barras = 12 6-7 yards English measure; in Castile, 7 barras = 6 4-7 yds.; and in Aragon, 3 barras = 2 4-7 yds.—E. B.

Barracan, in *Commerce*, a sort of stuff something like camlet. It is used to make various outer garments. The cities where barracans are chiefly made, in France, are Valenciennes, Lisle, Abbeville, Amiens, and Rouen.—E. B.

Barratry, in *Navigation*, is, in its most extensive sense, any fraudulent or unlawful act committed by the master or mariners of a ship, contrary to their duty to their owners, and to the prejudice of the latter. It appears to be derived from the Italian word *barratrare*, to cheat. It may be committed by running away with a ship, willfully carrying her out of the course prescribed by the owners, delaying or defeating the voyage, deserting convoy without leave, sinking or deserting the ship, embezzling the cargo, smuggling, or any other offense whereby the ship or cargo may be subjected to arrest, detention, loss, or forfeiture. It is the practice in most countries to insure against barratry. Most foreign jurists hold that it comprehends every fault which the master and crew can commit, whether it arise from fraud, negligence, unskillfulness, or mere imprudence. But in England it is ruled that no act of the master or crew shall be deemed barratry, unless it proceed from a *criminal* or *fraudulent* motive. "Barratry can only be committed by the master and mariners by some act contrary to their duty in the relation in which they stand to the owners of the ship. It is, therefore, an offense against them, and consequently an owner himself can not commit barratry. He may, by his fraudulent conduct, make himself liable to the owner of the goods on board, but not for *barratry*. Neither can barratry be committed against the owner *with his consent;* for though he may be liable for any loss or damage occasioned by the misconduct of the master to which he consents, yet this is not barratry. Nothing is more clear than that a man can never set up as a crime an act done by his own direction or consent."—MARSHALL *on Insurance*, book i. c. 12, §6.

When, therefore, the owner of a ship is also the master, no act of barratry can be committed; for no man can commit a fraud against himself. It is a maxim in law, that fraud shall not be presumed, but must be clearly proved; and it is a rule in questions of insurance, that he who charges barratry must substantiate it by conclusive evidence. It is not necessary, to render an act barratrous, that it should be committed with a criminal intent as respects the owners, in order to injure them, or to benefit the captain or crew. It may even be committed with a view to promote the owner's interests; for *an illegal act* done without the authority or privity of the owners, and which proves detrimental to them, is barratry, whatever be the motives in which it originated. Lord Ellenborough, in an able judgment, has laid it down as clear law, "that a breach of duty by the master in respect of his owners, with a fraudulent or criminal intent, or *ex maleficio*, is barratry; that it makes no difference whether this act of the master be induced by motives of advantage to himself, malice to the owner, or *a disregard of those laws which it was his duty to obey*; and that it is not for him to judge or suppose, in cases not intrusted to his discretion, that he is not breaking the trust reposed in him, when he endeavors to advance the interests of his owners by means which the law forbids, and which his owners also must be taken to have forbidden." The circumstance of the owners of ships being permitted to insure against the barratry of the master and mariners can hardly fail, it may be not uncharitably presumed, of rendering them less scrupulous in their inquiries with respect to their character than they would otherwise be. Perhaps, therefore, it might be expedient to prohibit such insurances, or to lay some restrictions upon them. They were, indeed, expressly forbidden by the Ordinance of Rotterdam; and Lord Mansfield, whose authority on all points connected with the law of insurance is so deservedly high, seems to have thought that it would be well to exclude barratry entirely from policies, and to cease "making the underwriter become the insurer of the conduct of the captain whom he does not appoint, and can not dismiss, to the owners who can do either." But though it were expedient to prevent the owners from making an insurance of this sort, nothing can be more reasonable than that third parties, who freight a ship, or put goods on board, should be allowed to insure against such a copious source of loss.

For a further discussion of this subject, see the article MARINE INSURANCE; and MARSHALL *on Insurance*, book i. c. 12, § 6, and PARK *on Insurance*, c. 5. Owners, masters, or seamen, who willfully cast away, burn, or destroy ships, to the prejudice of freighters or insurers, incur the penalty of death.—*See* SEAMEN.

Barrel, a cask or vessel for holding liquids, particularly ale and beer. Formerly the barrel of beer in London contained only 32 ale gallons = 32½ Imperial gallons; but it was enacted by 43 Geo. 3, c. 69, that 36 gallons of beer should be taken to be a barrel; and by the 6 Geo. 4, c. 58, it is enacted, that whenever any gallon measure is mentioned in any excise law, it shall always be deemed and taken to be a standard imperial gallon. At present, therefore, the barrel contains 36 imperial gallons. It may be worth while observing that the barrel or cask is exclusively the produce of European ingenuity; and that no such article is known to any nation of Asia, Africa, or America, who have not derived it from Europeans.

Barricade, in *Naval Architecture*, a strong wooden rail, supported by stanchions, extending across the foremost part of the quarter-deck in ships of war. The vacant spaces between the stanchions are commonly filled with rope-mats, cork, or pieces of old cable; and the upper part, which contains a double rope-netting above the rail, is stuffed with hammocks, to prevent the execution of small-shot in time of action.—E. B.

Barwood, a red dye wood brought from Africa, particularly from Angola, and the River Gaboon. The dark red which is commonly seen upon British bandana handkerchiefs is for the most part produced by the coloring matter of barwood, saddened by sulphate of iron.—BANCROFT *on Colors*. The imports of barwood into England, in 1841, amounted to 2012 tons. It brought, in January, 1843, from £3 to £4 a ton (duty 2*s.* included) in the London market.

Baskets (Fr. *Corbeilles;* Ger. *Körbe;* It. *Paniere;* Sp. *Canastas, Canastos;* Russ. *Korsinü*) are made, as every one knows, principally of the interwoven twigs of willow, osier, birch, etc., but frequently also of rushes, splinters of wood, straw, and an immense variety of other materials. They are used to hold all sorts of dry goods, and are constructed of every variety of quality and shape.

Bast, for straw hats or bonnets.—*See* HATS.

Batavia, a city of the island of Java, the capital of the Dutch possessions in the East Indies, and the principal trading port of the Oriental islands, lat. 6° 8′ S., long. 106° 50′ E., on the northwest coast of the island, at the mouth of the Jaccatra River, on an extensive bay. The harbor lies between the main land and several small uninhabited islands, which, during the boisterous or northwestern monsoon, afford sufficient shelter and good anchorage. Population in 1842, 53,860, including about 3000 Europeans; the rest are Chinese, Javanese, Malays, etc. It is built on marshy ground, and intersected by canals in the Dutch style; defended by a citadel and several batteries, and has a considerable garrison and marine arsenal. Mean temperature of year, 78°·3: winter, 78°·1; summer, 78°·6 Fahrenheit. Temperature at mid-day, 80° to 90°; at night, 70° Fahrenheit. It has a stadthouse, exchange, hospital, numerous churches, a mosque, a Chinese and two orphan hospitals, several Chinese temples, a large club-house termed the *Harmonie*, and a botanic garden. Batavia was formerly so very insalubrious, that General Daendels was anxious to transfer the seat of government to Sourabaya; but being thwarted in this, he set about building a new town, a little farther inland, on the heights of Weltevreden, whither the government offices were immediately removed. Most of the principal merchants have now their residences in the new town, repairing only to the old city, when business requires it, during a portion of the day. In consequence, the old town is at present principally occupied by Chinese, and the descendants of the ancient colonists, several of its streets having been deserted and demolished. More recently, however, the Baron Capellen, whose enlightened administration will long be gratefully remembered in Java, sensible of the superior advantages of the old town as a place of trade, exerted himself to prevent its further decay, by removing the causes of its unhealthiness; to accomplish which, he widened several of the streets, filled up some of the canals, and cleansed others, demolished useless fortifications, etc.; and the effect of these judicious measures has been, that Batavia is now as healthy as any other town of the island. It is the seat of a supreme commission of public instruction for the Dutch East Indies, and has a school of arts and sciences, and publishes a newspaper. The Jaccatra is navigable by vessels of 40 tons two miles inland; ships of from 300 to 400 tons anchor in the bay, one mile and a half from shore. Batavia is the great commercial emporium of the Asiatic Archipelago, and absorbs by far the greatest proportion of the trade of Java and Madura; the annual exports of which islands amount to 60,300,000 florins ($25,123,000), and the imports to 30,000,000 florins ($12,000,000). Exports consist mostly of coffee, sugar, pepper, indigo, hides, cloves, nutmegs, mace, tin, rice, ratans, and arrack. Chief imports, linen and cotton goods, woolen stuffs, provisions, wines, metallic wares, and manufactured articles of all kinds from Europe and America; with the products of the Archipelago, China, Siam, Bengal, Japan, and the West Indies. It was founded by the Dutch in 1619; taken by the English in 1811, and occupied by them till 1816. The district of Batavia, extending along the north shore of the island, is flat and not so fertile as the other provinces of Java. The residence of the governor general was transferred from Buitenzorg to Batavia in 1847. As the population has increased since, it may at present be estimated at from 130,000 to 140,000, independently of the military, of which there are always a considerable number. Among the principal merchants are Dutch, English, Americans, French, and Germans. The island of Java forms the most important portion of the Dutch possessions in the East, and is, in fact, one of the finest colonies in the world. It contains, including Madura, an area of 52,000 square miles, with a population of nearly, if not quite, 10,000,000.

The Values of the Exports from Java, and their Destination, in 1846, 1836, and 1826, were as follows:

Countries.	1846.	1836.	1826.
	Florins.	Florins.	Florins.
Netherlands...... ..	39,603,848	27,232,588	6,513,535
Indian Archipelago.	9,326,548	6,708,153	4,357,783
Great Britain	2,065,187	139,592	349,069
China, Macao, etc...	1,886,703	3,518,706	1,976,182
France	1,326,149	1,944,145	42,232
America	1,199,644	1,002,529	211,251
Hamburg	615,041	108,142	63,834
Sweden	345,949	253,459	57,172
Other places	711,868	369,315	159,735

Official Account of the Quantities of the Principal Articles of Produce exported from Java and Madura in the following Years.

Years.	Coffee.	Pepper.	Indigo.	Hides.	Cloves.	Nutmegs.	Sugar.	Tin.	Rice.	Ratans.	Mace.	Arrack.
	Piculs.	Piculs.	Pounds.	Pieces.	Piculs.	Piculs.	Piculs.	Piculs.	Coyans.	Piculs.	Piculs.	Leggers.
1830	288.740	6,061	22,063	30,249	803	1.304	108,640	21,426	13.521	5,050	177	1,947
1835	466.871	11,868	535,753	139,995	4.566	5,022	439,543	40,836	25,577	4,905	1,606	2.075
									Piculs.			
1840	1,132,124	9,911	2,123,911	110,494	53	3.600	1,024,493	62,334	680,909	28,032	870	5.261
1841	961,467	13,477	1,827,386	120,472	7,600	5,125	1,046.576	48,340	676,213	37,017	1,171	4,672
1842	1,013,854	10,441	1,627,437	167,677	1,718	5,129	884,685	69,127	884,157	36,594	1,432	4,668
1843	1,018,102	23,083	1,840,129	152,310	2,027	2,113	929,769	45,705	1,008,774	73,535	486	6,362
1844	1,239,935	12,484	1,648,520	156,224	2.800	8,131	1,008,632	68,729	785,276	73,600	2,300	6,258
1845	1,006,190	11,527	1,653,869	105,751	2,234	3.403	1,455,423	73,537	447,017	51,260	830	4,578

Account of the Quantities and Values of the Principal Articles exported from Java and Madura in 1836 and 1845.

Principal Articles.	Quantities exported in 1836.	Value of Exports in 1836.	Quantities exported in 1845.	Value of Exports in 1845.
		Florins.		Florins.
Arrack	1,477 leggers.	115,995	4,378 leggers.	156,222
Hides	109,008 pieces and 846 piculs.	217,715	105,751 pieces.	220,649
Indigo........................	407,798 pounds.	1,122,382	1,543,869 pounds.	4,366,008
Coffee	498,078 piculs.	15,090,362	1,006,190 piculs.	20,123,758
Pepper	7,006 piculs.	125,035	11,527 piculs.	184,485
Rice	36,430 coyans.	8,389,615	447,017 piculs.	2,682,101
Spices, Mace	991 piculs.	396,268	830 piculs.	132,834
Cloves..................	2,185 piculs.	153,036	2,234 piculs.	201,045
Nutmegs	3,886 piculs.	1,711,600	3,403 piculs.	510,583
Sugar	509,514 piculs.	9,083,141	1,455,423 piculs.	[illegible]
Tobacco	2,477 kodies.	769,850	5,811 kodies.	2,324,480
Tin	47,739 piculs.	2,718,810	73,536 piculs.	4,044,518
All other articles and treasure...	....	7,367,833	....	10,065,888
Totals................		42,261,642		65,895,168

Bank of Batavia.—A bank, for the issue of notes and other banking business, was established at Batavia in 1827, with branches at Samarang and Sourabaya; the history of which is not uninstructive. The capital of the bank, consisting of 2,000,000 florins, divided into 4000 shares, was subscribed with difficulty; and the most unfavorable anticipations were entertained of the success of the establishment. No sooner, however, had the bank been set on foot than she began to enjoy a large share of prosperity. The rapid increase of cultivation and commerce in Java led to a corresponding demand for capital, and to the payment of a very high rate of interest on loans; and as the loans made by the bank consisted of bank-notes, which cost next to nothing, the profits became quite enormous; so much so that they amounted in 1837 to 33 per cent., the price of the 500 florins share of bank stock being then also 1550 florins. But this prosperity was as brief as it was signal. The offer of an exorbitant interest had tempted, in not a few cases, the bank to make advances on doubtful security; and in Java, as elsewhere, issues of paper payable on demand necessarily stop, the moment the circulation has been fully saturated with notes; and this result having been attained in 1838, and the notes issued by the bank being henceforth returned on her for payment, she speedily became involved in the greatest difficulties; many of those who depended on her advances for support were no longer able to meet their engagements; and the whole island was subjected to a severe pecuniary and commercial crisis: in fact, but for the intervention of the government, in 1840, when bank-notes were made *legal tender* for a limited period, she must have stopped payments! This intervention has, however, given her time to recover from the difficulties into which she had been precipitated; and having again, after sustaining a very heavy loss, resumed specie payments, it is to be hoped that she may profit in future by her past experience. We subjoin dividends paid by the Bank of Java from 1829 to 1840, both inclusive:

	Per Cent		Per Cent
1829	9	1835	30
1830	12	1836	32
1831	12	1837	33
1832	18	1838	26
1833	20	1839	26
1834	27	1840	9

General Remarks on Java.—The previous statements show that the produce and trade of Java have increased during the last dozen years with a rapidity unknown in any other colony, Cuba, perhaps, excepted; and if the resources and capabilities of this noble island be fully developed, it is quite impossible to say how much farther her trade may be extended. It would far exceed our limits, and, even were this not the case, it would involve us in discussions nowise suitable for this work, were we to enter into any detailed examination of the means by which the extension of culture in Java has been brought about. We may, however, shortly mention that the produce for exportation is principally raised on account of government, partly by contributions in kind, and partly and principally by contributions of compulsory labor applied to its production. And, provided these contributions be not carried to an excess, we incline to think that they are at once the least onerous mode in which the natives can be made to pay their taxes, and the most profitable for the government. It is, we apprehend, idle to suppose that industry, if left to itself, will ever become flourishing in a country like Java, where the wants of the inhabitants are so few and so easily satisfied, or where the climate indisposes to exertion. No doubt the system of compulsory labor may be easily abused and converted into an instrument of the most grinding oppression; but so long as it is managed with discretion and good sense, we are disposed to believe, from all we can learn, that it is preferable to every other system hitherto devised for developing the resources of tropical countries.—For some remarks on this subject, see the learned and able *Dissertatio Historico-Politica*, on the Dutch East India Company, by Van Lijnden, published in 1839, p. 161–171.

Very great public improvements have also been already effected, and are still in progress in the island. Among others, an excellent high road has been constructed through its whole length, from Bantam, on its western, to Sourabaya on its eastern coast, whence cross-roads lead to all the principal stations. A number of forts have, also, been constructed in commanding situations in the interior, the principal of which, at Surackarta, near the centre of the island, is a regular and strong citadel. It is said to be the intention to transfer the seat of government thither from Batavia. These forts have been erected principally to keep the natives in check, and to prevent those outbreaks that have done so much to retard the prosperity of the island. Several important establishments have also been recently founded along the southern coast, which had previously been all but neglected.—See *Argout sur Java*, *Singapore*, etc.

Rice used to be the staple product of Java; but it is now far surpassed by coffee and sugar, the culture of both of which has been astonishingly increased. In proof of this we may mention that the exports of coffee, which in 1830 amounted to 288,740 piculs, had increased in 1845 to 1,006,190 piculs, or to 61,090 tons; while the exports of sugar, which in 1830 amounted to 108,640 piculs, had increased in 1845 to 1,455,423 piculs, or 88,365 tons. More than half the trade of the island centres in Batavia. Indigo has also become an important product. The other principal articles of export are tin from Banca, tobacco, tea, and birds' nests. The imports comprise cottons, woolens, and other manufactured goods; wines and spirits, with iron, hardware, and machinery; opium from the Levant and from Bengal; and a great variety of other articles.

Port Regulations.—The following is the substance of the port regulations of Batavia: 1st. The commander of a ship arriving in the roads is not to land himself, or permit any of his crew or passengers to land, until his vessel be visited by a boat from the guard-ship. 2d. The master, on landing, is first to wait on the master attendant, and afterward report himself at the police office. 3d. A manifest of the whole cargo must be delivered at the custom-house within 24 hours of the ship's arriving in the roads. 4th. The master of a vessel must lodge the ship's papers with the master attendant when he first lands, which are duly delivered up to him when he receives his port clearance from the same authority. 5th. No goods can be shipped or landed after sunset, under a penalty of 500 florins. 6th. No goods can be shipped on Sunday without a special permission from the water fiscal, which, however, is never refused on application. 7th. No muskets or ammunition can be imported; but the prohibition does not extend to fowling-pieces exceeding 100 florins value.

Tariff.—After a good deal of negotiation, it has been fixed that goods imported in foreign vessels shall pay an *ad valorem* duty of 25 per cent., and under the Netherlands flag of 12½ per cent.; that is, a duty upon the wholesale price at Batavia, not in bond. The export duty on coffee, if exported on a foreign bottom to a foreign country, is 5 florins per picul; if on a foreign bottom to a port in the Netherlands, 4 florins; and if on a Netherlands bottom to a Netherlands port, 2 florins. Sugar exported on a foreign bottom pays 2 florins per picul; but if exported on a Netherlands bottom, 1 florin. Rice, on whatever bottom exported, and to whatever country, pays a duty of 3 florins per coyang of 27 piculs. Tin, exported in a foreign ship to whatever port, 4 florins per picul; and by a Netherlands ship, 2 florins per picul. The trade in spices is monopolized by the Netherlands Trading Company.

Goods are received in *entrepôt* not only at Batavia, but at the ports of Samarang, Sourabaya, and Anjier in Java, and Rhio in the Straits of Malacca, on payment of a duty of 1 per cent. levied on the invoice value.

Money.—Accounts are kept, at Batavia, in the florin or guilder, divided into centimes, or 100 parts, represented by a copper coinage or doits. The florin is a new coin made expressly for India, but of the same value as the florin current in the Netherlands. It is usually estimated at the rate of 12 to the pound sterling, but the correct par is 11 florins 58 cent. per pound. Doubloons, and the coins of Continental India, are receivable at the custom-house at a fixed tariff; the Spanish dollar, for example, at the rate of 100 for 260 florins.

Weights.—The Chinese weights are invariably used in commercial transactions at Batavia and throughout Java and the other Dutch possessions in India. These are the picul and the cattle, which is its hundredth part. The picul is commonly estimated at 125 Dutch, or 133⅓ lbs. avoirdupois, but at Batavia it has been long ascertained and considered to be equal to 136 lbs. avoirdupois.—HOGENDORP, *Coup d'Œil sur l'Ile de Java*, cap. 8, etc.; *Evidence of* GILLIAN MACLAINE, *Esq.*, *before the Select Committee of the House of Commons on the Affairs of the East India Company*, 1831; *Nederlandsche Staats-Courant*, 13th August, 1842, and other official information.

Batten, a name in common use for a scantling of wood 2½ inches thick and 7 wide. If above 7 inches wide, it is called deal.

Bay (Saxon *byge*, an angle), an arm of the sea extending into the land. It is smaller than a gulf, and larger than a creek.

Bayou, bī'oo, or more usually bī'o, a term confined chiefly to inlets of the Lower Mississippi River, signifying properly any stream which is derived from some other stream, or from a lake; in other words, any stream which is not fed by fountains. The word is supposed to be a corruption of the French *boyau*, a "gut" or "channel"—a derivation which is rendered more probable by the prevalent pronunciation, bī'o. Several of the bayous from Lake Pontchartrain, near New Orleans, and from the Gulf of Mexico, are very important channels to the interior country, and afford great facilities to commercial intercourse.

Bazar, a term used in the East to designate a market, or building, in which various articles of merchandise are exposed for sale. Bazars are now met with in most large cities of Europe. There are several in London, of which the one in Soho Square is the most considerable.

Bdellium (Arab. *Aflatoon*), a gum-resin, semi-pellucid, and of a yellowish-brown or dark-brown color according to its age, unctuous to the touch, but brittle; soon, however, softening between the fingers: in appearance it is not unlike myrrh, of a bitterish taste, and moderately strong smell. Two kinds have been distinguished: the *opocalpasum* of the ancients, which is thick like wax, and the common dark sort. It is found in Persia and Arabia, but principally in the latter; all that is met with in India is of Arabic origin. The tree which produces it has not been clearly ascertained.—AINSLIE'S *Materia Indica.*

Beach, a shelving tract of sand or shingle washed by the sea or a fresh-water lake, and interposed between the water and the land, on which vegetation grows. The beach of the ocean is, generally speaking, little more than the space between high and low water-mark; the beach of a lake, that between the water marks of the highest and lowest ordinary level of the lake. An inland sea without tide, such as the Mediterranean, has commonly very little beach, except on flat coasts, where the waters are apt to fall and rise considerably, according to the prevailing winds. —E. A.

Beacons, in *Commerce* and *Navigation*, public marks or signals to give warning of rocks, shoals, etc. No man is entitled to erect a light-house, beacon, etc., without being empowered by law.—*See* BUOYS.

Beads (Fr. *Rosaires;* Ger. *Rosenkränze;* Du. *Paternosters;* It. *Corone;* Sp. *Coronas*), small globules or balls used as necklaces, and made of different materials; as pearl, steel, amber, garnet, coral, diamonds, crystal, glass, etc. Roman Catholics use beads in rehearsing their Ave Marias and Paternosters. Glass beads or bugles are imported in large quantities into India and Africa, 288,058 lbs. having been shipped from England to the west coast of the latter in 1841. Large quantities are sent from China to India, the Eastern islands, etc. The glass beads sent from England are nearly all imported, principally from Venice, where they are very largely produced. Their non-manufacture in Great Britain is said to be a consequence of the excise regulations as to the manufacture of glass; but the truth is, that the Venetian manufacturers color them better, and give them a better finish than the English.

Beam, in weaving, a long thick wooden cylinder, placed lengthwise on the back part of the loom of those who work with a shuttle. That cylinder on which the stuff is rolled as it is weaved is also called the *beam* or *roller*, and is placed on the fore part of the loom.—E. B.

Beam-compass, an instrument consisting of a square wooden or brass beam, with sliding sockets that carry steel or pencil points. Beam-compasses are used for describing larger circles than can conveniently be drawn by the common compasses.

Beams of a Ship are the great main cross-timbers which hold the sides of the ship from falling together, and also support the deck and the orlops. The main beam is next the main-mast, and from it they are successively reckoned as first, second, third, and so on. The greatest beam of all is called the *midship beam*. A ship is said to be *on her beam-ends* when she inclines so much to one side that her beams approach to a vertical position.—E. B.

Bean-cod, a small fishing vessel, or pilot-boat, common in Portugal. It is extremely sharp forward, having its stem bent above into a great curve inward, plated on the fore side with iron, and fortified with bolts. It is commonly navigated with a large lateen sail.—E. B.

Beans (Fr. *Fèves;* Ger. *Bohnen;* It. *Fave;* Russ. *Boobii;* Sp. *Habu;* Lat. *Fabæ*), a well-known vegetable of the pulse species, largely cultivated both in gardens and fields. Its cultivation is of much importance in rural economy, inasmuch as it has gone far to supersede fallows on strong loams and clays.

Bearing, in *Navigation*, an arch of the horizon intercepted between the nearest meridian and any distant object, either discovered by the eye and referred to a point on the compass, or resulting from the spherical proportion; as, in the first case, "At four P.M. Cape Spado, in the Isle of Candia, bore south by west by the compass." In the second, the longitudes and latitudes of any two places being given, and consequently the difference of latitude and longitude between them, the bearing of one from the other is discovered by the following analogy: As the meridional difference of latitude is to the difference of longitude, so is the radius to the tangent of the bearing.

Bearing is also the situation of any distant object estimated from some part of the ship according to her position. An object so discovered must be either ahead, astern, abreast, on the bow, or on the quarter. If the ship sails with a side wind, it alters in some measure the names of such bearings, since a distant object on the beam is then said to be to leeward or to windward; on the lee quarter or bow, and on the weather quarter or bow.—E. B.

Beating, in *Navigation*, the operation of making progress at sea against the wind, by steering in a zigzag course.—E. B.

Beaver, or **Castor,** an amphibious quadruped of the order *Rodentia*, with a thick glossy fur, and horizontally flattened tail, abounding in North America and Siberia, and still found in the north of Europe. It formerly appears to have been known as far south as the Rhone and the Danube; and though with us now extinct, was formerly an inhabitant of Great Britain. The fur of the beaver forms a considerable article of commerce. Among traders the skins are distinguished into three kinds: 1. The fresh beaver, which is obtained in winter, before the animal has shed any of its hair, and consequently that is most esteemed by furriers. 2. The dry or lean beaver, which is captured in summer, when the animal is moulting. 3. The fat beaver, which differs from the fresh only in having acquired additional softness and oiliness from being worn for some time on the persons of the native hunters. This is the kind that is chiefly used in hat-making. The substance called *castor* is found in pouches in the inguinal region of the beaver. It is regarded as a powerful antispasmodic.—E. B.

Beech (*Fagus sylvatica*), a forest tree met with in England, the United States, etc. There is only one species, the difference in the wood proceeding from the difference of soil and situation. A considerable quantity of beech is grown in the southern parts of Bucks. It is not much used in building, as it soon rots in damp places; but it is used as piles in places where it is constantly wet. It is manufactured into a great variety of tools, for which its great hardness and uniform texture render it superior to all other sorts of wood; it is also extensively used in making furniture.

Beech-mast, the fruit or nuts of the beech-tree, used for fattening hogs, deer, and other animals. It has sometimes proved a useful substitute for bread, as experienced at Chios during a memorable siege.—E. B.

Beech-oil, an oil expressed from the mast of the beech-tree. It is common in Northern Germany, also in Picardy, and in other parts of France, instead of butter; but it is said to be unwholesome.—E. B.

Beef is used either fresh or salted. Formerly it was usual for most families, at least in the country, to supply themselves with a stock of salt beef in October or November, which served for their consumption until the ensuing summer; but in consequence of the universal establishment of markets where fresh beef may be at all times obtained, the practice is now nearly relinquished, and the quantity of salted beef made use of as compared with fresh beef is quite inconsiderable. Large supplies of salted beef are, however, prepared in the United States for exportation to the East and West Indies. During the war, large supplies were also required for victualing the navy. The vessels engaged in the coasting trade, and in short voyages, use only fresh provisions. The English have at all times been great consumers of beef; and at this moment more beef is used in London, as compared with the population, than any where else. Previously to 1842 the importation into England of fresh beef was prohibited; and salt beef from a foreign country was charged with a duty of 12*s*. a cwt. But in that year the duties on both sorts were reduced to 8*s*. 4¾*d*. a cwt., and in 1846 they were wholly repealed. In 1852 the imports of salted beef into Great Britain amounted to 122,665 cwt., and those of fresh beef to only 2028 cwt.—*See* Provisions.

Beer. All ancient Greek writers agree in assigning the honor of the discovery of beer to the Egyptians; but from the circumstance of no notice being taken of beer in the books of Moses, it has been rather rashly concluded that such a drink was unknown to them till after his death. This, however, is unlikely. The vine was alone cultivated in Egypt in those districts which were beyond the reach of the inundations; and the quantity of wine raised being limited was reserved for the rich, while the poorer classes had to content themselves with a cheaper drink prepared from barley. Herodotus, who wrote about 450 years B.C., is perhaps the earliest writer who gives any particulars regarding Egypt, and he describes beer prepared from barley as the ordinary drink of the Egyptians in his day. Pliny, Aristotle, Strabo, and others, who mention that this beer was known by the name of Zythos, give full descriptions of its qualities and intoxicating properties; and Diodorus even affirms that some kinds were so palatable as to be scarcely inferior to wine. The researches of Sir J. G. Wilkinson relative to the ancient Egyptians have thrown much light on this subject, and render it probable that beer was used as a drink by the ancient Egyptians nearly as early as wine itself. Xenophon, in his account of the retreat of the ten thousand Greeks, 400 years B.C., mentions that the inhabitants of Armenia used a fermented drink made from barley. Diodorus Siculus states, that the nation of Galatia prepared a fermented drink from barley, styling it zythus, like the Egyptians. Beer was distinguished among the Greeks by a variety of names. It was called *ὀινος κρίθινος* (barley wine), from its vinous properties, and from the material employed in its formation. In Sophocles, and probably in other Greek writers, it is distinguished by the name of *βρῦτον*. Dioscorides describes two kinds of beer, to one of which he gives the name *ζῦθος*, and to the other *κοῦρμι*; but he gives no description of either sufficient to enable us to distinguish them from each other. Both, he informs us, were made from barley, and similar liquors were manufactured in Spain and Britain from wheat.

Tacitus informs us that in his time beer was the common drink of the Germans, and from his imperfect description of the process which they followed, it is not unlikely, or rather there can be no doubt, that they were acquainted with the method of converting barley into malt. Pliny gives us some details respecting beer. He distinguishes it by the name of *cerevisia* or *cervisia*, the appellation by which it is known in modern Latin works.

This beverage does not appear to have come into general use in Greece or Italy; but in Germany and Britain, and some other countries, it appears to have been the common drink of the inhabitants in the time of Tacitus, and probably long before. It has continued in these countries ever since; and great quantities of beer are still manufactured in Germany, the Low Countries, and Britain. We might quote numerous passages from the narratives of recent travelers to show that the use of a drink prepared from barley is nearly universal over the northern and temperate parts of Europe and Asia. One of the latest of these travelers, M. Huc, the French missionary, remarks that the drink of the farmers in Thibet is "a sort of sharp drink made with fermented barley, which, with the addition of hops, would be very like our beer."

Porter is a strong beer of a dark color and peculiar flavor, and is said to be so named, either from its having been the common drink of the porters, or from Harwood, the original brewer of the drink, sending it round to his customers by men, who when they knocked at the doors called out "porter," meaning thereby not the drink, but themselves, its porters or carriers. Porter was originally brewed to take the place of two or three kinds of beer which used to be mixed by the retailers in the mug as they drew them from the taps; and as this new drink had the taste of all three, but was brewed at once, and run out of one tap, it saved the publican trouble, and was denominated "entire." Hence, as the sign so often noticed in London, such a brewer's "entire."

Bavarian Beer is the only other malt liquor which, from the peculiarities attending its fermentation, requires a special notice. The Germans, from the earliest historical periods, have been a beer-drinking nation, and some excellent malt liquors are made in that country. The "weiss bier," the truly patriotic beverage of Prussia, is not made from barley alone, but from 1 part barley malt and 5 parts wheat malt; but the excessive tendency of wheat beers to sour has caused potato starch to be substituted for the wheat, and tartaric acid to give the admired tartness. The other beers, however, more especially the ones now to be noticed, the Bavarian beers, both the common pot beer (schank-bier) and the intoxicating luscious bock-beer, are brewed from barley malt alone.—*See* Lager Bier.

Ale appears to be an ancient drink, and the name is usually given to strong beer of a pale color, as porter is to that of a dark color. The varieties of ale are infinite, but we purpose only to notice the peculiarity in the manufacture of English ale, Indian ale, English home-brewed ale, and Scottish ale.

In all high-priced English ales of the present day, brilliancy and paleness of color, with as little excess of sweetness as possible, are the objects to be attained by the brewer. To accomplish these ends, nothing but the finest pale malt must be used; and to secure sound-keeping ale, it is of first importance that the malt shall have been thoroughly dried on the kiln. If prepared from what is technically known as "slack-dried malt," that is, malt not thoroughly dried for fear of coloring it, or which has had water sprinkled over it while still warm from the kiln, the wort as run from the mash-tun will be found acid, and will tinge litmus paper of a much deeper red than ordinary wort from well dried malt, and the ale prepared from it will not keep beyond a few months. It is necessary also to be careful in the selection of the hops for ale. Good sound hops should alone be used; many brewers now use a proportion of foreign hops along with the English hop.

Pale, Indian, or Burton Ale, originally intended for exportation, and now so deservedly in high repute as among our most esteemed and wholesome beverages, requires more particular treatment in its manufacture. This ale can only be prepared from the best pale malt and the best hops; and the chief peculiarities attending its manufacture are, that it requires more than double the usual proportion of hops, that the attenuation is generally carried to a much greater extent, and that the temperature during the fermentation should never be allowed to exceed 65° Fahrenheit. That a considerable amount of sweetness should exist in common ale is allowable, and indeed it is the presence of a large quantity of undecomposed saccharine extract which gives to common strong ale its luscious mildness. It is, however, the presence of this large quantity of undecomposed saccharine extract which prevents common ale from being used as a diet drink by the invalid, or being relished in a warm country; and it is the circumstance of the Indian or pale ale having its fermentation carried so much further, and its saccharine matter reduced in quantity, together with its larger proportion of bitter, that commends it so much as a grateful and stimulant stomachic to the European resident in a warm climate, and to the invalid.

Home-brewed Ale, as brewed by the middle classes in England, is usually made in quantities of 2 barrels, *i. e.*, 72 gallons. For this purpose a quarter of malt, or if wished to be extra strong, 9 bushels of malt, are taken, with 12 lbs. of hops. The malt being crushed or ground, is mashed with 72 gallons of water, at the temperature of 160°, and covered up for three hours, when 40 gallons are drawn off; and into this the 12 lbs. of hops are put, and left to infuse. Sixty gallons of water, at the temperature of 170°, are then added to the malt in the mash-tub and well mixed, and, after standing two hours, 60 gallons are drawn off. The wort from these two mashes is boiled along with the hops for two hours, and after being cooled down to 65°, it is strained through a flannel bag into the fermenting-tub, where it is mixed with 1¼ gallons of yeast, and left to work for twenty-four or thirty-six hours. It is then run into barrels to cleanse, a few gallons being reserved for filling up the casks as the yeast works over. Eighteen or twenty gallons of beer are obtained from the used malt by making a third mash with 25 or 30 gallons of water, and boiling the wort thus procured with the used hops.

Scottish Ale, but especially the Edinburgh ale, has been long celebrated, but as an ordinary beverage it is much more luscious and heady than London porter, English ale, or pale Indian ale. It is a much stronger drink than any of these, the home-brewed English ale approaching nearest to it in this respect; and as the attenuation of the saccharine extract is only carried the length of the decomposition of two-thirds of its original strength, the large quantity of undecomposed saccharine extract renders it much more luscious to the taste, and milder than the English ales. The Scottish ales are brewed of various strengths, and are known in the market by their price per hogshead, and are hence commonly mentioned as £7 ale, £6 ale, etc.—E. B. *See* ALE AND BREWING.

IMPORTATION OF BEER, ALE, AND PORTER INTO THE UNITED STATES, ACCORDING TO TREASURY REPORT OF 1855.

Years.	Beer, Ale, and Porter from England.		Beer, Ale, and Porter from Scotland.	
	Gallons.	Value.	Gallons.	Value.
1844	107,489	$102,157	19,236	$18,343
1845	79,302	73,729	26,711	21,294
1846	117,621	110,397	38,464	39,831
1847	178,303	110,292	17,526	10,552
1848	130,000	101,171	39,282	21,533
1849	146,473	118,233	52,297	30,088
1850	156,735	129,957	52,856	41,790
1851	275,336	189,010	88,179	56,736
1852	262,838	186,964	110,752	67,804
1853	397,420	284,347	131,357	77,414
1854	825,571	424,875	270,064	128,667
1855	919,252	559,900	345,016	188,457

Beet, or Beta, a well-known genus of plants. The common beet, *Beta vulgaris*, a variety of the red beet, has long been cultivated as a food for cattle, and is also used for the table as a pickle. It was introduced for this purpose in the latter part of the last century from Germany, where it is known by the name of *mangel-wurzel*.—*See* AGRICULTURE. The variety termed *white beet* is smaller than the former, and has chiefly been cultivated on a large scale for the formation of sugar from its root. The chemical elements of beet-root sugar are expressed *atomically* thus: C_{12}, H_9, $O_9 + 2HO$, or, twelve atoms of carbon, nine of hydrogen, nine of oxygen, and two of water. The largest extract of pure sugar from beet-root in Belgium was formerly 3 per cent., but is now 6 per cent., and is capable of further increase by improvement in the process of manufacture. The cultivation of beet-root was especially fostered in France by Napoleon, whose policy it was to encourage every thing that tended to render the Continent independent of Britain, then in possession of the chief sugar colonies. It is only within a comparatively recent period, however, that the manufacture of beet-root sugar in Europe has assumed any degree of importance, the total quantity produced in 1828 not exceeding 7000 tons, while in 1851 it was estimated at not less than 180,000 tons. We subjoin a few statistics relative to the increasing importance of this manufacture from *The Economist* (Nos. 431 and 432, Nov. 29th, and Dec. 26th, 1851). The quantity of beet-root sugar annually produced in France is 60,000 tons, or fully one-half of the entire consumption. Though now subject to a higher duty than colonial cane sugar, it is considered probable that very shortly it will exclude foreign sugar from the French market altogether. The production of beet-root sugar in Belgium also is rapidly on the increase, the quantity produced in 1850 being 7000 tons, or half the entire consumption of that kingdom. This had increased in 1851 to 10,000 tons, while of foreign cane sugar only 4000 tons were imported. In Germany it has made similar progress. In 1848 the quantity produced was 26,000 tons, which had risen in 1851 to 43,000, with a corresponding decrease in the imports of foreign sugar. Of 85,000 tons of sugar estimated to have been consumed in Russia, 35,000 tons were beet-root sugar. In Austria, also, the production of this article increased from 8000 tons in 1848, to 15,000 tons in 1851, while the consumption of cane sugar had sunk from 32,000 to 25,000 tons.—E. B.

Behring's Strait, explored by a Danish navigator in the service of Russia, whose name it bears. Behring thus established that the continents of Asia and America are not united, but are distant from each other about thirty-nine miles, 1728.

Belfast, a maritime town, a municipal and parliamentary borough, the capital of Ulster, the chief manufacturing and commercial town in Ireland, and since 1850 the county town of Antrim. It is mainly comprised in the county of Antrim; but the large suburb of Ballymacarret, separated from the town by the River Lagan, is in the county of Down. Belfast is situated in lat. 54° 36′ 8·5″ N., and long. 5° 55′ 53·7″ W., at the mouth of the River Lagan, which flows immediately into Belfast Lough (Carrickfergus Bay), an estuary about 12 miles in length, and 5 miles broad. The town is built upon an alluvial deposit and land reclaimed from the sea, the greater portion being not more than six feet above high-water mark. In common with all places so situate, it is exposed to occasional inundations, and somewhat to the visitations of epidemics; but independently of the lowness of its site, Belfast is in other respects advantageously placed, and generally by no means unhealthful. The environs of the town are highly agreeable and picturesque. Belfast has been steadily progressive in population from an early period. In 1758 the number of inhabitants was 8549; in 1782, 13,105; in 1798, 18,320; in 1821, 45,177; in 1831, 48,224; in 1841, 75,308; and in 1851, 100,300. The custom duties collected at the port in 1784 amounted to £104,376, and, after various fluctuations, reached £288,756 in 1834, £339,989 in 1843, and £377,329 in 1852. The great increase of shipping frequenting the port appears in the following account of the number and tonnage of vessels entered inward at various periods:

Years.	No. of Vessels.	Tonnage.	Years.	No. of Vessels.	Tonnage.
1786	772	34,287	1825	2,069	183,441
1795	801	52,576	1835	2,730	[illegible]
1805	840	63,585	1845	[illegible]	[illegible]
1815	1,134	91,371	1851	5,016	[illegible]

The chief export trade is carried on by the cross-channel navigation; but a considerable direct trade also exists with the United States and Canada, the West Indies, the Mediterranean, and the Baltic. Belfast is the centre of the Irish linen manufacture, to the cultivation of which it is mainly indebted for its prosperity. In 1841 about 240,000 spindles were employed, and the increase during the last ten years has been so rapid, that about 510,000 spindles are now in operation. The total value of all products of the linen manufacture exported abroad in the ten months ending 5th November, 1852, was £4,357,874, against £4,159,157 in 1851; and the export of linens and yarns, especially of the latter, continues on the increase. In 1851, 5,060,160 pounds of linen yarns were exported from Belfast; and in 1852, 6,779,680 pounds. The harbor of Belfast, originally a creek of the River Lagan, has been much improved of late years, and now allows vessels drawing eighteen feet of water to reach the quays at spring-tides.—E. B.

Belgium. Belgium extends from lat. 49° 27′ to 51° 30′ N., and from long. 2° 34′ to 6° 4′ E. On the north it is bounded by Holland; east by Dutch Limbourg and Luxembourg, and Rhenish Prussia; south by France; and on the west by the North Sea. It is somewhat of a triangular form, of which the longest side is that adjoining France, being 366 miles in length. The eastern boundary is 233 miles, and the northern and western are together 279 miles in length. Its greatest length from northwest to southeast (from Ostend to Arlon) is 56 leagues of 5000 metres, or 174 English miles, and its greatest breadth from north to south is 105 miles. It has an area of 2,945,593 hectares, equal to 7,278,968 English acres, or 11,373 square miles; being about one-eighth of the area of Great Britain. This country is divided into nine provinces—Antwerp in the north; West and East Flanders and Hainault in the west; Namur in the south; Luxembourg in the southeast; Liège and Limbourg in the east; and Brabant in the centre.

Commercial Association.—Belgium possesses a great number of commercial and financial associations. In 1851 there were no fewer than 191 legally authorized joint-stock companies for carrying on public works or enterprises, having a united capital of 880,347,298 francs. Of these 12 were assurance companies, 12 private banking companies, and 14 railway companies. It has eight commercial exchanges, under the direction of government; namely, in Antwerp, Brussels, Ghent, Bruges, Ostend, Mons, Termonde, and Louvain. In 1822 the General Society for the Encouragement of National Industry was formed at Brussels, under a royal charter for 27 years, and which has since been extended to 1875. It has a social capital of 30,000,000 florins, divided into 60,000 shares of 500 florins, bearing interest at 5 per cent. The administrative body consists of a governor, nominated by the king, six directors, a secretary, and a treasurer. It discounts bills, receives money at interest, grants loans and advances on titles and other deposits, etc. The national bank, instituted by charter granted in 1850, for twenty-five years, has its seat at Brussels, and has branches in all the provincial capitals and several other towns. Its capital is 25,000,000 francs, in shares of 1000 francs each. It pays a dividend of 5 per cent. upon the shares, and one-third at least of the profits, exceeding 6 per cent., goes to form a sinking fund. The administration consists of a governor, nominated by the king, six directors, and a council of censors. The banking operations are superintended by a government commissary; a report upon its state is presented to the government every month. The State funds are deposited in this bank. The Bank of Belgium, chartered in 1835 for twenty-five years, but which has been extended to 1875, has a capital of 30,000,000 francs. Its seat is at Brussels. The Bank of Flanders is established in Ghent. Antwerp is the principal sea-port of Belgium; it has a good harbor, and superior commercial facilities. Population, in 1850, 420,000.

The weights and measures of Belgium are the same as those of France. Gold, silver, and copper coins are struck at the royal mint in Brussels. The gold coins are ten and twenty-five franc pieces; the silver are of the value of ¼, ½, 1, 2, and 2½ francs; and the copper of 1, 2, 5, and 10 centimes.

Commerce.—In 1851 Belgium possessed 149 trading vessels, of the aggregate burden of 30,577 tons. The value of the imports and exports for the years 1849, 1850, and 1851, was as follows:

Years.	Imports.	Exports.
	Francs.	Francs.
1849	405,249,000	374,776,000
1850	423,117,000	411,292,000
1851	418,555,325	401,176,052

In 1851 the imports by Belgic vessels were valued at 44,702,097 francs; by foreign, 124,736,164 francs; and by land and rivers, 249,117,064 francs. Exports by Belgic vessels, 24,107,306 francs; by foreign, 81,326,815 francs; and by land and rivers, 295,741,931 francs. The laden Belgic vessels entering were 402, of 70,261 tons; and foreign 1591, of 229,771 tons. The laden Belgic vessels leaving were 351, of 62,996 tons; and foreign, 1168, of 161,314 tons. The number entering in ballast was 149, of 17,434 tons: 1359 vessels entered the port of Antwerp, 448 Ostend, 234 Ghent, and 101 Nieuport. The imports are principally from France, England, Holland, and the United States; and the exports principally to France, Holland, Prussia, and England. The imports are divided into three classes: those for direct consumption in the country, those for transit, and those brought into warehouses to be either consumed in the country on paying the duties, or exported. The value of goods imported for consumption, and of the productions of the country exported, was for the three years above as follows:

Years.	Imported.	Exported.
	Francs.	Francs.
1849	206.777.000	179,654,000
1850	211.923.000	210,033.000
1851	218,085,070	200,129,626

These are divided into three branches. 1. *Premières matières*, articles consumed in the state in which they are found, as coals, etc.; 2. Articles of food; and, 3. Manufactures. The imports and exports of 1851, so divided, give

	Imports.	Exports.
	Francs.	Francs.
Premières matières........	93,663,110	97,742.481
Food	84,362,885	26,258,285
Manufactures	40,059,075	76,128,860

The value of the goods in transit for the years 1850 and 1851 was

Years.	Direct.	By Warehouse.
	Francs.	Francs.
1850	175,553,000	25,706,000
1851	175.104.292	25,942,134

Of the latter, the value exported by Belgic vessels was 7,046,655 francs; by foreign, 28,712,479; and by land and canals, 165,287,292 francs. Although there is a slight decrease in 1851 as compared with 1850, in comparing 1850 with 1841 we find an increase of 259 per cent. The value of goods in warehouse on the 1st January, 1851, was 26,626,000 francs; entered during that year, 65,006,000; taken out for consumption, 39,922,000; for export, 25,942; and 25,480,000 were in bond at the end of that year.

Under the rule of France, Belgium, like the other parts of the Continent, had suffered severely from the operation of the conscription laws, which had deprived the country of those active laborers who were necessary to cultivate the fields. Although peace could not restore the great numbers who had perished, yet it stopped the further progress of the evil in the Netherlands, by the establishment of a voluntary enrollment for a small regular army, and of a militia, whose service was required only for one month in the year. The mines felt the benefit of this regulation. The minerals of Belgium consist of coal, iron, and calamine. As soon as the union had been formed, and laborers became less scarce, a great impetus was communicated to this branch of industry; and companies were formed, who were most liberally repaid by the profit of their investments in this branch of industry, which was augmented from year to year as long as Belgium and Holland constituted one kingdom. By the excitement communicated to mining, the provinces of Liege and Hainault, and a part of Namur, were greatly enriched; and a company formed to explore the mines of Luxembourg were amply rewarded in their labors and their profits, till interrupted by internal commotions. The various branches of manufacturing industry received a similar impulse, though at first they were checked by the peace. The continental system of Bonaparte had given a factitious encouragement to some articles of manufacture, which ceased with the return of peace; and, till the formation of the kingdom of the Netherlands, many branches were depressed by the rivalry of foreign goods in the markets to which they had access. But as soon as the junction was completed, a stimulus was given to the manufacturers, by opening to their goods the markets of the East and West Indies, and those of all countries with which the Hollanders had traded. The iron manufactures of Liege advanced rapidly in prosperity; the woolen manufactures of Verviers felt most powerfully a similar impulsion; and many large establishments were formed at Ghent and other places, where cotton goods were fabricated which rivaled those of England, and so far surpassed those of France, that much of the goods was sold by the contraband trade in that kingdom. The opening of the Scheldt was the necessary effect of the formation of the united kingdom. Merchants from various countries formed establishments with large capitals at Antwerp; its docks became crowded with ships from all countries; its warehouses were loaded with colonial and other produce; and it advanced rapidly to a rivalry with Amsterdam, Rotterdam, and Hamburg in the transit trade to the interior of Germany. The king directed his best efforts to the state of the roads, the greater part of which had suffered dilapidation, while the cross-roads, so important in a country chiefly agricultural, were in many places scarcely passable. The management of the former was under the general government, while that of the latter was superintended by the local authorities; but in the first few years of the union the whole were repaired and placed in the most excellent state. The interests of internal navigation were sedulously watched over by the king. The old canals were repaired, the shallow parts of the rivers were deepened, and new and important water communications were formed. The chief of these, the Canal Guillaume, which extends from Maestricht to Bois-le-Duc, was an expensive but highly beneficial work; and that of Antoing in Hainault, that of Charleroy in the province of Namur, and that of Ternuse in Flanders, have been found in a very high degree beneficial. Though no longer of any importance to Belgium, it may not be quite out of place to remark, that the spirit of improvement which spread throughout the whole kingdom was to be seen in Holland in the Grand Canal of North Holland, which opens to Amsterdam a way for ships of the largest size to the ocean by way of the Helder, without incurring the risks arising from the shoals of the Zuyder Zee.

The following table shows the annual income and expenditure for the seven years preceding 1851:

Years.	Income.	Expenditure.
	Francs.	Francs.
1844	198,810,508	195,185,657
1845	129,855,951	134,389,349
1846	114,064,043	122,752,999
1847	113,528,063	127,572,874
1848	146,117,886	135,060,595
1849	113,871,437	112,267,069
1850	132,877,187	118,730,904

The number of works, in 1850, for the preparation of iron was 351, steel 2, lead 8, copper 20, zinc 19, alum 2, glass 35; 13,223 workmen were engaged, and the value of the produce was 51,261,457 francs. There is a decrease of 37 per cent. on the average of the three years preceding 1848, as compared with the three subsequent, in the iron manufacture. During the former period the demand for iron was great, and the prices were augmented by the number of railways constructing in Belgium and other countries.

The population of Belgium in 1831 was 3,785,814; in 1840, 4,073,162; and in 1850, 4,426,202; distributed as follows:

	1831.	1840.	1850.
Antwerp	349,942	371,157	420,596
Brabant	561,828	621,072	734,617
West Flanders	608,226	646,054	631,137
East Flanders	742,973	779,466	783,459
Hainault	613,179	661,701	733,740
Liege	375,030	410,171	467,843
Limbourg	160,090	169,960	188,149
Luxembourg	160,762	174,719	192,588
Namur	213,784	238,862	274,073
Total	3,785,814	4,073,162	4,426,202

There are nineteen chambers of commerce and manufacture established in the principal towns, the members of which are nominated by the king from a triple list of candidates presented to him by the chambers. The members of each vary in number from nine to twenty-one, one-third going out annually. They present to the government or legislative chambers their views as to the best means of increasing the commercial and industrial prosperity of the country, report annually upon the state of their districts, and give useful information or direction to the provincial or civic authorities under their administration.

Schools of navigation have been established at Antwerp and Ostend for furnishing properly educated masters for merchant vessels. Instruction is given gratuitously in navigation and the branches connected with it—as arithmetic, geometry, trigonometry, nautical astronomy, etc.; with the elements of commercial law, as applicable to merchant vessels, the English language, and the manœuvring, rigging, and trimming a vessel, both theoretically and practically. Certificates of qualifications as masters or mates are given by a jury of examiners.—E. B.

Alterations and Modifications in the Tariff, Tonnage Duties, and Port Regulations of Belgium, by Acts of the 12th day of April, and the 30th day of March, 1855.—A law of the 21st July, 1844, article 6, authorizes the government to provide, by royal order, the necessary measures for admitting the products of Asia, Africa, and America, imported direct into Belgium under the flag of the countries of production, or of the countries whence imported, on the same terms as if imported under the Belgian flag, provided Belgian vessels are placed in such countries on an equality with the national flag. By royal order of the 12th July, 1854, this law is made applicable to Mexican vessels and products. The law of 8th June, 1853, provides that the government is empowered to allow vessels proceeding from transatlantic countries, or from a port beyond the Straits of Gibraltar, to touch at an intermediate port, whether for the purpose of receiving orders or carrying on commercial transactions by discharging or receiving cargoes. This law, being of limited duration, is continued in force until the 31st day of March, 1856, by the law of 30th March, 1855.* The law of the 11th of June, 1853, authorizes the government to admit, free of duty, machines, new or improved machinery imported for the purpose of introducing new branches of industry or perfecting those already established, or for agricultural purposes; also, steam-vessels constructed on a new principle or improved plan, or such as could be regarded as models. This law is continued in force to the 24th day of May, 1856, by law of 4th June, 1855.

---

* This law suspends the practical operation of the 7th article of the treaty of November 10, 1845, between the United States and Belgium, which restricts the equality of flags in Belgian ports to *direct* importations from ports in the United States. Under its operation the flag of the United States is equalized with the Belgian, whether the vessel proceeds from a port in the United States or not.

TARIFF CHANGES.*

Description of Merchandise.	Duty.	Under which Law.
Whalebone, raw	Free.	Mar. 30, 1855.
Timber for building, 5 centimetres or under in width, per sea ton	$2 05	“
Spirits—brandy, gin, and liquors of every kind:		
In barrels, per hectolitre	1 12	“
In bottles, 116 or more to the hectolitre, per 100 bottles	2 24	“
Terra japonica	Free.	“
Coffee, from country of production direct:		
In national vessels,† per 220 pounds	1 67	“
In foreign vessels, per 220 pounds	2 14	“
From other places:		
In national vessels, per 220 pounds	2 59	“
In foreign vessels, per 220 pounds	2 88	“
Cinnamon and cassia ligna:		
Of China, per 220 pounds	4 84	“
Of Ceylon and other places, per 220 pounds	37½	“
Pot and pearl ashes	Free.	“
Flax in bulk, and other vegetable filaments not otherwise enumerated, per 220 pounds	37½	“
Horns and bone-tips of oxen, cows, etc.	Free.	“
Cotton, raw	Free.	April 12, 1854.
Hides and skins, untanned and dry, per 220 pounds	0 09⅗	Mar. 30, 1855.
clippings	Free.	“
Copper ore	Free.	“
Spices, not specially enumerated	20 per cent. ad valorem.	“
Tin, crude	Free.	“
Ginger	20 per cent. ad valorem.	“
Tar	Free.	“
Flaxseed, imported direct from Riga, from 1st Aug. to 1st April, upon proof of origin	Free.	“
Fat, tallow, and lard, per 220 pounds	47	“
Oil, of palm, cocoa, Touloncuna, per 220 pounds	56	“
Indigo	Free.	“
Honey, per 220 pounds	2 25	“
Marble, in blocks and rough	Free.	“
Lead ore and old lead	Free.	“
Fish:		
Herrings, other than in dry salt and pickled, per 1000	1 86	“
Codfish, pickled or in dry salt, per ton of 150 to 160 kilogrammes	4 65	“
Stockfish, per 220 pounds	22	“
Pepper and pimento, per 220 pounds	2 98	“
Quercitron bark	Free.	“
Rice, not hulled, or paddy, direct from countries of production:		
In national vessels, per 220 pounds	45	“
In foreign vessels, per 220 pounds	65	“
From elsewhere:		
In national vessels, per 220 pounds	84	“
In foreign vessels, per 220 pounds	94	“
Rice, hulled, from the country of production, or from transatlantic countries:		
In national vessels, per 220 pounds	1 50	“
In foreign vessels, per 220 pounds	1 68	“
From elsewhere:		
In national vessels, per 220 pounds	1 85	“
In foreign vessels, per 220 pounds	2 05	“
Saltpetre, crude, per 220 pounds	27	“
Soap, hard, per 220 pounds	2 79	“
Sirup and molasses of every kind, per 220 pounds	13 96	Nov. 30, 1854.
Tobacco—Havana, Porto Rico, Columbia, and Orinoco, direct from transatlantic countries:		
In national vessels, per 220 pounds	2 74	Mar. 30, 1855.
In foreign vessels, per 220 pounds	3 06	“
From elsewhere:		
In national vessels, per 220 pounds	2 92	“
In foreign vessels, per 220 pounds	3 25	“
Tobacco—St. Domingo, or West Indies, direct from transatlantic countries:		
In national vessels, per 220 pounds	2 32	“
In foreign vessels, per 220 pounds	2 61	“
From elsewhere:		
In national vessels, per 220 pounds	2 52	“
In foreign vessels, per 220 pounds	2 79	“
Other kinds of tobacco, of countries out of Europe, direct from country of production, or transatlantic countries:		
In national vessels, per 220 pounds	1 86	“
In foreign vessels, per 220 pounds	2 13	“
From elsewhere:		
In national vessels, per 220 pounds	2 09	“
In foreign vessels, per 220 pounds	2 32	“
Tea, per 220 pounds	12 10	“

* Within the year ending September 30, 1855, changes and modifications have been made in the general customs tariffs of Mexico, New Granada, Peru, Guatemala, San Salvador, Costa Rica, Turkey, Belgium, Holland, Portugal, England and her dependencies, and France; but inasmuch as these tariffs, thus modified or changed, will appear in detail in the answer to the resolution of the House of Representatives of December 14, 1853, now in course of preparation at the State Department, the changes in the tariffs of Belgium, Holland, Portugal, Bermuda, and Newfoundland, are alone given in the present report in tabular form; and those in the tariffs of England and France by abstracts of the acts and decrees of the governments of those countries respectively.

† Wherever the term "national vessels" occurs, it is to be understood as applicable to vessels of the United States.

Bell, a well-known instrument, ranked by musicians among the musical instruments of percussion. Bells were used among the Jews, Greeks, Roman Catholics, and heathens. The responses of the Dodonæan oracle were in part conveyed by bells.—STRABO. The monument of Porsenna was decorated by pinnacles, each surmounted by bells.—PLINY. Introduced by Paulinus, bishop of Nole, in Campagna, about A.D. 400. First known in France in 550. The army of Clothair II., king of France, was frightened from the siege of Sens by the ringing of the bells of St. Stephen's church. The second Excerption of the English King Egbert commands every priest, at the proper hours, to sound the bells of his church. Bells were used in churches by order of Pope John IX., *as a defense, by ringing them, against thunder and lightning,* about 900. First cast in England by Turkeytel, chancellor of England, under Edmund I. His successor improved the invention, and caused the first tunable set to be put up at Croyland Abbey, 960.—STOWE.

Great Bell of St. Paul's, weighs.......	8,400	lbs.
Great Tom of Lincoln, weighs	9,894	"
Great Tom of Oxford, weighs	17,000	"
Bell of the Palazzo, Florence, weighs..	17,000	"
St. Peter's, at Rome, weighs...........	18,600	"
Great Bell at Erfurth, weighs..........	28,224	"
St. Ivan's Bell, Moscow, weighs	127,836	"
Bell of the Kremlin, weighs	443,772	"

The last is the great unsuspended bell, the wonder of travelers. Its metal alone is valued, at a very low calculation, at £66,565 sterling. In its fusion great quantities of gold and silver were thrown in as votive offerings by the people.—HAYDN.

Bell-metal, an alloy of copper and tin, usually in the proportion of 80 parts of copper to 20 parts of tin. Zinc generally enters into the composition of small shrill bells. By analysis Dr. Thompson found an English bell-metal to consist of 800 parts of copper, 101 tin, 56 zinc, and 43 lead. The thickness of a bell's edge is usually 1-15th of the diameter, and its height is twelve times its thickness. The bell-founders have a diapason, or scale, wherewith they measure the size, thickness, weight, and tone of their bells.—E. B.

Bending, in *Nautical Language*, the tying of two ropes or cables together; thus, to *bend the cable*, is to make it fast to the ring of the anchor; to *bend the sail*, to make it fast to the yard.

Bends, in a ship, more generally called *wales*, are the thickest and stoutest planks in her side, on which men set their feet when climbing up. They form the chief strength of a ship's sides, and have the beams, knees, and foot-hooks bolted to them.

Bengal, the largest and most important division of Hindostan, situate toward its eastern extremity, and containing Calcutta, the seat of the British government in India. Excluding the possessions of the native princes, over which the British government merely exercises political supremacy, and excluding also the Punjab and the Agra, or northwestern provinces, which are administered by functionaries having the powers and authority of lieutenant governors, the tract embraced within the presidency of Bengal lies between 10° and 28° N. lat., and between 83° and 99° E. long. Its most northern extremity is situate in the province of Assam, and its most southern point lies on the coast of Tenasserim. The district of Mirzapore, under the jurisdiction of the lieutenant governor of Agra, forms the extreme boundary on the west, and the frontier of Siam constitutes its most eastern limit. The longest line which could be drawn with extremities lying within the limits of the presidency, is that in a direction from southeast to northwest, from the Pak Chan River, in Tenasserim, to the northwestern angle of the district of Sarun, where the River Gunduck issues from the mountains of Nepaul, in lat. 27° 25′, long. 83° 55′, and would measure about 1550 miles in length. A considerable part of this line would, however, lie across the Bay of Bengal. The longest line that could be drawn without crossing the bay is from northeast to southwest, from the boundary of Assam to that of the British district of Palamow, a distance of about 870 miles. The extreme breadth of the presidency, measured at right angles to this last-stated line, is about 465 miles, bearing from southeast to northwest, from the mouth of the Hooghly to the exit of the Gunduck from the mountains of Nepaul. The area of the presidency, as thus defined, amounts to 225,103 squares miles.

Bengal, especially as it approaches the sea, may be designated a level country. Even in its northern frontier, it is reached only on one point by any of the branches that diverge from the Himalayas. A spur from the great culminating range bounds the northeastern extremity of Assam; and thence taking a southerly direction through the native States of Munneepore and independent Tipperah, forms the eastern frontier of the British district of Chittagong. Continuing from this point its southerly course, it stretches, under the name of the Yoomadoung Mountains, through the province of Arracan to its southernmost point at Cape Negrais, forming the western boundary of the valley of the Irrawaddy. This spur where it touches upon Assam attains an elevation of 14,540 feet above the level of the sea, and there its summit is covered with perennial snow.

The soil of so extensive a province varies, of course, in its character and fertility with the physical peculiarities of the country. In the level tract interlaced by the Ganges and Brahmapootra, with their numerous branches and tributaries, the soil is alluvial, its basis being composed of sand, on which are annually deposited, by the retiring waters, clay, calcareous matter, and other fertilizing substances. In the tracts which lie beyond the reach of inundation, it is marked by different degrees of productiveness, from the dry and arid rocks of the southwestern frontier overrun with brushwood, to the hills of Chittagong and Tenasserim clothed with magnificent forests. Taken as a whole, however, the soil of Bengal, enriched as it is by the combined influence of fierce suns and deluging rains, may be said to be characterized by an amazing fertility. Its productions are those both of the tropical and the temperate climates. Of the grains which contribute to the subsistence of man, rice is of the first importance: it is the great staple of Bengal agriculture is particularly luxuriant within the tract of inundation, and thrives in all the southern districts. It is sown after the first showers at the end of March down to the setting in of the rainy season, and occupies a period ranging (according to its variety, of which there are three principal denominations) from three to five months to ripen. The early crop is sown broadcast; the later crop, after the seed has attained the height of a few inches, is planted with the hand in rows at the distance of about a foot asunder. The rice harvest is succeeded by the cold-weather crops, which are sown in autumn and reaped in spring. They consist chiefly of vetches, gram, barley, peas, mustard, etc. Millet and other small grains, sown at the beginning of the rains and reaped at the end, constitute the food of the poorer classes, and, bearing a very low price, are of importance. Maize is less cultivated in Bengal than in those countries where the climate is more suitable, having no preference above millet to compensate for the greater labor required for its culture. Potatoes have lately been introduced into Bengal, and have succeeded well. They are suited to the climate; and the small potato is little inferior to that raised in England. Esculent plants are found in Bengal in great abundance and variety. The different species of the cucumber are much more numerous than in Europe, and whole fields are covered with them. The watermelon is of incredible size; and its stalk, leaves, and blossoms form a finely variegated matting, with which most of the cottages in the villages are entirely covered.

The universal and vast consumption of vegetable oils which takes place in Bengal is supplied by the extensive cultivation of mustard, linseed, sesamum, and palma-christi, in addition to the produce obtained from the cocoa-nut. The sesamum comes to maturity during the rains, or soon after them, the others during the cold season. Among the most important of the commercial crops are tobacco, sugar, the opium poppy, indigo, cotton, and silk, most of which require land solely appropriated to their peculiar culture; of late years coffee has been successfully cultivated. Tobacco, which was unknown in India before the discovery of America, is now produced every where. The sugar-cane has flourished in Bengal from the remotest times; there is scarcely a district in which its cultivation is not pursued with success, and there seems to be no limit to its production, except the demand for it. It is cheaply and frugally manufactured; and as it now enters the British market on equal terms with West India sugar, it forms an important article of export. The manufacture of indigo appears to have been known and practiced in Bengal from an early period; and from the East Europe was supplied with this dye until the superior produce of America engrossed the markets. European skill has, however, succeeded in reviving this branch of trade in Bengal, and the indigo now exported from this presidency amounts to five-sixths of the supply obtained from the whole world. Cotton is raised in abundance, but the produce scarcely exceeds the consumption; and the demand of the British and China markets for the cotton wool of India is almost wholly supplied from the western side of the country. Silk is an ancient product of India; the silkworm, it is said, being originally introduced from China. Formerly the raw material was brought from India to Greece and Italy, whence Europe was chiefly supplied. Bengal still carries on a trade in this valuable article; and although the quality is scarcely equal to the finest Italian silk, the annual export from Calcutta exceeds in value half a million sterling. A coarse species of silk is procured from the wild silkworm, which is found in the countries bordering on Bengal, and in several districts included within it. It is rendered useful in the fabrication of inferior silks, though bearing no comparison to the produce of the domesticated insect. The cultivation of the poppy is entirely regulated and controlled by the government. Annual contracts are made with the farmers to sow certain quantities of land with the plant, and to deliver the produce to the government in the form of opium at a fixed price. The sowings commence in November, and the crop arrives at maturity by the end of February. The revenue realized by the government from the sale of opium produced in Bengal alone amounts to between two and three millions sterling per annum.

The orchard is a great object of cultivation with the peasant in Bengal; and it attaches him to his native soil, from the almost superstitious predilection which he feels for the trees planted by his ancestor. The seasons, however, from the long continuance of the rains, which occupy the greater part of the summer, are not particularly favorable for bringing fruit to maturity; yet the orange, lime, shaddock, citron, tamarind, and other fruits, may be reckoned among the productions of Bengal. Orchards of mango, a tree thriving with little care, and yielding a fruit esteemed one of the best among those of India, diversify the plains. In size and foliage this tree resembles the Spanish chestnut; its fruit is extremely delicious, and is said to surpass in flavor the large yellow peach of Venice. Another fruit tree is the cocoa-nut, valuable not only on account of the nut, from which a superior oil is largely extracted, but in consideration also of its timber, which is peculiarly fitted for the construction of water-pipes and other useful purposes. Even the husk which envelops the fruit furnishes a fibre from which the best cordage is manufactured. The mulberry is extensively planted in consideration of its leaves, which afford the food of the silkworm. Assam abounds with the genuine tea plant; and the bassia thrives in various localities, especially in the hilly districts. Its produce is esculent and nutritious, and its flowers yield an intoxicating spirit. From its seeds is expressed an oil which is sometimes used as a substitute for butter. There are also valuable forest trees, among which may be noticed the teak, equal to the oak for purposes of ship-building, the sal, and the banyan. There is also the bamboo, which, being hollow, light, and strong, is serviceable in supplying the peasant with materials for his buildings, as well as for the manufacture of baskets, mats, and other articles of like character, to which, when split, its flexible fibre is well adapted.

Minerals.—From the alluvial character of the greater portion of the soil of Bengal, no great amount of mineral wealth is to be expected. In the hilly tracts, however, both in the eastern and western parts of the country, two of the most useful products which the mineral kingdom can boast, coal and iron ore, exist in abundance. Gold, in the form of dust, is found in a few places, but not in quantities sufficient to encourage to any extent the search for it.

Manufactures and Commerce.—Cotton piece goods form the staple manufacture of Bengal; though the use of Indian fabrics of this description in Europe has almost entirely ceased, while even in India the demand for them has been in a great degree superseded by the cheaper goods of Great Britain. The district of Dacca, in the eastern quarter of Bengal, has long been famed for the manufacture of plain muslins, distinguished by various names according to the fineness and the closeness of their texture, as well as for flowered, striped, or checkered muslins of the most beautiful and exquisite fabrics. Several kinds more closely woven are manufactured on the western side of the delta of the Ganges; but those of a more rigid texture do not seem to be limited to particular districts: coarse turbans and handkerchiefs are also made in almost every province. Under the general appellation of calicoes are included various species of cloth which are still distinguished by their Indian designations. Moorshedabad and its neighborhood is the chief seat of the silk manufacture.

The internal trade of Bengal consists chiefly in the exportation from the grain districts of corn and rice in exchange for salt. The supply of this article in Bengal is provided partly by manufacture conducted on account of the government, partly by importation, and to a small extent by private manufacture under a system of excise. The duty on all imported salt is at the rate of five shillings on 82 pounds, or about three farthings per pound; and the same rate of duty is levied on the home manufacture of the article, the prime cost of which amounts to about one farthing per pound. The wholesale price of salt at Calcutta may therefore be estimated at one penny the pound. Its supply is no longer a monopoly; for though the manufacture and sale have not been relinquished by the government, yet the public participate in its provision, under a combined system of customs and excise. The net revenue derived from salt by the government within the presidency of Bengal exceeds a million and a half sterling per annum.

Salt is a very ancient source of revenue in the East; but a feeling against its manufacture being carried on by the government has been for some time on the increase. During the parliamentary session of 1853, a clause was proposed to be inserted in the India bill, then in its progress through Parliament, forbidding the manufacture after the 1st May, 1856; and though opposed by the ministry, it was in the House of Commons carried. By the House of Lords it was, however, rejected, it being deemed unsafe thus suddenly to diminish the resources of India by so large an amount as that of the revenue produced by the trade as at present conducted. The facilities afforded for the introduction of English salt have for several years past caused a great increase of the imported article, the quantity received in Calcutta in the official year 1850–51 being double that of previous years.

The internal trade of Bengal is greatly aided by the navigable communications which intersect the country in every direction. The boats used in this navigation vary in form and construction, being each adapted to the nature of the rivers which they generally traverse. Steam navigation has been introduced upon the Ganges with success; and the Macadamized trunk road from Calcutta to Delhi has afforded facility of communication with the capital to various parts of the presidency; but there can be little doubt that in the course of a few years the rivers and roads of Bengal will alike become subsidiary to the great arteries of communication which, in the form of railways, are now commencing to intersect the country. The line from Calcutta to Burdwan is advancing rapidly to completion; from this point it will be continued in a northerly direction to Rajmahal, on the Ganges, whence it will traverse the heart of the presidency in a northwesterly direction to Allahabad.

Bengal carries on an extensive commerce with Britain. The exports consist chiefly of all the staple articles of the country—such as cotton, silk, sugar, rum, and indigo. The imports are metals of all sorts, wrought and unwrought; woolen and cotton manufactures of various kinds, which can be sent from Britain and sold cheaper than the home manufactures of the same description; naval and military stores; gold and silver bullion; and almost every article of British manufacture. An extensive trade is carried on to China and the countries and islands to the east. The exports are chiefly opium, saltpetre, gunpowder, cotton, and cotton piece goods.—E. B.

Bengal, Bay of, a portion of the Indian Ocean of the figure of a triangle, having on its western side the coast of Bengal, and on the east the coast of Arracan, Pegu, and the Malayan peninsula. Its two sides, from Bengal to Ceylon on the west, and to Junkseylon on the east, may be estimated at 1120 miles in length, and the whole is comprehended within the latitudes of 8° and 20° N. At the bottom of the bay the breadth from Chittagong to Balasore is not above 250 miles; and at its mouth, from Cape Comorin to the Malayan peninsula, the breadth may be estimated at 1200 miles. The western and eastern coasts of the Bay of Bengal form a singular contrast in all the points most essential to a navigator. On the western coast there are no harbors for large ships, while on the eastern coast there are many excellent harbors, such as Arracan, Cheduba, Negrais, and Syriam, in Pegu; a harbor near Martaban, Tavay River, and King's Island; and several harbors in the Mergui Archipelago, besides Junkseylon, Telebone, and Pula Lada. Off the west coast of Coromandel there are no soundings about thirty miles from the shore, while the east coast has soundings two degrees from it. Coromandel presents an open country: it is parched with drought from winds blowing over sultry sands; the mouths of its rivers are shallow from bars of sand, and it is often visited by dangerous gales. The east coast, on the other hand, is covered with wood. The climate is always temperate; the rivers are deep and muddy; and the weather is generally calm. The monsoons blow over the Bay of Bengal, though it is remarkable that here, as in many parts of India, strong winds are found blowing directly from the sea, while at some distance from the land it is a dead calm. Thus in Bengal there are strong northerly winds, while at sea calms prevail until May and June; and on the Malabar coast the southwest monsoon does not commence blowing till the beginning of the rainy season, while on shore there are strong westerly winds about and after the time of the vernal equinox.—E. B.

Bergamot, a species of citron, *Citrus limetta*, distinguished from the orange and lemon by having wingless leaf-stalks. It is a native of the south of Europe, and is produced abundantly in the neighborhood of Nice. The fruit has a delicious taste and smell, and its essential oil is highly esteemed as a perfume. The essence of bergamot is also called *essenzia di cedro*. It is extracted from the yellow rind of the fruit by cutting it in small pieces, and expressing the oil, or by distilling it from water. One hundred bergamots of Nice yield, by expression, 2½ ounces of oil.

Bergamot is also the denomination of a coarse tapestry, manufactured with flocks of silk, wool, cotton, hemp, cow's or goat's hair, and supposed to be invented at Bergamo, in Italy.

Bergen, the first commercial city of Norway, situated at the bottom of a deep bay, in lat. 60° 24′ N., long. 5° 20′ E. Population 26,000. The bay is inclosed on all sides by rugged rocks and islands: the water is deep; but, owing to the number and intricacy of the passages, the access to the town is attended at all times with a good deal of difficulty, and should never be attempted without a pilot. Codfish, salted or dried, is the principal article of export: when dried, it is called stock-fish, and goes chiefly to Italy and Holland. The fishery is the principal employment; and considerable quantities of fish and other products are also brought hither for exportation from the more northerly parts of the kingdom. At an average, from 25,000,000 to 30,000,000 lbs. salted and dried fish are annually exported. Herrings, whale-oil, skins, bones, tar, lobsters, etc., are also largely exported. The exports of timber from Bergen are inconsiderable, and none has latterly gone to England. Norway timber is not so large as that brought from Prussian ports, nor so free from knots; but, being of slower growth, it is more compact, and less liable to rot. The planks are either red or white fir or pine: the red wood is produced from the Scotch fir; the white wood, which is inferior in price and estimation, is the produce of the spruce fir; each tree yields three pieces of timber of 11 or 12 feet in length, and is 70 or 80 years of age before it arrives at perfection. The planks or deals of Bergen are, however, a good deal inferior to those of Christiana. The imports into Bergen principally consist of grain from the Baltic; and salt, hardware, coffee, sugar, etc., from England.—For *Moneys*, *Weights*, and *Measures*, see CHRISTIANA, where there are further details as to the trade and navigation of Norway.

Berlin Decree, a memorable interdict against the commerce of England. It declared the British islands to be in a state of blockade, and all Englishmen found in countries occupied by French troops were to be treated as prisoners of war; the whole world, in fact, was to cease from any communication with Great Britain. Issued by Bonaparte from the court of the Prussian king, shortly after the battle of Jena (which for the time decided the fate of Prussia), Nov. 21, 1806.

Bermudas, or **Somers' Isles,** were discovered by João Bermudas, a Spaniard, in 1527; but were not inhabited until 1609, when Sir George Somers was cast away upon them. They were settled by a statute 9 James I., 1612. Among the exiles from England, during the civil war, was Waller the poet, who wrote, while resident here, a poetical description of the islands. There was an awful hurricane here, Oct. 31, 1780, and another, by which a third of the houses was destroyed, and all the shipping driven ashore, July 20, 1813.

Berries (*Baccæ*), the fruits or seeds of many different species of plants. The berries quoted in London price-currents are bay, juniper, Turkey and Persian. 1. *Bay-berries* (Fr. *Baies de Laurier*; Ger. *Lorbeeren*; It. *Bacchi di Lauro*; Sp. *Bayas*), the fruit of the *Laurus nobilis*. This tree is a native of the south of Europe, but is cultivated in England, and is not uncommon in their gardens. The berry is of an oval shape, fleshy, and of a dark purple color, almost black; it has a sweet fragrant odor, and an aromatic astringent taste. Bay-berries, and the oil obtained by boiling them in water, are imported from Italy and Spain.—THOMSON's *Dispensatory*.

2. *Juniper Berries* (Fr. *Genèvrier*; Du. *Sevenboom*; It. *Ginepro*; Sp. *Embro*), the fruit of the common juniper (*Juniperus communis*). They are round, of a black purple color, and require two years to ripen. They have a moderately strong, not disagreeable, but peculiar smell, and a warm pungent, sweetish taste, which, if they be long chewed, or previously well bruised, is followed by a considerable bitterness. They are found in England; but most of those made use of there are imported from Holland, Germany, and Italy. They should be chosen fresh, not much shriveled, and free from mouldiness, which they are apt to contract in keeping. On distillation with water, they yield a volatile essential oil, very subtle and pungent, and in

smell greatly resembling the berries. The peculiar flavor and diuretic qualities of Geneva depend principally on the presence of this oil. English gin is said to be, for the most part, flavored with oil of turpentine. —LEWIS'S *Mat. Med.*; THOMSON'S *Dispensatory.*

3. *Turkey Yellow Berries*, the unripe fruit of the *Rhamnus infectorius* of Linnæus. They are used as a dye drug in preparing a lively but very fugitive yellow, for topical application in calico-printing. Considerable quantities of them are exported from Salonica, to which they are brought from Thessaly and Albania. An inferior sort is produced in France.—BANCROFT *on Colors.* Price in the London market, September, 1853, 34*s.* to 40*s.* per cwt.

4. *Persian Yellow Berries* are said by the merchants to be of the same species as the Turkey yellow berries. The colors which they yield are more lively and lasting. They are high-priced, fetching from 80*s.* to 110*s.* a cwt.

Beryl, called by the jewelers *Aquamarine.* This stone was suspected by Pliny to be a variety of the emerald; a conjecture which modern mineralogists have completely confirmed. The term emerald is applied to that particular variety which presents its own peculiar color, or *emerald green;* while that of beryl is given indiscriminately to all the other varieties; as the sea green, pale blue, golden yellow, and colorless. Pliny says that the beryl is found in India, and rarely elsewhere; but besides India, it is found in Peru and Brazil; at Nantes and Limoges, in France; in the Wicklow Mountains, in Ireland; in the district of Cairngorm, in Scotland; and in various other places. —PLINY, *Hist. Nat.* lib. xxxvii. cap. 5; *Encyc. Brit.* new edition.

Those only which are of good color and sufficient depth are manufactured; they have a pretty, lively effect, if in good proportion and well polished. Large stones, from one to three and four ounces, are not uncommon, but from their bulk are only in request as specimens for the cabinet; smaller stones, suitable for necklaces, may be bought at low prices, within the reach of every description of purchasers.—MAWE *on Diamonds*, etc. 2d edition.

Besant, or **Bezant,** a coin of pure gold, struck at Byzantium in the time of the Christian emperors; and hence the gold offered by the king at the altar is called *besant* or *bisant.* It seems to have been current in England from the tenth century till the time of Edward III. Its value is not precisely ascertained, but it is generally estimated at 9*s.* 4½*d.* sterling.

Betel-leaf (Hind. *Pan;* Malay, *Sireh;* Javan. *Suro*), the leaf alluded to in the following article. It is the produce of a species of pepper vine (*Piper betle*), and somewhat resembles the ivy leaf. In their fresh state, betel leaves form an important article of Eastern traffic, being every where used in the preparation of betel. The *Piper betle* is a scandent plant, and poles are placed in the ground, round which it twines itself. In consequence of the great consumption of its leaves, it is extensively cultivated throughout tropical Asia. It grows in the greatest perfection in rich soils close to the equator, and is raised with more difficulty the farther we recede from it.—*Encyc. Britannica,* new edition, article BETEL; CRAWFURD'S *Indian Archipelago,* vol. i. p. 403.

Betel-nut, or **Areca** (Sans. and Hind. *Suapri;* Malay, *Pinang;* Javan. *Jambi*), the fruit of the *Areca catechu*, a slender and graceful palm, rising to the height of about 30 or 40 feet; it produces fruit at the age of five or six years, and continues bearing till its 25th or 30th year. The fruit, which is the only part of the palm that is made use of, is eaten both in its unripe and in its mature state. When ripe, it is of the size of a small egg, and of an orange color; the exterior part consists of a soft, spongy, fibrous matter, inclosing a nucleus resembling a nutmeg in shape, internal structure, and color, but usually larger, and always harder. A single tree produces, according to its situation, age, culture, etc., from 200 to 800 nuts. They are objects of great importance in the East, forming the principal ingredient of a compound in universal use as a masticatory in all Central and tropical Asia. The other ingredients are the leaf of the betel pepper (which see), in which the areca-nut is wrapped; a little CHUNAM (which see); and generally, but not always, a little *catechu* or terra japonica.—*See* CATECHU. The whole compound is called *betel,* and is used to an extent of which it is difficult for a European to form a just idea. All individuals, without exception of age or sex, begin at an early period to accustom themselves to betel. They are unceasingly masticating it, and derive a gratification from its use that strangers can neither understand nor explain. It reddens the saliva, gives a bright hue to the lips, and, in course of time, renders the teeth quite black. It is said to dispel nausea, excite appetite, and strengthen the stomach. Besides being used as an article of luxury, it is a kind of ceremonial which regulates the intercourse of the more polished classes of the East. When any person of consideration visits another, after the first salutations, betel is presented: to omit it, on the one part, would be considered neglect, and its rejection would be judged an affront on the other. No one of inferior rank addresses a dignified individual without the previous precaution of chewing betel; two people seldom meet without exchanging it; and it is always offered on the ceremonious interviews of public missionaries. The areca-nut is, in consequence, an article of very extensive trade. The countries which yield it most largely for exportion are, Malabar, Ceylon, and Sumatra. Of the extent of this trade some notion may be formed from the fact that the imports of areca into Calcutta in 1841–1842 amounted to 53,633 Ind. maunds, or 1966 tons, and those into Canton in 1837, by British ships only, amounted to 25,978 piculs, or 1502 tons, notwithstanding Bengal and Southern China are countries in which areca is largely produced.—*See the article* BETEL in the new edition of the *Encyc. Britannica;* BELL'S *Review of the External Commerce of Bengal;* CRAWFURD'S *Indian Archipelago,* vol. i. p. 102, vol. ii. p. 414; *Chinese Calendar and Register.*

Beyrout, Beirout, or **Bairut** (*Berytus*), a fortified sea-port, and the most flourishing commercial town of Syria in proportion to its size, pashawlic of Acre, on a bay of the Mediterranean, 57 miles west-northwest of Damascus, of which city it is the port, and 3 miles south of Cape Beyrout, which is in lat. 33° 50′ N., long. 35° 26′ E. Population estimated at 12,000. Its walls are about 3 miles in circumference, outside of which are suburbs equaling the town in extent. It has some large and well supplied bazars. Streets narrow, but clean, it being plentifully furnished with springs; and it is said to have derived its original name from the Phœnician deity, *Baul Beerith,* "lord of wells." Along the shore are some remains of antiquity, comprising mosaic pavements, columns, and a thick wall. The harbor, protected by a mole, is adapted only for small boats; but in the bay beyond it ships may anchor in from 6 to 11 fathoms. The town has some manufactures of silk stuffs, and gold and silver thread. Principal exports, silk, galls, madder, gums, wine, and oils; imports, muslins, cottons, tin, hardware, cloths, and manufactures of western Europe. In 1841, 383 ships, mostly Turkish, Arab, and Greek, aggregate burden 38,441 tons, entered the port with cargoes to the value of £66,748; and nearly the same number cleared out with cargoes worth £25,128, besides ballast. Beyrout was bombarded and taken by the English in 1840.

Bezoar (Arab. *Faduj;* Hind. *Zeher-morah;* Pers. *Padzehr Kanie*), a concretion found in the stomach of an animal of the goat kind; it has a smooth glossy surface, and is of a dark green or olive color: the word bezoar, however, has lately been extended to all the concretions found in animals; such as the *hog bezoar*, found in the stomach of the wild boar in India; the *bovine bezoar*, found in the gall-bladder of the ox, common in Nepaul; and the *camel bezoar*, found in the gall-bladder of the camel: this last is much prized as a yellow paint by the Hindoos. The finest bezoar is brought to India from Borneo and the sea-ports of the Persian Gulf; the Persian article is particularly sought after, and is said to be procured from animals of the goat kind, *Capra Gazella*. Many extraordinary virtues were formerly ascribed to this substance, but without any sufficient reason.—Ainslie's *Materia Indica*.

Bible. The first translation from the Hebrew into the Greek was made by seventy-two interpreters, by order of Ptolemy Philadelphus; it is thence called the Septuagint version, and was completed in seventy-two days, at Alexandria, 277 B.C.—Josephus. It was commenced 284 B.C.—Lenglet. In 283.—Blair. The Jewish Sanhedrim consisted of seventy or seventy-two members, and hence probably the seventy or seventy-two translators of Josephus.—Hewlett. The seventy-two were shut up in thirty-six cells, and each pair translated the whole; and on subsequent comparison, it was found that the thirty-six copies did not vary by a word or a letter.—Justin Martyr.

Ancient copies of the Bible.—The oldest version of the Old and New Testament belonging to the Christians is that in the Vatican, which was written in the fourth or fifth century, and published in 1587. The next in age is the Alexandrine MS., in the British Museum, presented by the Greek patriarch to Charles I., and said to have been copied nearly about the same time. The most ancient copy of the Jewish Scriptures existed at Toledo, about A. D. 1000; and the copy of Ben Asher, of Jerusalem, was made about 1100.—Haydn.

Bishops' Bible.—Bishop Alley prepared the Pentateuch; Bishops Davis and Sandys, the Historical Books; Bishop Bentham, the Psalms, etc.; Bishop Horne, the Prophets; Bishop Grindal, the Minor Prophets; Bishops Parkhurst and Barlow, the Apocrypha; Bishop Cox, the Gospels and Acts; and Archbishop Parker, the remainder. Printed A.D. 1558.

Division of the Bible.—The Bible was divided into twenty-two books by the Jews, the number of letters in the alphabet. The Christians divided the Bible into thirty-nine books. The Hebrew division into chapters was made by the Rabbi Nathan about 1445. Our Bible was divided into chapters, and a part into verses, by Archbishop Langton, who died in 1228; and this division was perfected by Robert Stephens, about 1534.

Editions of the Bible.—The vulgate edition, in Latin, was made by St. Jerome A.D. 405, and is that acknowledged by the Catholic Church to be authentic: it was first printed by Guttenberg at Mayence, 1450–1455.—*See* Books. The first perfect edition in English was finished, as appears from the colophon, by Tindal and Coverdale, October 4, 1535. A revision of this edition was made, 1538–'39. This last was ordered to be read in churches, 1549. In 1604, at the conference at Hampton court, a new translation was resolved upon, which was executed 1607–1611, by order of King James I., and is that now generally used in Great Britain. J. Eliot's Indian Bible, one of the first books printed in North America, at Cambridge, 1664. The Bible was first printed in Ireland, at Belfast, in 1704. Permitted by the Pope to be translated into the language of the Catholic States, 1759. The Bible was printed in

Spanish	1478	Indian (Mass.)	1664
German	1522	Turkish	1666
English	1534	Irish	1685
French	1535	Portuguese	1748
Swedish	1541	Manks	1775
Danish	1550	Italian	1776
Dutch	1560	Bengalee	1801
Russian	1581	Tartar	1813
Hungarian	1589	Persian	1815
Polish	1596	African	1816
Modern Greek	1638	Chinese	1820

Editions of the Old and New Testament, separately, appeared in several instances at earlier dates, particularly in European languages. The Polyglot Bible, edited by Walton, bishop of Chester, in the Hebrew, Syriac, Chaldee, Samaritan, Arabic, Ethiopic, Persic, Greek, and Latin languages, 1657.—Wood's *Fasti. Oxon.*—Haydn.

Bight (Dutch *bogt*, participle of *boogen*, to bend), a bend in the sea-coast, forming an open bay; also a round of a rope or cable when coiled.

Bilbao, a city and principal port of the north of Spain, capital of the province of Vizcaya (Biscay), on the Nervion, 6 miles from its mouth at Portugalete, and 28 miles north of Vitoria, lat. 43° 14′ 3″ N., long. 2° 56′ 5″ W. Population 11,900. It is inclosed by lofty mountains, and is well built. Principal manufactures, hardware, anchors, leather, paper, hats, tobacco, and earthen-ware; there are large rope-walk, and docks for building merchant vessels, with iron and copper mines in the vicinity. Exports comprise wool, iron, fish, and fruits. Principal imports, cotton and woolen fabrics, and colonial produce. Bilbao was founded in 1300; at the end of the 15th century it became the seat of the famous consulado, originally established at Burgos, and having the highest authority in Spain as a commercial tribunal. It was the scene of frequent contests in the late Carlist wars, and Zumalacarregui received his death wound here, June 10, 1835.

Bilge of a ship, the bottom of her floor, or the breadth of the part she rests on when aground. *Bilge-water* is that which lodges on her floor below the level of the well of the pump; and *bilge-pumps*, or burr-pumps, are those that carry off the bilge-water. A ship is said to be *bilged* when her bilge is broken in and she springs a leak.

Bilge, the greatest circumference of a cask.

Bill, in *Nautical Language*, the point of the fluke of an anchor.

Bill, in *English Law*, a declaration in writing, expressing either some wrong the complainant has suffered from the defendant, or a fault committed by the person complained of against some law or statute. In Scottish law, every summary application, by way of petition to the Court of Session, is called a *bill*.

Bill, in *Commerce*, has been usually defined a writing in which one man is bound to another to pay a sum of money, on a day that is future, or presently on demand, according to the agreement of the parties at the time when it is drawn; and on which, in the event of failure, execution may be summarily done to enforce payment.—E. B.

Bills of Exchange. Without entering into any investigation regarding the origin of bills of exchange, which has been assigned by different writers to different countries and causes, we may say that it is now the most generally adopted opinion that they originated in the twelfth or thirteenth century, in Italy, at the public fairs, which received a marked importance in commerce, through the Crusades. The money-changers transacted their principal business at the public fairs in the principal cities, and bills or orders for the payment of money at a distant place were at first drawn only from one fair to another, and were called *cambia regularia*. But when commerce increased, through the Hanseatic League, and extended to places where no public fairs were held, bills of exchange were also drawn upon such other places, and these bills were called *cambia irregularia*.

The oldest copy of a formal bill of exchange known at present is one dated at Milan on the 9th of March, 1325, and runs in the original as follows:

"*Pagate per questa prima litera* [*lettera*] *a di IX. Ottobre a Luca de Goro Lib. XLV. Sono per la valuta qui da Masco Reno. al tempo il pagate e ponete a mio conto e R. che Christo vi guarde Bonromeo de Bonromei de Milano IX. de' Marzo*, 1325."—"Pay for this first bill of exchange, on the 9th of October, to Luca de

Goro XLV. Livres; they are for value received here from Masco Reno; at the time of maturity pay the same and pass it to my account, and thanking you, may Christ protect you, Bonromeo de Bonromei of Milan, the 9th of March, 1325."

In England, reference was made, in the statute of 5 Rich. II. ch. 2, to the drawing of foreign bills, which was in the year 1381. The legal properties of bills in England are derived from the custom of merchants, but promissory notes are said to derive their properties from the act of Parliament of the 3d and 4th Anne, c. 9, which puts them on the same footing with inland bills. In the United States, bills of exchange and promissory notes are recognized in law as negotiable instruments, with all the properties usually attached to them by the custom of merchants. The statute laws in many States especially provide for their negotiability; but in States where this is not the case, the same customary properties would be held to attach to them.

Name and Definition.—A bill of exchange, in common speech called a draft, is an open letter of request, addressed by one person to a second, desiring him to pay a sum of money to a third, or to any other to whom that third person shall order it to be paid; or it may be made payable to bearer. For instance:

"*Boston*, 1*st January*, 1852.

"*Exchange for* $1000.

"*Sixty days after sight of this bill of exchange, pay to the order of George Green, One Thousand Dollars, value received, and place the same to account, as advised by*

"CHARLES WHITE.

"TO MR. JACOB BROWN, *New York*."

Parties.—The person who writes the request is called the *drawer*, and he to whom it is addressed is called the *drawee*; and if he agrees or consents to pay the money signified in the bill, he is said to *accept* it, and is then called the *acceptor*. The third person, to whom the money is payable, is called the *payee*. In the above instance, Charles White is called the *drawer*, Jacob Brown the *drawee*, and after he has consented or accepted to pay it, the *acceptor*, and George Green is called the *payee*. If it is made payable to him or order, or to the order of him, as above, and he then assigns it to another person, to whom the money is to be paid, by writing his name on the back of the bill (which is called indorsing the bill, and the act itself an indorsement), he is then called an *indorser*. The person to whom he orders the money to be paid is called the *indorsee* or *holder*, and if this one again assigns the bill to another person, the latter is called the indorsee or holder, and the other the second indorser; and every other person who successively puts his name on the back of the bill is called an indorser, and the person to whom it is last delivered is called the holder.

If in the above-cited instance George Green should write on the back of the bill, "Pay to the order of William Baker," signing his name beneath, "George Green," the latter would be called an indorser, and William Baker would be called indorsee or holder; and if Baker, again, should sign his name under that of Green, and order the contents of the bill to be paid to somebody else, Baker would be called an indorser, and the person designated by him the indorsee or holder, and so on.

Blank Indorsements.—It is very common for parties to sign simply their names on the back of the bill, without designating to whom the contents shall be paid. This is called a "blank indorsement," and whosoever holds the bill may write above the signature that it is payable to his order. For instance, if George Green, the original payee in the above specified bill, had simply written his name on the back of it, and had delivered it to William Baker, and Baker again had simply put his name on the back under that of Green, and had delivered the bill to one J. Brown, the latter would be the holder, and might write over the signature of Green, "Pay to the order of William Baker," and over the signature of Baker, "Pay to the order of J. Brown." Although these blank indorsements are very common, it would be desirable, and it is highly to be recommended, that each indorser should write in full over his name the place of his residence, the date, and the name of his indorsee; that is, the name of the person to whom he assigns the bill. Thus, in the above instance, if George Green resided in New York, he should write on the back, over his signature:

"*New York*, *January 3d*, 1852.

"*Pay to the order of William Baker*,

"GEORGE GREEN."

And in a similar way the successive indorsers should do. This way of indorsing has two advantages. In the first place, if the bill should be lost or stolen, with a blank indorsement on it, any person who finds or holds it might fill up the blank in his own name, and demand payment; whereas, if it were indorsed in full, the finder or holder would have to forge the name of the indorsee before he could get payment. In the second place, if the bill should be protested for non-acceptance or non-payment, the holder would know at once the places of residence of the different indorsers, and be able to give them due notice without delay.

Forms.—When bills of exchange are drawn on a place at a distance, and in a foreign country, it is customary to give a set of three bills of the same tenor, that they may be sent separately by different mails, so that in case one should be lost, one of the others might reach the person concerned safely. One of the common forms of a bill of this kind would be substantially as follows:

"*Boston*, *July* 1*st*, 1852.

"*Exchange for* £1000.

"*Sixty days after sight* [*or after date, or at sight, or on demand*], *pay this my* FIRST *bill of exchange* (*second and third of the same tenor and date not paid*) *to the order of Mr.* ——, *One Thousand Pounds Sterling, value received, and place the same to my account, as advised by*

"PAUL JONES.

"TO MESSRS. GREEN & CO., *London*."

The second bill of the same set would be in every respect the same with the first, except that it would read, "Pay this my *second* bill of exchange, first and third, etc., not paid."

And the third bill would run, "Pay this my *third* bill of exchange, first and second, etc., not paid."

Foreign and Inland Bills.—Bills of exchange are divided into *foreign* bills of exchange and *inland* bills of exchange, because the rights of proceeding and remedies thereon are not uniformly governed by the same rules and regulations. A bill of exchange is called a *foreign* bill when it is drawn in one state or country upon a person residing in a foreign state or country; as, for instance, when drawn by a person in one of the United States of America upon a person resident in England, and payable by the latter. And it is called an *inland* bill (or a domestic bill) when both the drawer and drawee reside in the same state or country; for instance, when the bill is drawn in Boston upon a person residing in Salem, both places being in the State of Massachusetts. The different States of the United States are considered as foreign to each other, so that a bill drawn in Massachusetts upon a person in New York is considered a foreign bill. In like manner, a bill drawn in England upon Scotland or Ireland is considered a foreign bill.—Mahoney *v.* Ashlin, 2 Barn. & Adolph. R. 478, 482.

The Form.—A bill is not confined to any set form of words, and it is not essential that the very language of the formulary which has been given above should be used. It is only requisite that it be in writing, and contain an order or direction by one person to another person to pay money to a third person, absolutely and at all events. The writing may be in pencil, as well as in ink, nor is it necessary that the whole instrument be in writing; the general formulary is generally printed, but the signatures must be in writing. If a person should order another person to deliver a particular sum of money to A. B., or to be accountable or responsible for a particular sum of money to A. B., it would constitute a bill of exchange. So if the expression should be "Please to pay," or "I request you to pay or deliver," it would be a good bill, because these expressions are mere words of politeness, in the place of an absolute order. But if the language used necessarily or naturally imports a request as a favor, and not as a matter of right, it would not be a good bill. So it has been held in England that a note addressed by A to B in these words: "Mr. Little, please to let the bearer have £7, and place it to my account, and you will much oblige your humble servant, J. Slackford," was not a bill of exchange.—Little *v.* Slackford, 1 Mood. and M. 171. However, where the language used is susceptible of two interpretations, the true rule seems to be, that the mere drawing of a bill is deemed to be the demand of a right, and not the asking of a favor, and to deem it a favor only when the language used repels, in an unequivocal manner, the notion that it is claimed as a right.—Story *on Bills of Exchange*, § 33. If the word "at," instead of "to," should be put before the name of the drawee; *e. g.*, "Two months after date pay to the order of J. J. £78, value received, T. S. At Messrs. John Morson & Co.," it might be held a bill of exchange (Shuttleworth *v.* Stevens, 1 Camp. 407), or a promissory note, at the election of the holder. So in a case where the instrument was as follows: "May 20, 1813. Two months after date pay to me or my order the sum of £30. W. S. Payable at No. 1, Wilmot Street, opposite the Lamb, Bethnal Green, London," and was accepted by the person residing at that place, it was held to be a bill of exchange.—Gray *v.* Wilmer, 8 Taunt. 739. The rule is, that, where an instrument is so framed as to admit of reasonable doubt whether it was intended for a bill or a note, the holder is at liberty to treat it either as a bill or as a note, as against the maker.

It does not seem necessary that the whole of the bill be written on one and the same side of a paper, or on one and the same paper; it may be written in part on one paper, and in part on another separate and detached paper, provided the writing on each be done at one and the same time, and both parts be intended to form one entire contract.—Story *on Bills of Exchange*, § 34, and note 1. If there should be no room left for indorsements, a paper might be affixed to the original bill for this purpose, but it would require proof of the fact that this paper formed a part of the bill. It often happens that there are but two parties to a bill, which is the case when the drawer makes the bill payable to his own order; and when he then indorses it, the indorsee becomes in fact the payee. And if no drawee should be named, but the bill be made payable at a particular place, and the person living at that place should accept it, he would be held answerable as acceptor.

Negotiability.—In order to make a bill negotiable, it must be made payable to the payee and to *his order* or *assigns*, or to *bearer*. The common form, as stated before, is "to the order of A. B.," or "to A. B. or order," or "to bearer." It would be advisable to adopt the form, "to A. B. or his order." If no expression be used which gives to the payee the power of transfer, it is nevertheless a bill. If the payee of a negotiable bill indorse it in blank, it is transferable by mere delivery, in the same manner as if it were payable to bearer. If the name of the payee be left in blank; *e. g.*, "Pay to ——— or order"—any holder may insert his name, and then indorse it; the effect would be the same as if it were made payable to bearer. So, also, if the name of the payee is fictitious, and the bill be indorsed in the name of this fictitious person, a holder who was ignorant of this fact when he took it may regard it as a bill payable to bearer, and may sue the drawer, and also the acceptor, if the latter knew that the name of the payee was fictitious. The words "value received" are generally inserted in a bill, but it is not necessary, for the law in cases of negotiable instruments of this kind presumes it.

Several Drawees.—A bill addressed to "A, or in his absence to B," is valid, and will, if accepted by either, bind him. If a bill is intended to be accepted by two persons, it should be addressed to both; otherwise, although accepted by both, it will bind only the person to whom it is addressed as acceptor. If a bill is drawn upon A, B, and C, it may be accepted by A and B only, and it will bind them.—Story *on Bills of Exchange*, § 58. On the Continent of Europe it is not unfrequent to put, besides the name of the principal drawee, the name of another person, to whom application may be made for acceptance or payment, if the first-named drawee should be absent or refuse payment; which is generally done in this form: "In case of need, apply to Mr. —— at ——" (in French, "Au besoin, chez M. ——, à ——;" in German, "Im Nothfall bei Herrn ——, in ——"). The holder of the bill is obliged to follow the direction, if the first drawee should be absent or refuse. Although it is common to use the words, at the end of the bill, "and put it to my account," or "to your account," or "and put it to the account of A. B.," or "put it to account as per advice," or "as advised by," these words are not essential, but are used only as a matter of convenience. If the drawer should be indebted to the drawee, he would say, "and put it to my account;" if, on the other hand, the drawee should be indebted to the drawer, he would say, "and put it to your account;" and if the bill were drawn on account of a third person, he would say, "and put it to the account of A. B." If the bill concludes with the words "as per advice," then the drawee is not obliged to accept or pay, without receiving further directions or advice, and if he do so, he does it at his own peril. If the bill conclude with the words, "without advice," or "with or without advice," then the drawee may accept or pay without being further instructed by the drawer. But the words may be altogether omitted without impairing the validity of the bill. We may generally state, that all persons who are legally capable of entering into any other contract are capable of becoming parties to a bill; or, in other words, all persons of full age and sound mind, both males and females, may draw, hold, indorse, and accept bills.

Partners.—In regard to partners, the signature of the firm must be put to the bill, either in case of indorsement, drawing, or accepting; and each partner has complete authority to use it; and when so used, the bill is deemed to be on partnership account, unless it appear on the face of the bill, or it can be proved that the party taking it had full knowledge that the bill was drawn, indorsed, or accepted, not for partnership, but individual purposes.

Agents.—Agents, if empowered for the purpose, either expressly or tacitly, may bind their principals to the full extent that their principals might do for themselves, provided that they do not exceed the scope of their authority. But if agents would bind their principals, they must draw, indorse, or accept the bills in the name of their principals, and not in their own name. The most proper way of doing this is in the following form, supposing A. Green to be the principal, and B. White, the agent:

"A. Green,
by B. White, his Agent."

A number of other forms may be used: care should be taken, however, by the agent, if he means to exempt himself from personal responsibility, to use clear and explicit words to show that intention, and to express on the contract the quality in which he acts; otherwise he does not bind the party who employs him, but binds himself. A great many lawsuits have arisen in consequence of an indistinct and loose way of stating the quality in which a person signs a bill, and different decisions in different States have been the consequence. It is understood in all these cases that the agent has sufficient authority from his principal to draw or accept bills, or make notes. If the agent, however, has no authority, then the agent himself is liable on the instrument.—*See* Ballou *v.* Talbot, 16 Mass. 461; Rossiter *v.* Rossiter, 8 Wend. 494.

Payment in Money.—A bill of exchange must be for the payment of *money*, but it matters not what denomination the money specified has, whether it is called dollars, francs, pounds sterling, Marc Banco, or any other currency, because the value of each kind can be ascertained. In England negotiable paper must be for the payment of money in specie, and not in bank-notes, and it may be said that the same rule obtains generally in the United States of America, although there are some cases in some States which have extended this rule.—KENT's *Comm.*, Lect. XLIV., p. 45, 46. Hence an order to pay money "in good East India bonds," or to pay "in cash or Bank of England notes," or "in foreign bills," or "in goods," is not a negotiable bill. In New York it has been held that a note payable "in York State bills or specie" was a negotiable paper.—Keith *v.* Jones, 9 Johns. R. 120. So also a note "payable in bank-notes current in the city of New York;" and the court remarked that it would have been a note under the statute if payable in bank-notes generally.—Judah *v.* Harris, 19 Johns. R. 144. But a note payable "in Pennsylvania paper currency, or New York, to be current in the State of Pennsylvania or the State of New York," was held in New York not to be a note for the payment of money, within the statute, because the court say that they may take notice, officially, of their own bank paper being regarded as cash, but not of the value of the paper currency of other States.—Leiber *v.* Goodrich, 5 Cowen, 136. A note made payable in New York in Canada money, is not a negotiable promissory note within the statute.—Thompson *v.* Sloan, 23 Wendell, 71. In Pennsylvania it was held that a note payable to A. B. or order "in bank-notes of the chartered banks of Pennsylvania" was not a negotiable note.—M'Cormick *v.* Trotter, 10 Serg. and Rawle, 94. In New York it was held that a check, drawn in that State, upon a bank in Mississippi, payable in current notes, is not negotiable.—Little *v.* The Phœnix Bank, 7 Hill's R. 359. A note payable to the bearer *in goods* is not negotiable.—Clark *v.* King, 2 Mass. 524. Nor a note payable in "foreign bills."—Jones *v.* Fales, 4 Mass. 245. It is not necessary that the sum payable should be expressed in words; it is sufficient if it be in figures. But it is necessary that the order be for a specific amount. A bill or note for a given sum, "and for whatever else may be due to the payee," is not, even between the original parties, a bill or note.—BAYLEY *on Bills*, p. 12. So an order for "$1000, or what might be due after deducting all advances and expenses," is not negotiable.—Cushman *v.* Haynes, 20 Pick. 132.

Payable absolutely.—A bill must also be payable absolutely and at all events, and the payment must not be made to depend on any uncertainty or contingency, or it will not be considered a bill of exchange. Thus a bill drawn payable "provided the terms mentioned in certain letters shall be complied with;" or "out of rents;" or "on the sale of produce when sold;" or "when the drawer shall come of age;" or "at thirty days after the ship A. shall arrive at B.;" "or when the drawer shall marry;" or "when freight becomes due;" or "if the money be not paid at a certain day by a third party;" or "provided a certain act is done or not done;" or "on the balance of account between the parties;" or "provided, at the maturity of the bill, I am living;" or "when certain carriages are sold by payee;" in all these and similar cases the instrument is not considered a bill of exchange.—BAYLEY *on Bills*, p. 14–17, and STORY *on Bills*, § 46. But where payment only seemingly depends upon a contingency, but in reality is certain and at all events, although the particular time when it will arrive is uncertain, it will be a good bill of exchange in law; *e. g.*, a bill payable at the death of the drawer or of another person, or at a fixed time afterward. A note payable "provided the ship *Mary* arrives," etc., "free from capture and condemnation," is not negotiable.—Coolidge *v.* Ruggles, 15 Mass. 387.

Acceptance.—The person who receives a bill or note thereby contracts with every other party to the bill or note who would be entitled to bring an action on paying it, to present it in proper time to the drawee for acceptance when acceptance is necessary, and to the acceptor for payment when the bill shall have arrived at its maturity and be payable; to allow no extra time for payment to the acceptor; and to give notice in a reasonable time, and without delay, to every such person, of a failure in procuring a proper acceptance or payment. Any default or neglect in any of these respects will discharge every such person from responsibility on account of a non-acceptance or non-payment; and will make it operate generally as a satisfaction of any debt, demand, or value for which it was given.—GREENLEAF *on Evidence*, vol. ii. § 175; Wallace *v.* M'Connell, 13 Peters's R. 136; STORY *on Bills*, § 227.

When Necessary.—If a bill is payable at sight, or in so many days after sight or after demand, or upon any other contingency, or after a certain event, a presentment of the bill to the drawee for acceptance must be made, in order to fix the period of payment. But if the bill is payable *on demand*, or payable at a certain number of days after date, or after any other certain event, it need not be presented merely for acceptance, but only for payment; but if it be presented for acceptance, and acceptance be refused, the holder must give notice of the dishonor, in the same manner as if the bill were payable at sight or after sight.—STORY *on Bills*, § 112, 227, 228. It is, however, usual and advisable to present a bill drawn payable a certain number of days after date, for acceptance.

By whom to be presented.—The presentment for acceptance must be made by the holder or his agent. If the bill is presented by one not authorized to hold the bill, the drawee may not be bound to accept it; but if he does accept it, it is available to the holder. A presentment by any person in possession of a bill or note *bona fide* is sufficient, and no letter of attorney or other writing from the proprietor of the bill or note is necessary to give an authority to another person to make a presentment.—Freeman *v.* Boynton, 7 Mass. R. 483; Bank of Utica *v.* Smith, 18 Johns. R. 230. And a person's having a bill or note in his possession on the day and at the place of payment is presumptive evidence of authority to demand payment.—Agnew *v.* Bank of Gettysburg, 2 Har. and Gill, 478.

To whom to be presented.—The bill must be presented to the drawee, or his authorized agent. If it is drawn on partners, a presentment to one of them is sufficient; but if drawn on several persons not partners, it has been said that it should be presented to each; and if one of the drawees should refuse to accept, the holder would not be bound to take the acceptance of the others alone.—STORY *on Bills*, § 229. The death, bankruptcy, insolvency, or absconding of the drawee will not absolve or excuse the holder from presenting the bill. If he is dead, it should be presented to his personal representatives, his executor or administrator, if any there be, and if not, at his last domicile; and if he has absconded, it should be presented at his last domicile or place of business.—CHITTY and HULME *on Bills*, p. 279, 280; Groton *v.* Dalheim, 6 Greenl. 476. If the holder, upon presentment, should ascertain that the drawee is a married woman, or a person under age, or otherwise incapable of contracting, he is not bound to take their acceptance, but may treat the bill as dishonored.—CHITTY *on Bills*, ch. 7, p. 310.

Time of Presentment.—As regards the time within which a bill ought to be presented for acceptance, no definite rule can be laid down, and the law says only that it must be presented within a reasonable time; but what this reasonable time is, depends upon the peculiar circumstances of each case. If the holder keeps a bill, payable at sight, or payable a certain number of days after sight, in his own possession for an unreasonable time, he makes the bill his own, and loses his right of claim upon the drawer and indorsers. But if the bill (whether it be foreign or domestic) is kept in circulation, and not held by any one holder an unreasonable time, no particular time can be assigned in which it ought to be presented. It is not necessary to send a bill, payable after sight, by the most direct route to the place where it is payable, when it is the common course of trade to send such bills by an indirect route. Thus, where a bill of exchange was drawn in Havana upon London, payable at sixty days after sight, it was held that the holder need not send it directly to London, but might send it to the United States for sale, such being the common course of trade.—Wallace *v.* Agry, 4 Mason, 336. So, where a bill was drawn at New Orleans on Liverpool, it was held that it might be sent to New York first for sale, that being the usual course of business.—Bolton *v.* Harrod, 9 Martin, 326. But if the holder of a foreign bill carry it to the place where it is payable, he ought to present it for acceptance without delay.—Fernandez *v.* Lewis, 1 M'Cord, 322. But if a bill, payable after sight, is negotiated, and thus sent to different places before it is presented for acceptance, the courts have held this delay allowable.—Goupy *v.* Harden, 7 Taunt. 159; Gowan *v.* Jackson, 20 Johns. R. 176. A presentment for acceptance or a demand of payment must also be made at *a proper time.* No drawee is required to accept a bill on any day which is set apart, by laws or observances, or usages of the country or place, for religious or other purposes, and which is not deemed a day for the transaction of secular business, such as Sunday, Fast, or Thanksgiving-day, the Fourth of July, or any other general holiday. Out of New England, Christmas and New-year's day are also generally regarded as holidays. The statutes of several States point out the days, which may be found under the statute laws appended. And in all cases the presentment must be made at a *reasonable hour* of the day. If made at the place of business, it must be made within the usual business hours, or, at farthest, while some person is there who has authority to receive and answer the presentment. If made at the dwelling-house of the drawee, it may be made at any seasonable hour, while the family is up.—CHITTY and HULME *on Bills*, p. 454, 9th ed.; STORY *on Bills*, § 236.

Place of Presentment.—As to the *proper place* where presentment for acceptance should be made, the general rule is, that it is the town or municipality of the domicile of the drawee, without any regard to its being drawn payable generally, or payable at a particular specified place.—CHITTY and HULME *on Bills*, p. 365, 666, 9th ed.; STORY *on Bills*, § 235. If the drawee dwells in one place, and has his place of business in another, whether it be in the same town or in another town, the bill may be presented for acceptance at either place at the option of the holder. If the bill is addressed to the drawee at a place where he never lived, or if he has removed to another place, the presentment should be at the place of his actual domicile, if by diligent inquiries it can be ascertained; and if it can not be ascertained, or if the drawee has absconded, the bill may be treated as dishonored.—CHITTY and HULME *on Bills*, p. 654, 655, 9th ed. It has been held that if the drawee or maker of a note has moved out of the State of his former residence, either into a foreign country or into another State, a presentment to him is not necessary.—Magruder *v.* Bank of Washington, 9 Wheat. R. 598; BAYLEY *on Bills*, p. 198, 199. If, however, an absent drawee has a known agent in the same place, the bill should be presented to the agent.—STORY *on Bills*, § 235. Or if he have still a place of business there, it should be presented there. But if he have neither, then it should be presented at his last place of abode, if it can be ascertained, and the bill is to be considered as dishonored. In the case of the drawee's bankruptcy, it is not necessary to present a bill for acceptance to the assignees of his estate, because accepting bills forms no part of their duty.

Foreign Laws.—As the English law agrees, in almost every particular, with that in the United States, we shall here point out only the principal and essential rules which prevail on the Continent of Europe, among the different nations, in regard to bills of exchange and promissory notes. The most important nations are the French and the German. The French Commercial Code on bills and notes has been adopted in a number of other countries, viz. Belgium, Modena, Sardinia, Lucca, Poland, Greece, Geneva, Hayti, Ionian Islands, Turkey and Wallachia, the Papal States, Luxemburg, Tessin, and Wallis, with but slight variations here and there; so that when we speak of the French law, it will equally apply to all these countries. A new and uniform code of laws regarding bills of exchange and promissory notes has been introduced, since 1849, throughout Germany (with the exception of the small States of the Grand Duchy of Luxemburg, the Duchy of Limburg, and the principality of Lichtenstein), so that when we speak of the German law, it will apply to every one of the thirty-eight States of Germany (excepting the above-named three), including the whole of Austria and her crown-lands, and the whole of Prussia, Wurtemberg, Bavaria, Hanover, Saxony, Brunswick, Baden, etc., containing more than sixty millions of people, and the important commercial cities of Hamburg, Bremen, Frankfort-on-the-Maine, Lubeck, Leipsic, Berlin, Vienna, Trieste, Brunswick, Stuttgart, etc. There exist yet distinct codes on bills and notes in Russia, Holland, Copenhagen, Spain, Portugal, at Basle, and St. Gallen, which we shall notice where they essentially differ from other codes. The law on the Continent of Europe, in regard to legal remedies on bills and notes, is more stringent than in regard to other civil contracts, in so far as it allows personal imprisonment for a breach of such a commercial engagement, be it as drawer, acceptor, or indorser; whereas no personal arrest and imprisonment can be had against a debtor for an ordinary debt. When we use the expression, that a party is liable according to the laws of bills of exchange, it must be understood, also, to mean that these extreme legal remedies of coercion may be applied to him. The time of imprisonment differs in different States, and varies according to the amount of indebtedness. The French law allows personal imprisonment not exceeding one year, if the debt does not exceed 50 francs; two years if the debt does not exceed 1000 francs; three years for a bill of from 1000 to 3000 francs; and four years for a debt of from 3000 to 5000 francs; and five years for any sum beyond this. But persons of the age of seventy are entirely exempted from arrest, and parties to promissory notes (*billets à ordre*), if not merchants, except the notes were given on account of some mercantile transaction, traffic, exchange, banking, or brokerage, are also free from personal arrest in France. In Austria the imprisonment for a debt on bills can not exceed one year, in Prussia five years; other German States differ in regard to time, but they are generally less rigorous than the French law, and exempt from arrest, besides persons of the age of seventy, various others; for instance, relations by blood or otherwise, military persons, public officers, etc. The creditor, however, has to bear the expense of board for the debtor, and if he neglects to provide for it, the debtor is released and can not be arrested again.

Requisites of Bills of Exchange.—A bill of exchange is called in French *lettre de change;* in Italian, *lettera di cambio;* in German, *wechsel*, or *gezogener wechsel* (a Drawn Bill, to distinguish it from a promissory note, which is called a Dry Bill, *trockner wechsel*).—*See* PROMISSORY NOTES. The essential requisites of a bill of exchange in Germany are (*Art.* 4): 1. That the word "bill of exchange" (*wechsel*) be contained in the instrument, or, if written in a foreign language, the expression corresponding to it. 2. The specification of the sum of money. 3. The name of the person or firm to whom or to whose order it is payable. 4. The statement of the time of payment; and this can be made only on a day certain, at sight (*a vista*, etc.), or at a certain time after sight, or at a certain day after date, or at a certain fair (*messe*). 5. The signature of the drawer, by his name or firm. 6. The statement of the place and date of month and year where and when it was drawn. 7. The name of the person or firm on whom it is drawn (*drawee*). 8. The specification of the place of payment; if no place is mentioned, the place of the drawee is to be taken as the place of payment and the domicile of the drawee. The bill must be for the payment of a sum of money, and not for goods or State stocks; nor can it be made payable with interest, or with any condition attached to it. The Code of the Kingdom of the Two Sicilies allows also payment in goods. The bills of exchange payable to bearer (*au porteur*) are not admissible, either in Germany or France. The French law (*Art.* 110) requires that bills of exchange shall be drawn from one place on another place; that they shall be *dated*, and that they specify: 1. The sum to be paid. 2. The name of the person who is to pay the same. 3. The time *when*, and the place where, the payment is to be made. 4. The value furnished, whether in money, in merchandise, in account, or in any other manner. They are drawn to the order of a third person, or to the order of the drawer himself. If they be drawn in sets, 1, 2, 3, etc., it must be so expressed.

In Germany, every person who can lawfully bind himself by a contract may become a party to a bill of exchange. The age of majority is, however, different in different States; in Prussia it commences with the completion of the twenty-fourth year of age; in Austria, Bavaria, Saxony, Baden, and in those States on the Rhine where the French Civil Code prevails, it commences with the twenty-first year of age, and the same is the case in France and Turkey. In Sardinia, only merchants can draw inland bills, but any body may draw foreign bills. The Russian law excludes only women who do not carry on commerce. The Code of the Kingdom of the Two Sicilies excludes women in general. The Code of Copenhagen makes the capability of becoming a party to a bill of exchange general, but confines it only to bills of exchange, and does not include promissory notes. The Spanish Code of Commerce of 1829, § 434, grants to other persons than merchants the right of also becoming parties to bills of exchange, but only in cases where they have drawn or accepted bills on account of a mercantile transaction. Parma and Tuscany grant only to merchants the right of becoming parties to bills. The Code of Basle of 1809, § 53, requires that a person's name be entered in the book of mercantile firms, called the book of *Raggiones*, which is in many cities kept either at the exchange or the city-hall. The law of Basle requires the sum payable to be stated in letters, and not merely in figures; the laws of Russia and Copenhagen require the sum to be stated both in letters and in figures; and the law of St. Gallen provides that any erasure or alteration of the sum, or any other requisite part of the bill, renders the bill void, and entitles the drawee to refuse payment. By the law of Copenhagen, the bills payable to bearer (*lettres au porteur*) are allowed, but not by the law of Germany or France.

By the French law (*Art.* 129) a bill of exchange may be drawn payable at sight, or at one or more days, or months, or usances, after sight or after date; or on a day fixed, or at or during a fair (*en foire*); and (*Art.* 132) the usance is thirty days, which run from the day after the date of the bill; and (*Art.* 133) a bill payable at the fair is at maturity on the evening preceding the day fixed for the termination of the fair, or the day after the fair, if it continue only one day. The German law (*Art.* 4, No. 4) does not now allow bills drawn in Germany on a foreign country, or inland bills, to be drawn at usance (*a uso*, *mezzo uso*, *doppio uso*, i. e. at single, half, or double usance), or *a piacere*, "on demand" (with the exception of Austria, which allows the latter). If foreign bills are drawn upon any German State at a usance, the time of maturity (*échéance*, *scandenza*) is to be determined by the foreign law, viz. that of the place where the bill is drawn, which law also determines whether the *usance* is counted from the day of presentation, or from the day of drawing. The German law does not admit either of fixing the time by the happening of certain events, or by certain periods of time, as "on Easter," etc. The law in Turkey does *not* admit *usance* (*Art.* 87), differing in this respect from the French law. The law of Norway (of 1842) provides (*Art.* 1) that bills shall not be drawn beyond the time of six months, or, if payable out of Europe, not beyond one year. The law of Copenhagen appoints still shorter periods.

Indorsement. — In Germany, the law in regard to indorsement (*indossament*, *endosso*, *giro*) is, that the payee can transfer a bill of exchange upon another person by indorsing it either in blank or in full, and the indorsee will have the same rights against all other antecedent parties as the indorser; and the payee may indorse, and the bill is negotiable, although the drawer did not make it payable to order. If the drawer does not wish to make it negotiable, he must insert the words "not to order" (*nicht an ordre*), or something similar. The mere striking out of the word "order" in the printed formula, and adding the word "self" to the name of the payee, will not operate as forbidding the negotiability. The blank indorsement must be put on the back of the bill, or of a copy of it, or on a piece of paper, commonly called "rider" (*alonge*), connected with, and joined to the bill or copy. Every holder may fill up the blank indorsement, or may also indorse it further in blank, and is answerable to all subsequent holders, unless he adds the words "without guaranty" (*ohne gewährleistung*, *ohne obligo*) or some similar expression, which corresponds to our "without recourse." If the words "not to order" (*nicht an ordre*), or a similar expression, are added to an indorsement, and the bill is yet indorsed or handed over to other persons, these subsequent holders can have no recourse against such an indorser. But if the words *in procura*, "for collecting" (*zur einkassirung*), are added to an indorsement, then such an indorsement does not transfer the property in the bill, but empowers such indorsee to indorse it further for the same purpose, and also to have the bill protested, and to give notice to his antecedent indorser, and to commence legal proceedings for non-payment. The laws of Copenhagen (Denmark), Holland, Russia, and Sweden, also allow blank indorsements. But the French law requires (*Art.* 137 of the Code) that, in order to pass a valid title to a bill, the indorsement should be dated, and the name of the indorsee and the value should be stated, and if further negotiability be intended, the words "to order" should be added. A blank indorsement is held to be a mere "*procura* indorsement," *i. e.* for the purpose of collecting. The Spanish law, which also prevails in Mexico and South America, holds the blank indorsement of no effect.

The French and Russian laws punish the antedating of an indorsement like forgery. But the Spanish and Dutch laws regard it as forgery only when it is done for an evil purpose. The law of Portugal requires the date to a blank indorsement. The French law, and all the countries following the same, the Russian law, and that of St. Gallen, hold only bills made payable to order as negotiable and transferable. The Spanish law (of Bilbao) requires the indorsement on the back of the instrument. The Sardinian law regards the clause "without recourse," "without *obligo*," as not written at all; and if the *drawer* should add these words to his name, the instrument is not regarded as a bill. The law in Germany is (*Art.* 16), when a bill has been indorsed after the lapse of time accorded to protesting for non-payment, that the indorsee acquires the rights springing from the acceptance against the drawee, and the right of recourse against those who indorsed it after the lapse of this period. But if the bill has been protested for non-payment before the indorsement is made, then the indorsee has only the rights which his indorser has against the acceptor, the drawer, and the indorsers up to the time of protest. Nor is such an indorser after protest, in such a case, liable according to the laws on bills, but only according to the common law. The Russian law makes a like distinction. The Dutch and Portuguese laws regard an indorsement after maturity only as a cession of rights. The Sardinian law regards it only as an indorsement for procuration. The French law is not decided on this point, and the courts regard such an indorsement generally as admissible, but sometimes as a full and good indorsement, and then again only as one for procuration, *i. e.* power of attorney. In Italy it is regarded as a *procura* indorsement, *i. e.* as a power of attorney.

Presentation for Acceptance.—The German law (*Art.* 18) provides that the holder of a bill is entitled to present the bill for acceptance at once, and, if not accepted, to have it protested for non-acceptance. But bills payable at fairs (*mess-wechsel*, *cambia regularia vel feriarum*) can be presented only at the time fixed by the law for presentation. The mere possession of a bill entitles a person to present it, and to have it protested, in case of dishonor. But (*Art.* 19) the holder of a bill, payable at sight, or a certain time after sight, must present it at least within *two* years from the date of its being drawn; and if a period of presentation has been prescribed either by drawer or indorser, the bill must be presented within that period, or the holder will lose his right of recourse against drawer and indorser as debtors on account of the bill. The law of Russia fixes the time within which bills at sight or after sight must be presented at one year, unless the drawer has prescribed a period; but in case of neglect to present the bill, it will still be good as evidence of indebtedness for the ordinary period beyond which debts become outlawed. The laws of other countries fix the time of presentation for acceptance or payment according to the distance from the place of drawing to the place of payment. The French law (*Art.* 160) requires that the holder of a bill of exchange, drawn from the Continent and the European islands, and payable in the European possessions of France, whether at sight, or at one or more days, months, or usances after sight, must demand payment, or acceptance, within six months from its date, under the penalty of losing his remedy against the indorsers, and even against the drawer, if the latter had made provision for the payment of the bill in the hands of the drawee. A delay of eight months is allowed for the presentment of a bill drawn from the ports of the Levant, and northern coast of Africa, on the European possessions of France, and, reciprocally, from the Continent and European islands on the French establishments in the Levant, and northern coast of Africa. A year is allowed for the presentment of bills drawn on the western coast of Africa, as far as, and including, the Cape of Good Hope. A year is also allowed for the presentment of bills of exchange drawn from the American continent and West India islands on the European possessions of France, and, reciprocally, from the European continent and islands on the French possessions or establishments on the western coast of Africa, on the American continent, and West India islands. Two years is allowed for the presentment of bills of exchange drawn from the East Indian continent and islands on the European possessions of France, and, reciprocally, from the European continent and islands on the French possessions or establishments on the East Indian continent and islands. The delays above mentioned, of eight months, one year, and two years, are allowed to be doubled in time of maritime war. If the drawer has not made provision for payment with the drawee, the former will be held liable, although a protest has been made after the time fixed by law.

Of Acceptance.—The law of Germany (*Art.* 21) requires that acceptance of a bill shall be made in writing on the bill itself; and if the drawee writes but his name or that of the firm on the face of the bill, it is considered an absolute acceptance, and every declaration written on the bill and signed is taken as an absolute acceptance, unless the drawee expressly states in it that he will not accept, or will accept only on certain conditions. The acceptance, once made, can not be taken back. The French law (*Art.* 122) requires that the acceptance of a bill of exchange must be signed; it is expressed by the word "accepted" (*accepté*); it is dated, if the bill be at one or more days or months after sight. And in the latter case, the want of a date to the acceptance renders the bill payable at the term specified in it, counting from the date when it was drawn. The same rule prevails in those countries which have formed their laws on bills after the French law, which countries have been specified before; it also obtains by the law of Copenhagen. By the Spanish law, such a bill runs from the day on which it might have been presented, according to the ordinary course of the post. The French law (*Art.* 124) enacts that the acceptance can not be conditional, but it may be limited in regard to the sum accepted. But in this case the holder is bound to have the bill protested for the deficiency. And (*Art.* 125) a bill of exchange must be accepted on its presentment, or, at the latest, within twenty-four hours afterward. After the twenty-four hours have elapsed, if it be not returned, accepted or not accepted, he who has retained it is liable in damages to the holder. The German law (*Art.* 20) provides, that if a drawee refuses acceptance, or refuses to date his acceptance, the holder must have the bill protested within the period prescribed for presenting a bill (*i. e.* two years from date or the time prescribed by drawer or indorser), or he will lose his legal claim against indorser and drawer. The day of protest is, in that case, taken for the day of presentation. If no protest has been taken, and the acceptor has omitted to date his acceptance, the maturity of the bill is counted from the last day of the period within which it ought to have been presented. The law of Portugal and Russia and St. Gallen makes it generally obligatory, and the law of Holland makes it obligatory only upon the holder, who presents the bill for acceptance, to have the bill protested, absolutely and without delay. The Spanish law (Law of Bilbao, chap. 13, § 35, which also prevails in Mexico and South America) provides that the drawee who gets the bill into his hands with the consent of the holder, and lets the day of presentation pass by without returning it, is obliged to pay, that is, it is deemed a silent acceptance; and if the acceptance is made in writing, it is required (Bilbao, chap. 13, § 33) that, besides the name of the drawee, also the word "accepted" be added. The law of Bilbao (chap. 13, § 32) has yet the peculiar provision, that, when bills at sight are accepted, only one-half of the name of the firm need be signed. By the French and Portuguese laws, a similar word with "accepted" may be substituted; but it is a mooted question whether the word *vu*, "seen," is sufficient. The laws of Copenhagen and Portugal also allow, like the French and German laws, the acceptance for a smaller sum than the face of the bill states, and oblige the holder to have the bill protested for the rest, but consider all other conditions as not written. The Russian law also requires the holder, in such a case, to have the bill protested, or he will lose his right of recourse against the other parties. In Germany, the law requires the drawee to declare at once, without delay, whether he will accept or not. But the law of France, and of those countries which have been named before as having followed the French law, allows the drawee twenty-four hours' time, as stated before. The law of Copenhagen also allows twenty-four hours for consideration, and requires the protest only on the next day following. The law of Tessin allows three days for consideration, and the law of Russia grants time, for taking protest and sending it, till to the second post.

Proceedings upon Non-acceptance.—When acceptance has been refused, or when the acceptance is qualified, or for a smaller sum than stated in the bill, the law in Germany (*Art.* 25) obliges the indorsers and drawer, upon receiving the protest for non-acceptance, to give sufficient security that payment of the whole sum, or of so much as has not been accepted, shall be made on the day the bill falls due for payment, together with the amount of cost. The sum may likewise be deposited in some court of justice, or other authorized institution. (*Art.* 28.) The deposited security is restored if the bill should afterward be fully accepted, or if the holder or other person who takes recourse does not commence a suit within a year from the maturity of the bill, or if the bill has been paid. The French law is the same with that in Germany. But the law of Denmark, Sweden, and Norway, like the English and American law, allows immediate recourse against drawer and indorsers for payment if the bill has not been accepted. The law of Portugal follows the French law, but gives the holder also the right to demand from the drawer that he assign and hand over to him all his claims against the drawee, and all the papers relating thereto. The German law further provides, that when the bill has been accepted, and the acceptor stops payment or goes into bankruptcy, or if an execution against the property of the acceptor has not been satisfied, or his person has been arrested for non-payment—in all these cases, the holder of a bill may demand security, if the acceptor has not given security, and a protest has been taken in consequence. The French law (*Art.* 163) goes yet farther, and provides that, if the acceptor fails before the day of payment, the bill may be considered as due, and recourse may be had for payment against the drawer and indorsers; and that if the drawer of a promissory note, or the acceptor of a bill, or the drawer of a non-accepted bill, shall fail, the other persons liable on the instruments shall be obliged to give security (Law of 28th May, 1838).

Time of Payment.—The following days have been fixed by law at the principal cities: In Brunswick it is law that no protest for non-acceptance can be had on a bill drawn on the Brunswick fair before Monday in the first week of the fair, and the day of payment of these bills is the Wednesday in the first week of the fair. In Frankfort-on-the-Maine it has been enacted that bills which are drawn payable at a fair, without specifying the week of the fair, must be paid or protested on Tuesday of the third week, *i. e.* on the last day of the fair. In Austria, in the countries where the general civil code prevails, such bills fall due, if the fair last but one day, on this day; if it last several days, but not more than eight, on the day before the legal termination of the fair; and if the fair last longer than a week, on the third day before the legal termination of the fair. In Hungary such bills fall due, if the markets last but one day, on this day; if they last from two to eight days, on the last day of the market; if the markets last longer than eight days, on Wednesday of the second week. In Leipsic bills that are drawn payable at the Michaelmas fair fall due on the Thursday after the fair has been opened by the ringing of the bell, and bills payable at the New-year's fair fall due on the 12th of January, and if this should fall on Sunday, then on the next following day. According to the law of Portugal and Spain, bills drawn payable at the fairs fall due on the last day of the fair. The law of France (*Art.* 130) provides that a bill drawn at sight is payable on its presentment, and (*Art.* 131) that the maturity of a bill, at or after a certain time after sight, is determined by the date of the acceptance, or by that of the protest for non-acceptance. (*Art.* 132.) The usance is thirty days, which run from the day after the date of the bill. The months are according to the regulation of the Gregorian calendar. (*Art.* 133.) A bill payable at the fair (*en foire*) is at maturity on the evening preceding the day fixed for the closure of the fair, or the day of the fair if it continue only one day. The law of Copenhagen counts the day when the bill is dated, and grants to the acceptor *eight* days of grace, and to the holder *ten* days of grace (called in Italian *giorni di rispetto*). The law of Russia (§ 66) allows on bills at or after sight *three* days of grace, and on other bills *ten* days of grace, and the same on promissory notes. The law of St. Gallen allows *six* days of grace on bills and promissory notes. The German law (*Art.* 38) enacts that the holder *must* not refuse an offered part-payment, even though the bill has been accepted for the whole sum. The French law (*Art.* 156) states that the payments made on account, as part of the amount of a bill of exchange, operate in discharge of the drawer and indorsers. The holder is bound to have the bill protested for the balance.

FORMS OF FOREIGN BILLS OF EXCHANGE.

French.

Lille, le 28 *Septembre*, 1856. *Bon pour* £158 9 *Sterlings.*

Au vingt-cinq Décembre prochain, il vous plaira payer par ce mandat à l'ordre de nous-mêmes la somme de cent cinquante-huit livres sterlings 9 *shellings valeur en nous-mêmes et que passerez suivant l'avis de*

____

A Messieurs ______________________
à Londres.

German.

Nürnberg, den 28 *October*, 1856. *Pro* £100 *Sterling.*

Zwei monate nach dato zahlen sie gegen diesen Prima Wechsel an die Ordre des Herrn ______________________
Ein Hundert Pfund Sterling den Werth erhalten. Sie bringen solche auf Rechnung laut Bericht von

____

Herren ______________________
London.

Dutch.

Grouw, den 1*st November*, 1856. *Voor* £59 17 6

Twee maanden na dato gelieve UEd te betalen voor dezen onzen prima Wisselbrief de secunda niet betaald zynde aan de ordre van de Heeren ______________ *negen & vyftig Ponden zeventien schelling en zespences sterling, de waarde in rekening UEd stelle het op rekening met of zonder advys van*

____

de Heer ______________
te London.

Italian.

Livorno, le 25 *Settembre*, 1856. *Per* £500 *Sterline.*

A Tre mesi data pagate per questa prima de Cambio (una sol volta) all' ordine ______________, *la somma di Lire cinque cento sterline valuta cambiata, e ponete in conto M. S. secondo l'avviso Addio*

____

Al ______________
Londra.

Spanish.

Malaga, á 20 *de Setb^{re} de* 1856. *Son* £300.

A noventa dias fecha se serviran V^{s} mandar pagar por esta primera de cambio á la orden de los S^{res} ______________ *Tres cientas libras Esterlinas en oro o plata valor recibido de dhos S^{rs} que anotaran valor en cuenta segun aviso de*

____

A los S^{res} ______________
Londres.

Portuguese.

£ 600 *Esterlinas.* *Lisbon, aos* 8 *de Dezembro de* 1856.

A Sessenta dias de vista precizos pagará V ______________ *por esta nossa unica via de Letra Segura, à nos ou à nossa Ordem a quantia acima de Seis Centas Livras Esterlinas valor de nos recebido em Fazendas, que passera em Comta segundo o aviso de*

____

Ao Sen^{r} ______________
Londres.

Swedish.

Bjorneberg, den 23 *September*, 1856. *For* £*Ster.* 100.

Nittio Dagar efter dato behagade H. H. emot denna prima Wexel (secundo obetald) betala till Herr ______________ *elle ordres Etthundra Pund Sterling som stalles i rakning enligt avis.*

____

Herrar ______________
London.

Danish.

Kjobenhavn, 9 *December*, 1856. *Rbae* 4000.

Tre maaneder efter dato behager de at betale denne Prima Vexel, secunda ikke, til Herr ______________ *eller ordre med Fire Tusinde Rigsbank Daler, Valutta modtaget og stilles i Regning ifölge advis.*

____

Herrer ______________
London.

Proceedings upon the Non-payment of Bills.—In order to entitle the holder to redress, it is required of him, in Germany, that he present the bill for payment, and that he have the bill duly protested. The protest *may* be made on the day of payment, but it *must* be made, at latest, on the second secular day after the day of payment. The presentation of the bill for payment may likewise be made within this period of two days, and the holder would not lose his rights, even if he had waited with the presentation to the last day of protest, and the drawee were yet solvent on the day the bill fell due. But a protest before the day of maturity is not good, although payment would not have been made on the day of maturity. The law of Basle, St. Gallen, Zurich, Russia, Spain, and Portugal, requires that the bill be protested on the day of maturity, and up to a certain hour of that day (the latter provision is not law in Portugal). The law of France (*Art.* 162) and Holland (§ 179), however, requires protest on the day after the day of maturity (*lendemain*); and if this day be a legal holiday, the protest is made on the following day. If a bill is made payable at a place different from the domicile of the acceptor, and a person there is specified, the German law requires that it must be presented to such person; and if no person be specified, it must be presented to the acceptor at the place specified; and, in case of non-payment, it must be protested there. If the proper protest is neglected the holder loses his recourse, not only against the drawer and indorsers, but also against the acceptor. But in no other case is the acceptor discharged from his liability by the German law.

Notes and Bills lost or destroyed.—If a promissory note or bill of exchange has been lost or destroyed, the holder must, nevertheless, make demand of payment at its maturity, and, in case of non-payment, give due notice to the antecedent parties. But whether the promisor or acceptor and indorsers can be compelled to make payment, without a delivery or production of the note or bill, is a question on which the authorities in America differ. In England it has been held that the holder can not recover in a court of law, but only in a court of equity, on a negotiable note or bill lost or destroyed. A distinction is had between negotiable and non-negotiable instruments, or those which have been specially indorsed, so that no person but the holder, who sues, could have acquired a right to sue thereon. In the latter cases, the note or bill may be recovered at law. And in an action on a lost note, where the evidence does not prove affirmatively that it is negotiable, the presumption in New York is held to be that it is not negotiable, and the plaintiff is therefore entitled in such case to recover. If a bill or note transferable by delivery be lost, the loser should give immediate notice thereof to the drawee, or persons who are to pay it; and if such persons afterward pay it to a person who has not taken it *bona fide*, or paid value for it, they will be responsible to the loser. If the note or bill lost is negotiable and transferable when lost, it has been held in some States that a suit at law is maintainable against the maker, in others that it is not; and, again, in others it has been held that the holder may recover at law, provided he executes a proper instrument of indemnity. It was held in Massachusetts that, where a note has been stolen from the payee, he may still prove his demand against the maker, and enforce payment; the court in such case prescribing the bond to be given to the maker. But if a bill or note be destroyed by fire or other accident, an action may be brought thereon for recovery.—Bayley *on Bills*.

Forged Instruments.—When the signature of the drawer of a bill of exchange is forged, and the bill is accepted by the drawee, the latter will be bound to pay the same to a *bona fide* holder; and if he has paid it, he can not recover back the money from the person to whom he paid it, although he can not recover it back from the reputed drawer. The same doctrine applies to an acceptor *supra protest*, as to the signatures of the parties for whose honor he accepts. But if the signature of the payee, or of any other indorser, be forged, and even if the drawer is at the same time payee and indorser, and his signature be forged, in these cases the acceptor is not bound to know their signatures, and if the indorsement under which the holder claims is forged, the acceptor is not bound to pay the bill; and if he does, the real owner is entitled to recover the amount from him and the holder. If a person not a party to a bill pays it for the acceptor, or indorser, whose name is forged, he may recover back the money from the person to whom he paid it, if he gives notice thereof on the same day to the holder. But if he does not discover it or give notice until the next day, then he is not entitled to recover back the money from the holder. But if an indorser pays the bill under a forged indorsement of the name of a prior indorser, or of the drawer, he can not recover back the money from any subsequent indorsee to whom he paid it, because his indorsement admits the genuineness of the antecedent indorsements and that of the drawer.—Story *on Bills*, § 451. In cases of promissory notes, if the signature of the payee, or other indorser, under whom the actual holder claims, is forged, and the maker pays the note, such payment to the holder will be null and void, and he will be entitled to recover back the money from the holder. So, if the payee should pay the note to the holder under a subsequent forged indorsement, he may likewise recover back the amount. But if a subsequent indorser should pay the amount to the holder, where the signature of the maker or of a prior indorser is forged, he could not recover it back, because every indorser warrants the genuineness of the signatures of the antecedent parties, both of the indorsers and maker.—*See* Story *on Notes*, § 387. Therefore, before the maker or an indorser pays a note, he should be satisfied that the signature of the payee or other indorser under whom the actual holder claims is a genuine signature, for if it be a forgery, the payment would be a nullity.

Damages to be Recovered.—When the holder of a bill of exchange has complied with all the requisitions of the law, upon the dishonor of a bill, either for non-acceptance or non-payment, he is entitled to an immediate recourse against the drawer, acceptor, and indorsers or guarantors, and to a full reimbursement of all the damages sustained by him. These different parties are liable according to the law of the place where they entered into their respective contracts; namely, the drawer according to the law of the place where the bill is drawn; the acceptor according to the law of the place of acceptance; and the indorsers and guarantors according to the law of the place where the indorsements and guaranties were made. The acceptor, upon non-payment of the bill, is ordinarily liable to the holder only for the principal sum, and the expenses of the protest, and interest thereon from the time of the maturity of the bill, and he is not liable for re-exchange. But if the acceptor has expressly or impliedly agreed with the drawer, or with any indorser, for a valuable consideration, to pay the bill at its maturity, and has failed so to do, and the drawer or indorser has been compelled to take up the bill, and pay damages and other expenses, he may perhaps be liable to the drawer or indorser for all such damages and expenses.—*See* Story *on Bills*, § 398, and Bayley *on Bills*, p. 380. The drawer and indorsers of bills of exchange are liable to the holder for the principal sum, and interest, and the damages and expenses incurred by the dishonor. The interest is due according to the legal rate allowed at the place where the bill is payable; and the expenses are the ordinary cost of protest and other incidental expenditures, such as postage, commission, and brokerage, if the party has been obliged to pay the holder, in consequence of the acceptor's refusal. The damages, in the absence of any positive rule, which, however, exists in nearly all the States of the Union, are ascertained by the rate of re-exchange between the country where the bill is accepted and the country where the bill is drawn, in case of the drawer; and between the former and the country where the bill is indorsed, in the case of the indorser. If the bill has been in part paid by the acceptor, damages and interest are to be deducted in proportion. By re-exchange is meant the amount for which a bill can be purchased in the country where the acceptance is made, drawn upon the drawer or indorser in the country where he resides, which will give the holder of the bill protested a sum equal to the amount of that bill at the time when it ought to have been paid, together with his necessary expenses and interest. The full indemnity of the holder, hence, requires him to draw for such an amount as will make good the face of the bill, together with interest from the time it ought to have been paid, and the necessary charges of protest, postage, and broker's commission, and the current rate of exchange at the place where the bill was to be demanded or payable, or the place where it was drawn or negotiated. The law does not require an actual re-drawing, but it gives the holder the right to recover what would be the price of another new bill, with interest, and the necessary expenses, including the amount, or price, of the re-exchange. But the indorser of a bill is not entitled to recover of the drawer the damages incurred by the non-acceptance of the bill, unless he has paid them, or is liable to pay them.—3 Kent's *Comm.*, Lect. XLIV.

Bills of Exchange drawn in the United States.—In order to avoid the difficulty of ascertaining what is the true rate of exchange, most of the States of the Union have provided by a statute a certain fixed sum, in the place of damages and re-exchange. The law in the different States, in this respect, is as follows:

Maine.—The damages on bills of exchange negotiated in Maine, payable in other States, and returned under protest, are as follows (R. S. 510): 1. New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, 3 per cent. 2. New Jersey, Pennsylvania, Delaware, Maryland, Virginia, District of Columbia, South Carolina, Georgia, 6 per cent. 3. North Carolina, Alabama, Arkansas, Florida, Illinois, Indiana, Iowa, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Ohio, Tennessee, Texas, Wisconsin, 9 per cent. The damages on foreign bills of exchange returned under protest are 10 per cent.

New Hampshire.—No statute in force in this State allowing damages on foreign or domestic bills returned under protest.

Vermont.—There is no statute in this State in reference to damages on protested foreign or domestic bills of exchange.

Massachusetts.—The damages on bills of exchange negotiated in Massachusetts, payable in other States, and returned under protest, are as follows: 1. Bills payable in Maine, New Hampshire, Vermont, Rhode Island, Connecticut, or New York, 2 per cent. 2. Bills payable in New Jersey, Pennsylvania, Maryland, or Delaware, 3 per cent. 3. Bills payable in Virginia, District of Columbia, North Carolina, South Carolina, or Georgia, 4 per cent. 4. Bills payable elsewhere within the United States or the Territories, 5 per cent. 5. Bills for one hundred dollars or more, payable at any place in Massachusetts not within seventy-five miles of the place where drawn, 1 per cent. *Foreign Bills.*—1. Bills payable, returned under protest, beyond the limits of the United States (excepting places in Africa beyond the Cape of Good Hope, and places in Asia and the islands thereof) shall pay the current rate of exchange when due, and 5 per cent. additional. 2. Bills payable at any place in Africa beyond the Cape of Good Hope, or any place in Asia or the islands thereof, shall pay damages, 20 per cent.

Rhode Island.—The damages on bills of exchange, payable in other States, and returned under protest, are uniformly 5 per cent. The damages on *foreign bills of exchange* returned under protest are 10 per cent.

Connecticut.—The damages on bills of exchange negotiated in Connecticut, payable in other States, and returned under protest, are as follows: 1. Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York (interior), New Jersey, Pennsylvania, Delaware, Maryland, Virginia, District of Columbia, 3 per cent. 2. New York city, 2 per cent. 3. North Carolina, South Carolina, Georgia, and Ohio, 5 per cent. 4. All the other States and Territories, 8 per cent. There is no statute in force in Connecticut in reference to damages on foreign bills of exchange.

New York.—The damages on bills of exchange negotiated in this State and payable in other States, and returned under protest for non-acceptance or non-payment, are as follows: 1. Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, District of Columbia, and Ohio, 3 per cent. 2. North Carolina, South Carolina, Kentucky, and Tennessee, 5 per cent. 3. Alabama, Arkansas, Florida, Illinois, Indiana, Iowa, Louisiana, Mississippi, Missouri, Michigan, Texas, Wisconsin, 10 per cent. The damages on foreign bills, returned under protest, are 10 per cent.

New Jersey.—There is no statute in force in reference to damages on protested bills of exchange, either foreign or domestic.

Pennsylvania.—The damages on bills of exchange negotiated in this State, payable in other States, and returned under protest, are as follows: 1. Upper and Lower California, New Mexico, and Oregon, 10 per cent. 2. All other States, 5 per cent. The damages on foreign bills returned under protest are as follows (May 13, 1850): 1. Payable in China, India, or other parts of Asia, Africa, or islands in the Pacific Ocean, 20 per cent. 2. Mexico, Spanish Main, West Indies, or other Atlantic islands, east coast of South America, Great Britain, or other parts of Europe, 10 per cent. 3. West coast of South America, 15 per cent. 4. All other parts of the world, 10 per cent.

Delaware.—There is no statute in force in reference to damages on domestic bills. The damages upon bills of exchange drawn upon any person in England or other parts of Europe, or beyond the seas, and returned under protest, are 20 per cent.

Maryland.—The damages on bills of exchange negotiated in Maryland, payable in other States, and returned under protest, are uniformly 8 per cent. The claimant is entitled to receive a sum sufficient to buy another bill of the same tenor, and 8 per cent. damages on the value of the principal sum mentioned in the bill, and interest from the time of protest, and costs. *Practice* includes the District of Columbia in this law of damages (Act of Assembly, 1785, c. 38), but it is questionable whether the District be within the law, which provides only for *States.* *Foreign Bills.*—The damages on these, returned under protest, are 15 per cent. The claimant is to receive a sum sufficient to buy another bill of same tenor, and 15 per cent. damages on the value of the principal sum mentioned in the bill, and interest from the time of protest, and costs.

Virginia.—Damages on bills of exchange negotiated in Virginia, payable in other States, and returned under protest, are uniformly 3 per cent. The damages on *foreign bills of exchange* returned under protest are uniformly 10 per cent.

North Carolina.—The damages on bills of exchange negotiated in this State, payable in other States, and returned under protest, are uniformly 3 per cent. The damages on *foreign bills of exchange* returned under protest are as follows: 1. Bills payable in any part of North America, except the northwest coast and the West Indies, 10 per cent. 2. Bills payable on Madeira, the Canaries, the Azores, Cape de Verd Islands, Europe, and South America, 15 per cent. 3. Bills payable elsewhere, 20 per cent.

South Carolina.—The damages on bills of exchange negotiated in South Carolina, payable in other States, and protested for non-payment, are uniformly 10 per cent., together with costs of protest. A bill drawn in South Carolina, payable in another State, is deemed a foreign bill, and damages may be claimed, although such bill be not actually returned after protest. *Foreign Bills.*—The damages on foreign bills of exchange negotiated in South Carolina, are: 1. On bills on any part of North America other than the United States, and on the West Indies, 12½ per cent. 2. On bills drawn on any other part of the world, 15 per cent.

Georgia.—The damages on bills of exchange negotiated in Georgia, payable in other States, and returned under protest, are uniformly 5 per cent. The damages on *foreign bills of exchange* returned under protest are 10 per cent.

Alabama.—The damages on bills of exchange negotiated in Alabama, payable in other States, and returned under protest, are uniformly 15 per cent. Bills payable within the State of Alabama, 5 per cent. The damages on *foreign bills of exchange* returned under protest are 20 per cent.

Arkansas.—The damages on bills of exchange drawn or negotiated in Arkansas, expressed to be for value received, and protested for *non-acceptance*, or for *non-payment* after non-acceptance, are as follows (R. S. 1848, c. 25): 1. If payable within the State, 2 per cent. 2. If payable in Alabama, Louisiana, Mississippi, Tennessee, Kentucky, Ohio, Indiana, Illinois, or Missouri, or at any point on the Ohio River, 4 per cent. 3. If payable in any other State or Territory, 5 per cent. 4. If payable within either of the United States, and protested for non-payment, *after acceptance*, 6 per cent. 5. The damages on bills of exchange, expressed *for value received*, and payable beyond the limits of the United States, 10 per cent.

California.—By an act passed April 16, 1850, the damages on protested bills of exchange drawn or negotiated in California were fixed as follows: 1. If drawn upon any person or persons east of the Rocky Mountains, and within the limits of the United States, 15 per cent. 2. If drawn upon any person or persons in Europe, or in any foreign country, 20 per cent. By an act passed March 13, 1850, the rate of interest on money loaned in California was fixed at 10 per cent. per annum, where there is no special contract; but "parties may agree in writing for the payment of any rate of interest whatever on money due, or to become due, on any contract. Any judgment rendered on such contract shall conform thereto, and shall bear the interest agreed upon by the parties."

Florida.—The damages on bills of exchange negotiated in Florida, payable in other States, and returned under protest for non-payment, are uniformly 5 per cent. Damages on *foreign bills of exchange*, 5 per cent.

Illinois.—The damages on bills of exchange negotiated in Illinois, payable in other States or Territories, and returned under protest for non-payment, are uniformly (by act of March, 1845) 5 per cent. Damages on *foreign bills*, 10 per cent.

Indiana.—The damages on bills of exchange negotiated in Indiana, payable in other States, and returned under protest for non-payment, are uniformly 5 per cent. The damages on *foreign bills* are 10 per cent.

Iowa.—The damages on bills of exchange negotiated in Iowa, payable in other States, and protested for non-payment, are uniformly 5 per cent. No statute exists as to damages on *foreign bills of exchange.*

Kentucky.—There is no statute in force upon the subject of damages on either domestic or foreign bills of exchange.

Louisiana.—The damages on bills of exchange negotiated in Louisiana, payable in other States, are uniformly 5 per cent. The damages on *foreign bills of exchange*, returned under protest, are uniformly (statute of 1838) 10 per cent.

Michigan.—The damages on bills of exchange negotiated in Michigan, payable in other States, and returned under protest, are uniformly 3 per cent.; and the damages on *foreign bills* are also 3 per cent.

Mississippi.—The damages on bills of exchange negotiated in Mississippi, payable in other States, and returned under protest, are uniformly 5 per cent. The damages on *foreign bills* are 10 per cent.

Missouri.—The damages on bills of exchange negotiated in Missouri, payable in other States, and returned under protest, are uniformly 10 per cent. On bills payable within the State, 4 per cent. On *foreign bills*, 20 per cent.

Ohio.—The damages on bills of exchange negotiated in Ohio, payable in other States, and returned under protest, are uniformly (by act of February 15, 1831) 6 per cent. On *foreign bills*, 12 per cent.

Tennessee.—The damages on bills of exchange negotiated in Tennessee, payable in other States, and protested for non-payment, are 3 per cent. The damages on *foreign bills* protested, are: 1. If drawn upon any person out of the United States, and in North America, bordering upon the Gulf of Mexico, or in any part of the West India Islands, 15 per cent. 2. If payable in any other part of the world, 20 per cent.

Texas.—There is no statute in force in reference to damages on either domestic or foreign bills of exchange.

Wisconsin.—The damages on bills of exchange drawn or indorsed in Wisconsin, payable in either of the States adjoining that State, and protested for non-acceptance or non-payment, are 5 per cent. If drawn upon a person, or body politic or corporate, within either of the United States, and not adjoining to that State, the damages are 10 per cent. The damages on bills of exchange drawn or indorsed in Wisconsin, payable beyond the limits of the United States, and protested for *non-acceptance* or *non-payment*, are (R. S. 1849, p. 263) 5 per cent., together with the current rate of exchange at the time of demand.

See *Manual for Notaries Public*, by B. ROELKER, New York; STORY *on Bills;* CHITTY *on Bills;* KENT'S *Commentaries;* and for late decisions in the United States Courts, refer to the *Bankers' Magazine*, published in New York.

Bill of Health, a certificate or instrument signed by consuls or other proper authorities, delivered to the masters of ships at the time of their clearing out from all ports or places suspected of being particularly subject to infectious disorders, certifying the state of health at the time that such ship sailed. A *clean* bill imports that at the time that the ship sailed no infectious disorder was known to exist. A *suspected* bill, commonly called a *touched* patent or bill, imports that there were rumors of an infectious disorder, but that it had not actually appeared. A *foul* bill, or the absence of clean bills, imports that the place was infected when the vessel sailed.—*See* QUARANTINE.

Bill of Lading, is a *formal receipt* subscribed by the master of a ship in his capacity of carrier, acknowledging that he has received the goods specified in it on board his ship, and binding himself (under certain exceptions) to deliver them, in the like good order as received, at the place and to the individual named in the bill, or his assigns, on his or their paying him the stipulated freight, etc. When goods are sent by a ship hired by a charter-party, the bills of lading are delivered by the master to the merchant by whom the ship is chartered; but when they are sent by a *general ship*—that is, by a ship not hired by charter-party, but employed as a general carrier—each individual who sends goods on board receives a bill of lading for the same. In all cases, therefore, the bill of lading is the evidence of and title to the goods shipped. The liability of a carrier, at common law, to deliver the goods intrusted to his care, is canceled only by "the act of God and the king's enemies." But to limit this responsibility, the following exception is now invariably almost introduced into the clause in bills of lading binding the master to the delivery of the goods: "*The act of God, the king's enemies, fire, and all and every other dangers and accidents of the seas, rivers, and navigation, of whatever nature and kind soever, excepted.*" Bills of lading are not, in general, immediately given by the master on receiving the goods. The usual practice is for the master or his deputy to give a common receipt for the goods, which is delivered up on receiving the bill of lading. The latter should always be required within twenty-four hours after the goods are received on board. Three sets of all bills of lading are made out: one of these should be remitted by the first post to the person to whom the goods are consigned, a second being sent to him by the ship; the third is retained by the shipper of the goods. The master ought always to retain copies of the bills of lading for his government.

Transfer of Bills of Lading.—Bills of lading are transferable either by blank or special indorsement, like bills of exchange. And whatever may be the character of the person to whom the goods are consigned, whether he be a buyer, or merely the factor, agent, or broker of the consigner, the *bona fide* holder of a bill of lading indorsed by the consignee is entitled to the goods, and may claim them from the master if he can prove that he has purchased the bill for a *good consideration;* but unless he can do this, he is not entitled to the goods.—HOLT, *Law of Shipping*, 2d ed. p. 363.

Delivery under Bill of Lading.—It being usual to sign and deliver three bills of lading, it is possible that there may be conflicting demands upon the captain by the different holders. Nothing, however, is, in such a case, required of him, except that he act with good faith, and to the best of his judgment; and that he make delivery of the goods to the person who first demands them of him, upon presentment of the bill of lading, *provided the circumstances be not such as to justify a suspicion* of his having unfairly got possession of it. If he act differently, he is answerable, according to the peculiarities of the case, to the person injured by his negligence; the bill of lading being not only the instructions of the merchant to him, as his carrier or servant, but his own especial agreement to deliver according to its conditions. Where several bills of lading of a different import have been signed, no regard is to be paid to the time when they were first signed by the master; but the person who first gets legal possession of one of them from the owner or shipper, has a right to the consignment; and where such bills of lading, though different upon the face of them, are constructively the same, and the master has acted *bona fide*, a delivery according to such legal title will discharge him from all.—HOLT, p. 375 and 377.

Bill of Sale, a contract under seal, by which an individual conveys or passes away the right and interest he has in the goods or chattels named in the bill. The property of ships is transferred by bill of sale.

Bill of Sight. In England, when a merchant is ignorant of the real quantities or qualities of any goods assigned to him, so that he is unable to make a perfect entry of them, he must acquaint the collector or controller of the circumstance; and they are authorized, upon the importer or his agent making oath that he can not, for want of full information, make a perfect entry, to receive an entry by *bill of sight* for the packages, by the best description which can be given, and to grant warrant that the same may be landed and examined by the importer in presence of the officers; and within three days after any goods shall have been so landed, the importer shall make a perfect entry, and shall either pay down the duties, or shall duly warehouse the same.—3 & 4 *Will.* 4, c. 52, § 24. In default of perfect entry within three days, such goods are to be taken to the king's warehouse; and if the importer shall not within one month make a perfect entry, and pay the duties thereon, or on such parts as can be entered for home use, together with charges of moving and warehouse rent, such goods shall be sold for payment of the duties.—§ 25.

Bill of Store is a license granted by the custom-house to merchants, to carry such stores and provisions as are necessary for a voyage, free of duty.

Billiards. Invented by the French, by whom, and by the Germans, Dutch, and Italians, they were brought into general vogue throughout Europe.—*Nouv. Dict.* The French ascribe their invention to Henrique Devigne, an artist, in the reign of Charles IX., about 1571. Slate billiard-tables were introduced in England in 1827.

Billingsgate, a market for fish, contiguous to the custom-house in London. It is held every lawful day, and was established in 1669. Every person buying fish in Billingsgate market may sell the same in any other market-place or places within the city of London or elsewhere, by retail, with this condition, that none but fishmongers be permitted to sell in fixed shops or houses. No person or persons shall purchase at Billingsgate any quantity of fish, to be divided by lots or in shares among any fishmongers or other persons, in order to be afterward put to sale by retail or otherwise; nor shall any fishmonger engross or buy in the said market any quantity of fish, but what shall be for his own sale or use, under the penalty of £20. No person is to have in his possession, or expose to sale, any spawn of fish, or fish unsizable, or out of season.—36 *Geo.* c. 118. The minimum size of the lobsters to be sold at Billingsgate is fixed by statute.—*See* LOBSTER.

Previously to 1842 no fish of foreign taking or curing, or in foreign vessels, could be imported into the United Kingdom, except turbots and lobsters, stock-fish, live eels, anchovies, sturgeon, botargo, and caviare. But the importation of all sorts of fish was then permitted on payment of duties, which were finally repealed in 1853. At present, therefore, the trade in fish is quite free.—For some further remarks with respect to this subject, *see* FISH.

Binacle, or **Binnacle** (formerly *Bittacle*, from the French *habitacle*), a wooden case or box in which the compasses are kept on board a ship, with lights to show the compass at night.

Birch (Fr. *Bouleau*; Du. *Berke*; Germ. *Birke*; It. *Betulla*; Lat. *Betula*; Pol. *Brzoza*; Russ. *Bereza*: Sp. *Abedul*, *Betulla*), a forest tree met with every where in the north of Europe. It is applied to various purposes. In Lapland, Norway, and Sweden, the long twigs of the birch are woven into mats and twisted into ropes: the outer bark forms an almost incorruptible covering for houses; and the inner bark is used, in periods of scarcity, as a substitute for bread. Russia leather is prepared by means of the empyreumatic oil of the birch. It is an excellent wood for the turner, being light, compact, and easily worked. Its durability is not very great. It is sometimes used in the manufacture of herring barrels.

Bird-lime (Germ. *Vogelleim*; Fr. *Glu*; It. *Pania*; Sp. *Liga*; Russ. *Ptitschei Kiei*) exudes spontaneously from certain plants, and is obtained artificially from the middle bark of the holly. Its color is greenish, its flavor sour, and it is gluey, shining, and tenacious. The natural is more adhesive than the artificial bird-lime.—THOMSON'S *Chemistry*.

Birds' Nests (Germ. *Indianische Vogelnester*; Du. *Indiaansche Vogelnestjes*; Fr. *Nids de Tunkin*; It. *Nidi di Tunchino*; Sp. *Nidos de la China*; Javan. *Susu*; Malay, *Sarungburung*), the nests of a species of swallow peculiar to the Indian islands (*Hirundo esculenta*), very much esteemed in China. In shape this nest resembles that of other swallows; it is formed of a viscid substance; and in external appearance, as well as consistence, is not unlike fibrous, ill-concocted isinglass. Esculent nests are principally found in Java, in caverns that are most frequently, though not always, situated on the sea-coast. Many conflicting statements have been made as to the substance of nests; some contending that they are formed of sea-foam or other marine products, and others that they are elaborated from the food of the bird, etc. But these are points as to which nothing satisfactory is known.

We borrow from Mr. Crawfurd's valuable work on the *Eastern Archipelago* (vol. iii. p. 432–437) the following authentic and curious details as to the traffic in this singular production: "The best nests are those obtained in deep damp caves, and such as are taken before the birds have laid their eggs. The coarsest are those obtained after the young are fledged. The finest nests are the whitest, that is, those taken before the nest has been rendered impure by the food and *fæces* of the young birds. They are taken twice a year, and, if regularly collected, and no unusual injury be offered to the caverns, will produce very equally, the quantity being very little, if at all, improved by the caves being left altogether unmolested for a year or two. Some of the caverns are extremely difficult of access, and the nests can only be collected by persons accustomed from their youth to the office. The most remarkable and productive caves in Java, of which I superintended a moiety of the collection for several years, are those of *Karang-bolang*, in the province of *Bagien*, on the south coast of the island. Here the caves are only to be approached by a perpendicular descent of many hundred feet, by ladders of bamboo and ratan, over a sea rolling violently against the rocks. When the mouth of the cavern is attained, the perilous office of taking the nests must often be performed by torch-light, by penetrating into recesses of the rock, where the slightest trip would be instantly fatal to the adventurers, who see nothing below them but the turbulent surf making its way into the chasms of the rock.

"The only preparation which the birds' nests undergo is that of simple drying, without direct exposure to the sun, after which they are packed in small boxes, usually of half a picul. They are assorted for the Chinese market into three kinds, according to their qualities, distinguished into *first* or *best*, *second*, and *third* qualities. Caverns that are regularly managed will afford, in 100 parts, 53·3 parts of those of the first quality, 35 parts of those of the second, 11·7 parts of those of the third. The common prices for birds' nests at Canton are, for the first sort, no less than 3500 Spanish dollars the picul, or £5 18*s.* 1½*d.* per pound; for the second, 2800 Spanish dollars per picul; and for the third, 1600 Spanish dollars. From these prices it is sufficiently evident that the birds' nests are no more than an article of expensive luxury. They are consumed only by the great; and, indeed, the best part is sent to the capital for the consumption of the court. The sensual Chinese use them, under the imagination that they are powerfully stimulating and tonic; but it is probable that their most valuable quality is their being perfectly harmless. The people of Japan, who so much resemble the Chinese in many of their habits, have no taste for the edible nests; and how the latter acquired a taste for this foreign commodity is no less singular than their persevering in it. Among the Western nations there is nothing parallel to it, unless we except the whimsical estimation in which the Romans held some articles of luxury, remarkable for their scarcity rather than for any qualities ascribed to them."

Mr. Crawfurd estimates the whole quantity of birds' nests exported from the Archipelago at 242,000 pounds, worth £284,290. "The value," he observes, "of this immense property to the country which produces it rests upon the capricious wants of a single people. It is claimed as the exclusive property of the sovereign, and every where forms a valuable branch of his income, or of the revenue of the State. This value, however, is of course not equal, and depends upon the situation and the circumstances connected with the caverns in which the nests are found. Being often in remote and sequestered situations, in a country so lawless, a property so valuable and exposed is subject to the perpetual depredation of freebooters, and it not unfrequently happens that an attack upon it is the principal object of the warfare committed by one petty State against another. In such situations, the expense of affording them protection is so heavy, that they are necessarily of little value. In situations where the caverns are difficult of access to strangers, and where there reigns enough of order and tranquillity to secure them from internal depredation, and to admit of the nests being obtained without other expense than the simple labor of collecting them, the value of the property is very great. The caverns of *Karang-bolang*, in Java, are of this description. These annually afford 6810 pounds of nests, which are worth, at the Batavia prices of 3000, 2500, and 1200 Spanish dollars the picul, for the respective kinds, nearly 139,000 Spanish dollars; and the whole expense of collecting, curing, and packing, amounts to no more than 11 per cent. on this amount. The price of birds' nests is of course a monopoly price, the quantity produced being by nature limited, and incapable of augmentation. The value of the labor expended in bringing birds' nests to market is but a trifling portion of their price, which consists of the highest sum that the luxurious Chinese will afford to pay for them, and which is a tax paid by that nation to the inhabitants of the Indian islands. There is, perhaps, no production upon which human industry is exerted, of which the cost of production bears so small a proportion to the market price."—See also the valuable work of *Count* HOGENDORP, *Coup d' Œil sur l' Ile de Java*, p. 291.

Birmingham, a parliamentary and municipal borough, one of the principal manufacturing towns of England, near its centre, county and 17 miles northwest of Warwick, 100 miles northwest of London, and 78½ miles southeast of Liverpool. Area of borough, which includes the adjacent townships, Aston, Edgbaston, etc., 2660 acres. Population in 1690, 4000; in 1801, 60,822; in 1841, 182,922; in 1851, 232,841. The town, on the River Rea, occupies the eastern declivity of three undulating hills, and from the southeast presents to view a mass of red brick houses, interspersed with several lofty church spires, and a vast number of tall chimneys belonging to its factories. Birmingham existed in the reign of Alfred, A.D. 872; but its importance as a manufacturing town commenced in the reign of William III. Birmingham was besieged and taken by Prince Rupert in 1643. The great works of Soho were established by the illustrious engineer, Matthew Boulton, in 1764. The Birmingham canal was originated by act of Parliament, 1768. Memorable riots commenced here, July 14, 1791, on some persons commemorating the French Revolution. The theatre was destroyed by fire, August 17, 1792. More commotions, November, 1800. The theatre again burned in 1817; and again, January 7, 1820. Birmingham political union formed, 1831; dissolved itself, May 10, 1834. Town Hall built, 1833. Birmingham and Liverpool railway opened as the Grand Junction, July 4, 1837. London and Birmingham Railway opened its entire length, September 17, 1838. Great political riot, firing of houses and other outrages committed by the Chartists, July 15, 1839. Corn Exchange opened, October 27, 1847. Birmingham has made most rapid progress in manufacturing industry within the present century. Its manufactures comprise almost every description of iron and steel goods, brass and iron founding, saddlery, fire-arms, cutlery, gold, silver, plated, bronze, ormolu, and japanned wares; papier-mache goods, toys, jewelry, electroplated goods, buttons, steel-pens, glass, tools, steam-engines, and all kinds of machinery.

Biscay, Bay of (Fr. Golfe de Gascogne, *Aquitanicus Sinus*), a vast bay or gulf formed by the Atlantic, and extending between Ouessant island on the west coast of France, and Cape Ortegal on the north coast of Spain. It receives the waters of the Loire, Charente, Gironde, and Adour. Its principal ports are, L'Orient, Nantes, La Rochelle, Rochefort, Bordeaux, and Bayonne, in France. Passages, San Sebastian, Bilbao, Santander, and Gihon, in Spain. Chief islands, Belle Isle, Ré, and Oleron, on the coast of France. Its north and south coasts are bold and rocky; but on the east, from the mouth of the Gironde to the Adour, the coast is composed of sand downs, and interrupted by numerous lagoons. The depth varies from 20 fathoms on the west coast of France, to 200 fathoms on the north of Spain. Navigation is much impeded by the heavy seas produced by the northwest winds, and by a current (*Rennel's*) which sets in from the Atlantic, and sweeping round the north coast of Spain, runs north and northwest along the west coast of France, and enters the Irish Channel.

Bismuth (Ger. *Wismuth;* Du. *Bismuth*, *Bergsteen;* Fr. *Bismuth;* It. *Bismutte;* Sp. *Bismuth*, *Piedra inga;* Russ. *Wismut;* Lat. *Bismuthum*), a metal of a reddish white color, and almost destitute of taste and smell. It is softer than copper; its specific gravity is 9·822. When hammered cautiously, its density is considerably increased; it breaks, however, when struck smartly by a hammer, and, consequently, is not malleable, neither can it be drawn out into wire; it melts at the temperature of 476°.—THOMSON'S *Chemistry*. Bismuth is used in the composition of pewter, in the fabrication of printers' types, and in various other metallic mixtures. With an equal weight of lead, it forms a brilliant white alloy, much harder than lead, and more malleable than bismuth, though not ductile; and if the proportion of lead be increased, it is rendered still more malleable. Eight parts of bismuth, five of lead, and three of tin, constitute the fusible metal, sometimes called Newton's, from its discoverer, which melts at the heat of boiling water, and may be fused over a candle in a piece of stiff paper without burning the paper. Pewterers' solder is formed of one part of bismuth, with five of lead, and three of tin. It forms the basis of a sympathetic ink.—URE.

Bitumen (Germ. *Judenpech;* Du. *Jodenlym;* It. *Asfalto;* Sp. *Asfalto;* Port. *Asphalto;* Russ. *Asfalt;* Lat. *Asphaltum Bitumen Judaicum*). This term includes a considerable range of inflammable mineral substances, burning with the flame in the open air. They differ in consistency, from a thin fluid to a solid; but the solids are for the most part liquefiable at a moderate heat. They are: 1. *Naphtha;* a fine, white, thin, fragrant, colorless oil, which issues out of white, yellow, or black clays in Persia and Media. This is highly inflammable. Near the village of Amiano, in the State of Parma, there exists a spring which yields this substance in sufficient quantity to illuminate the city of Genoa, for which purpose it is employed. With certain vegetable oils, naphtha is said to form a good varnish. 2. *Petroleum* is much thicker than naphtha, resembling in consistence common tar. It has a strong disagreeable odor, and a blackish or reddish brown color. During combustion, it emits a thick black smoke, and leaves a little residue in the form of black coal. It is more abundant than the first-mentioned variety, from which it does not seem to differ, except in being more inspissated. It is found in various countries, and is especially abundant in the Birman empire, where it is met with above Prome, within about two miles of the Irrawaddi. The gross annual produce of the wells in this place has been estimated at about 80,000,000 lbs., worth on the spot about 1*s.* 8*d.* a cwt.; and the supply might, if a market could be found, be indefinitely increased. It is used as a lamp oil, and, when mingled with earth or ashes, as fuel and in the paying of boats.—*Geographical Dictionary*, i. 377. In the United States it is found abundantly in Kentucky, Ohio, and New York, where it is known by the name of *Seneca* or *Genesee* oil. It is also obtained from wells in the island of Zante. Herodotus tells us that he had seen these wells (lib. iv. c. 195); and the description he has given of them, and of the mode of obtaining the petroleum, corresponds in all respects with the accounts of the best modern travelers. The average annual produce of the Zante springs is about 100 barrels.—CHANDLER's *Travels in Greece*, 4to ed. p. 301; HOLLAND's *Travels in Greece*, 4to ed. p. 18. Petroleum is particularly abundant in Persia. "When taken from the pit, it is a thick liquid resembling pitch. The bottoms of most vessels which navigate the Euphrates and Tigris are covered with it, and it is also used in lampsins tead of oil by the natives. The most productive fountains are those of Kerkook, Mendali, and Badku. The wells in the neighborhood of the latter seem to be quite inexhaustible, being no sooner emptied than they again begin to fill. Some of them have been found to yield from 1000 *to* 1500 lbs. a day!"—KINNIER's *Persian Empire*, p. 39 and 359. 3. *Maltha*, or *Sea-wax*, is a solid whitish substance, not unlike tallow. It melts when heated, and in cooling assumes the consistence of white cerate. This is most probably the *bitumen candidum* of Pliny.—*Hist. Nat.* lib. xxxv. c. 15. It is not used as pitch; but it affords a better light than petroleum, and emits a less disagreeable smell. It is found on the surface of the Baikal Lake in Siberia, at the foot of the mountains of Bucktiari in Persia, and in some other places. 4. *Elastic Bitumen* yields easily to pressure; is flexible and elastic. It emits a strong bituminous odor, and is about the weight of water. On exposure to the air it hardens, and loses its elasticity. It takes up the traces of crayons in the same manner as caoutchouc or Indian rubber, whence it has obtained the name of *mineral caoutchouc.* It has hitherto been found only in the lead mines of Derbyshire. 5. *Compact Bitumen*, or *Asphaltum*, is of a shining black color, solid, and brittle, with a conchoidal fracture. Its specific gravity varies from 1 to 1·6. Like the former varieties, it burns freely, and leaves but little residuum. It is found in India, on the shores of the Dead Sea, in France, in Switzerland, and in large deposits in sandstone in Albania; but nowhere so largely as in the island of Trinidad, where it forms a lake three miles in circumference, and of a thickness unknown. A gentle heat renders it ductile, and, when mixed with grease or common pitch, it is used for paying the bottoms of ships, and is said to protect them from the teredo of the West Indian seas. The ancients employed bitumen in the construction of their buildings. The bricks of which the walls of Babylon were built were, it is said (HERODOTUS, lib. i. § 179), cemented with hot bitumen, which gave them unusual solidity.

Blacking (Ger. *Schuhschwärze*, *Wichse*; Fr. *Noir* (*de cordonnier*); It. *Nero da ugner le scarpe*; Sp. *Negro de zapatos*). A factitious article, prepared in various ways, used in the blacking of boots and shoes. The principal ingredients in its manufacture are oil, vinegar, and various sorts of blacking matter. It is in very extensive demand. Some of the establishments for its manufacture, especially those in the metropolis, are on a large scale; and it is in such only that it can be cheaply and advantageously produced. One of the principal, or rather we may say the principal outlay in establishing a blacking business, consists in advertising. Indeed, any individual or set of individuals, provided they supply a reasonably good article, may, by continuous advertising and puffing, attain to the highest eminence in the "blacking line."

Black-lead, Plumbago, or **Wad** (Du. *Potloot*; Fr. *Mine de Plomb noir, plomb de mine*, *Potelot*; Ger. *Pottloth*, *Reissbley*; It. *Miniera di piombo*, *Piombaggine*, *Corezolo*; Lat. *Plumbago*; Sp. *Piedra mineral de plomo*), a mineral of a dark steel gray color, and a metallic lustre; it is soft, has a greasy feel, and leaves a dark-colored line when drawn along paper.

This mineral is found only in a state of purity in Borrowdale, in Cumberland, the mines in which have been wrought since the days of Elizabeth. The lead is not found in veins but in detached pieces, or in what are called *sops* or *bellies*, so that the supply is very irregular, the miners being frequently employed for a lengthened period in seeking at random for the lead. Its quality also differs very widely. The best is that which is lightest, and the trace of which on paper is easily and completely removed by the application of India rubber. The mine used only to be opened at intervals, but for a considerable number of years past it has been constantly open. The supply, however, has been extremely scanty, and mostly also very inferior. This lead is now almost wholly employed in making pencils: an inferior variety from Spain and Ceylon being used in the manufacture of crucibles, the polishing of cast-iron utensils, the diminishing of friction, and other purposes to which genuine black-lead was formerly applied.

Black-lead Pencils (Du. *Potlootpennen*; Fr. *Crayons noirs*; Ger. *Bleystifte*; It. *Lapis nero*; Port. *Lapis negro*; Russ. *Karanaschü*; Sp. *Lapiz negro*) are formed of black-lead, encircled with cedar. There is hardly, perhaps, any thing in which the temptation to substitute a spurious for a genuine article is greater, or in which, consequently, the purchaser is more liable to be deceived, than black-lead pencils. This is occasioned by the vast difference between the cost of genuine Cumberland lead and of the other articles that are or may be substituted for it. Pencils are usually described as follows: first quality, or drawing pencils; second quality, or prepared pencils; third quality, or composition pencils. 1. Pencils of the *first* quality are, when genuine, made of pure Cumberland lead, and cost, in the year 1843, 30*s.* per lb., or £168 per cwt. From 18 to 20 dozen such pencils are produced from a pound of this lead. These pencils are usually made by sawing the lead into the pieces inserted in the cedar. Sometimes, however, the lead is in parts gritty and defective, so that a pencil of this kind may, in fact, be very inferior. To obviate this defect, some makers prepare the lead, to free it from the grit or earthy particles; and, provided no antimony or other alloy be mixed up with the prepared lead, the pencils produced from it are most to be depended on. 2. Pencils of the *second* quality are manufactured out of the sawings or dust of pure lead, with the dust of the small pieces picked up by poor people from the rubbish thrown out of the mine, mixed or alloyed with a greater or less quantity of antimony. The goodness of this pencil depends, of course, on the proportion in which the pure lead exceeds the antimony. But as the cost of the former may be taken at £100 a cwt., and that of the latter at only 26*s.*, there is an all but irresistible temptation to increase the proportion of the latter beyond due bounds. This sort of composition produces about 15 or 16 dozen pencils to the pound; their price varying according to the purity of the lead. 3. The *third* quality of pencil is made by using Mexican or Spanish lead dust, costing 45*s.* or 50*s.* a cwt., with antimony costing about 26*s.* per cwt. It produces about 14 or 15 dozen pencils to the lb., which may be sold at from 2*s.* 6*d.* to 12*s.* per gross, according to the cost of the articles employed and the care taken in mixing them. This sort of pencil may take a firm point, and make a fine stroke, but its trace will not obliterate on being rubbed with India rubber. The easy and complete obliteration of the stroke is, in fact, the best and perhaps only test of a pencil being of pure Cumberland lead.—*Private information.*

Black Sea, or **Euxine Sea** (*Pontus Euxinus* of the ancients), is a large inland sea, bounded on the west by Rumelia, Bulgaria, and Bessarabia; on the north by Russian Tartary; on the east by Mingrelia, Circassia, and Georgia; and on the south by Anatolia. It is entered from the Mediterranean through the channel of the Dardanelles, anciently the *Hellespont*, the Sea of Marmora or *Propontis*, and the channel of Constantinople or *Thracian Bosporus;* and it is connected with the Sea of Azof, or *Palus Mœotis*, by the strait between the Crimea and the Isle of Taman, anciently the *Cimmerian Bosporus*, and known by the various modern names of the Strait of Kertch, of Yenikale, and of Taman.

Till within less than half a century, the extent of the Black Sea, and the position of several of its principal capes, gulfs, and ports, were very imperfectly ascertained. But soon after the commencement of the French Revolution, the National Institute sent M. Beauchamp to examine this sea, and especially its southern shores. In this enterprise he was much impeded by the jealousy of the Turks: nevertheless, he ascertained that Cape Kerempe, *Carambis*, was placed in the charts too far to the south; that the Gulf of Sansoun, *Amisenus Sinus*, was deeper than it is commonly represented; and that Trebizond, the Tarabazan of the Turks, anciently *Trapezus*, was five or six leagues farther to the west than it appeared in the charts. But recent travelers have discovered that even the Parisian charts are inaccurate. According to Dr. Clarke, the Isle of Serpents, the Ulan-Adassi of the Turks, the Fidonisi of the modern Greeks, and ancient *Leuce*, lies fifteen minutes, and the port of Odessa twenty-seven minutes, too far toward the north (Clarke's *Travels*, i. 653); and Mr. Macgill ascertained, from two observations of his own, compared with those of some captains who had navigated this sea, that in the French charts even Cape Kerempe is set down fifteen miles too far north, while Cape Aria or Saritch or Careza, *Kriu-Metopon*, in the Crimea, is placed twenty-two miles too far south. This, of course, makes a difference in the width of the sea at this place of thirty-seven miles.—Macgill's *Travels*, i. 195.

According to the best authorities, which Mr. Arrowsmith has followed in his maps of this sea, it lies between 41 and 46½ degrees of north latitude (the bottom of the Bay of Sansoun penetrating nearly to the 40th degree, and Cape Kerempe stretching out nearly to the 42d), and between 28 and 41½ degrees of east longitude from Greenwich. This will give for its extreme breadth, from Cape Baba, in Anatolia, to Odessa, about 380 miles, and for its extreme length, from the coast of Rumelia to the mouth of the Phasis, 700 miles. The Black Sea, however, may be considered as divided into two parts, by Cape Aria on the south of the Crimea, and Cape Kerempe on the coast of Paphlagonia; the former lying in about 44½, and the latter in about 42 degrees of north latitude. Both these capes being high land, vessels sailing between them can discover the coast on either side. The circumference of the Black Sea is about 3800 miles.

Russian statistical reports are so little to be relied upon, that it is difficult to give any very accurate returns of the general trade of the Black Sea. Within the last twenty years a total change has been effected in the aspect of its commerce. This is chiefly to be atttributed to the existence of the British market. When importations of corn into England were freed from fiscal influences, the vast and fertile plains of southern Russia, and the rich valley of the Danube, supplied the ever-increasing demand; and the requirements of Great Britain, however they may increase, will be met by enormously elastic powers of production. The prohibitive policy of Russia exercises, however, a most injurious influence upon foreign trade, and combines to render the expense of freight upon the coasts of the Black Sea higher than upon any other eastern sea-board. In consequence of the more liberal commercial policy of Turkey and the Danubian principalities, the exports of Rumelia, Moldavia, and Wallachia, are increasing far more rapidly than those of the Russian provinces, while the grain is more highly esteemed in the English market. The total amount of wheat received by Great Britain in 1852 from the Russian shores of the Black Sea was 789,750 quarters, in 374 vessels. The total amount shipped from Rumelia and the Danubian principalities was 112,650 quarters, in 92 vessels. The general exports of the principalities have been gradually increasing. In 1849 the total value of the imports amounted to £809,240; in 1850, £898,715; and in 1851, £896,895. The total value of the exports in 1849 was £1,113,272; in 1850 it was £839,712; and in 1851, £1,274,525. As the corn trade to the British dominions is the mainly important branch of commerce in the Black Sea, those statistics connected with it which are derived from the English official reports contain all that is most important. Apart from this no very remarkable features in the local trade have been recently developed, nor, if there were, are there any authentic reports of its extent.

The principal articles of commerce afforded by the countries on the Black Sea are, wheat, rice, tobacco, hides, tallow, hare-skins, honey, wax, iron, and yellow grains for dyeing from Rumelia and Bulgaria, by the ports of Varna and Bourgas. The same articles, with the addition of wool, butter, hemp, masts, ship-timber, and pitch, are exported from Moldavia and Wallachia, by Ibraila and Galatz, on the Danube. From Bessarabia by Ovidopol, and from the province of Cherson by Odessa, Akermann, and Cherson, come corn, oak timber, hides, tallow, tar, shagreen, wax, honey, hemp, sail-cloth, and wool; from the Crimea, by the ports of Actiar, Kosloff, and Caffa, corn, wool, wax, honey, dried and salted hides, deer-skins, morocco leather, sheep-skins, salted and dried fish, potash, felt, caviare, wine, silk, and saltpetre; from the countries on the Sea of Azof, by the ports of Taganrog, Berdianski, and Mariapol, iron (of which Constantinople and Smyrna require about 60,000 quintals each), dried fish, caviare, butter, hides, tallow, wheat, timber, furs, sail-cloth, cordage, hemp, linens, wax, and wool; from Anatolia, by the ports of Erekli, Amasreh, Ineboli, Sinope, and Uniah, hides, dried fruits, linens, linen thread, wax, honey, hemp, copper, and ship-timber; from the coast of Roum and Sansoun the same articles; from the countries of the Laziens and Gurions, principally by Trebizond, all the above articles, except ship-timber; and from Mingrelia, and the country of the Abasses, principally by Soudjuk and Anapa, slaves, timber, box-wood, wool, silk, furs, butter, hides, wax, and honey. The trade to these coasts is entirely carried on by a few Greeks of Constantinople, and is very insignificant.—E. B.

Blank (French *Blanc*) literally signifies white. *Blancus*, or *Blanca*, was a kind of white or silver money, of base alloy, coined by Henry V. in those parts of France which were then subject to England. It was valued at 8*d.* sterling. *Blank* also denotes a small copper coin, formerly current in France, at the rate of five deniers Tournois.—E. B.

Bleaching is the art of depriving cotton, linen, silk, wool, wax, etc., of their coloring matter, and rendering them as white as possible. The word is probably derived from the French term *blanchiment*, which signifies the process of *rendering white.*

This art was known early in Egypt, Syria, and

India. Known in ancient Gaul.—PLINY. In the last century an improved chemical system was adopted by the Dutch, who introduced it into England and Scotland in 1768. There are now immense bleachfields in both countries, particularly in Lancashire, and in the counties of Fife, Forfar, and Renfrew, also in the vale of the Leven, in Dumbarton. The chemical process of Berthollet was introduced in 1795.—*Blanchiment des Toiles.*

Blockade, in war, the shutting up of any place or port by a naval or military force, so as to cut off all communication with those who are without the hostile line. There is, perhaps, no part of the law of nations which, in practice, presents so many perplexing questions as that which concerns the respective rights of neutral and belligerent states. No definite line of distinction has yet been drawn between the privileges of war and peace; and the consequence has been, that, in all the wars which have been waged in Europe, the general tranquillity of the world has been endangered by the jarring of these two different interests. It has commonly happened, too, that all these important questions have been agitated during a season of war; when the passions of the contending parties were keenly engaged in the dispute; when principles were already subverted; and when the minds of men, exasperated by the glaring infraction of acknowledged rights, were not in a state to agree on any system of general equity by which to regulate and reform the erring policy of states. In these circumstances, many points of international law, which appear to rest on the most obvious principles, and which are very clearly settled in the writings of civilians, have, nevertheless, been the occasion in practice of no small controversy, and have frequently involved nations in all the miseries of protracted war. This has been in some measure manifested in the case of the *Rights of Blockade*, respecting which, though no difference of opinion has ever prevailed among speculative writers, a controversy arose during the late contests in Europe, which, along with other points, ultimately involved Great Britain in a war with the neutral powers. We propose, in the course of the subsequent observations, to state, 1st. The general principles from which the most approved writers have deduced the rights of blockade; and, 2d. To give a short account of the differences which took place between the neutral and the belligerent states respecting the extent of those rights.

In regulating the respective privileges of the neutral and the belligerent, it has generally been held as a fundamental principle, by writers on the law of nations, that those rights from the exercise of which less benefit would accrue to one party than detriment to the other should be abandoned; and in all cases where the rights of war happen to come into collision, the application of this rule will decide which of the two parties must yield to the convenience of the other. Thus the neutral state is debarred from carrying on any trade with either of the belligerents in warlike stores. The general right to a free trade is modified, in this particular instance, by the paramount rights of the belligerent. To refrain for a time from trading with an individual state in warlike stores can at most only impose a trifling inconvenience on the neutral power, while the continuance of such a trade might terminate in the destruction of the belligerent. The detriment occasioned to the one party by the existence of such a trade, is, in this manner, infinitely greater than the loss suffered by the other from its abandonment. Warlike stores, and whatever else bears a direct reference to war, are accordingly proscribed as unlawful articles of trade, and made liable to seizure by either of the belligerents. To this inconvenience the neutral is exposed, to avoid the greater inconvenience and damage which might fall on the belligerent by the licensing of such a trade. On the other hand, the neutral state enjoys the most unlimited freedom of trade in all other articles with either of the powers at war; and though, by means of this beneficial intercourse, they may be both furnished with the means of carrying on a protracted contest, this is a contingent and incidental consequence of the trade, which, in its character, is substantially pacific, and which is attended with such great and immediate advantages, that they could not, with any regard to equity, be sacrificed to the remote convenience of the belligerent.

Applying these principles to a siege or to a blockade, it is evident that the belligerent who had an expensive scheme of hostile operations of either kind in dependence would be far more seriously injured by its interruption than the neutral would be benefited by a free intercourse with the blockaded place. On this ground, therefore, a belligerent who has formed a siege or a blockade has an indisputable right to debar the neutral from all intercourse with those who are included within his lines; and any attempt to penetrate the blockade for the purposes of trade subjects those who attempt it to destruction, and their properties to confiscation. The very existence, indeed, of a siege or a blockade, as a lawful act of hostility, implies the right of enforcing it by an indiscriminate exclusion of all who seek access to the besieged.

But although this view of the nature of a blockade, and of the rights attaching to it, is clearly laid down by all writers on the law of nations, and although it has been acknowledged in practice by all civilized states, a question was agitated in the late wars of Europe, between the neutral and the belligerent powers, as to the *degree* of restraint necessary to constitute a blockade, and, of course, to entitle the blockading party to all the rights consequent upon this scheme of operations; and it is this dispute which was, in a great measure, the occasion of a general war with the neutral powers.

The success which attended the naval operations of Great Britain during the war with France naturally suggested to her rulers the possibility of extending this species of annoyance, and of converting the all-powerful navy which they possessed into an instrument of active hostility. With this view, instead of confining its efforts to the mere watching of the enemy's already ruined trade, it was resolved to give greater scope to such an immense engine of maritime power, by placing under blockade the enemy's ports, the mouths of navigable rivers, and even extensive tracts of his coast. Proclamations to this effect were accordingly issued; and the neutral trader was duly warned off, and prohibited, under the peril of detention, from all intercourse with the interdicted coast. But the legality of these blockades by proclamation being disputed both by the neutral powers and by the enemy, their execution was resisted by a counter decree, which, on the plea of retaliation, placed under blockade the whole island of Great Britain, and subjected all neutral vessels to detention and capture which should have been found touching at any of its ports. On the same plea of retaliation, several decrees or orders in council were issued by Britain, ordaining that no neutral vessel should have any intercourse with France and her dependencies, except such vessel should first touch at a British port, where, in some cases, the cargo was to be landed, and was to pay certain duties to the British government. From this period the maxims of equity and the rules of international law were set aside, and the ocean became a scene of proscription and pillage. All this anarchy having originated in a disagreement respecting the nature and extent of a blockade, it becomes of importance to bring back the question to its true elements, and to fix the principles by which alone it should be settled.

The object of a blockade is to reduce the inhabitants of the blockaded town to such straits that they shall be forced to surrender to the discretion of their enemies in order to preserve their lives; and hence the legality of every blockade, except with a view to capture, has been questioned. But without entering into this question, it seems obvious that, in order to constitute the blockade of a town, either with a view to capture or to temporary annoyance, the line by which it is surrounded should be so complete as entirely to obstruct all access into the place. When a place is blockaded with a view to capture, the task of maintaining a real blockade may safely be left to the blockading party. But when a port is blockaded with a view to mere maritime annoyance, the case is widely different; because, in these circumstances, the belligerent will equally attain his end by maintaining the mere show of a blockade, while he is in possession of all its substantial rights. He may, to save himself expense and trouble, relax the blockade of his enemy's ports, while he enforces the exclusion of all neutrals as rigorously as if he were maintaining an effectual blockade; and, in this case, his proclamations, while they are issued ostensibly for the blockade of the enemy's ports, would, in reality, amount to edicts for the suppression of the neutral trade. The urgent, immediate, and obvious interests of the neutral would here be sacrificed to the remote, and in many cases imaginary, convenience of the belligerent. An edict might be issued for the blockade of the enemy's ports, or of extensive tracts of his coast, round which no hostile line could ever be drawn so as to constitute a real blockade; and the whole trade of the neutral with those interdicted parts of the enemy's territory would be immediately annihilated at the arbitrary mandate of one of the belligerents. Instead of being carried on as a matter of right, instead of being regarded as a common benefit to the civilized world, and on this account as proper to be cherished and encouraged, the neutral trade would, under such a system, be looked upon in the light of a tolerated evil, existing only by the sufferance of those who imagined they had an interest in obstructing and in crushing it. The law of nations is not a partial system, modeled to suit the convenience of one party. It is a system of general equity, and its edicts are founded on a comprehensive view of what is for the common welfare and protection. In this view, then, the consequences to the neutral of those extensive and nominal blockades are sufficient to constitute them illegal. The damage to the neutral is infinitely greater than the benefit to the belligerent. The rights of blockade, and the limitation of those rights, must stand upon the same principle of justice and of public law; and their extension beyond this equitable principle must terminate in universal confusion and anarchy.

In opposition to these arguments in favor of the neutral powers, it has been urged that the new system of naval annoyance, introduced by Great Britain in 1806, was legal according to the strictest construction of the law of blockade, because the proclamations for interrupting all intercourse between the different parts of the French coast were not issued until it was ascertained, by the most particular inquiries, that Great Britain possessed an effectual naval force to blockade the enemy's coast from Brest harbor to the mouth of the Elbe. It is solely upon this principle that the ministers of that country maintained the legality of those blockades; and any breach in the line of blockade, they admitted, would be sufficient to constitute them illegal. Such, then, is the state of this important controversy, which seems to resolve itself into a mere question of fact, namely, whether the blockading power has actually carried into effect the blockade, of which notice by proclamation has been given to the neutral powers.

At the conclusion of the last treaty between Great Britain and America, no settlement of these disputed questions took place. The main war between the European belligerents, out of which the American dispute had incidentally sprung, being at an end, the controversy respecting rights which could only be exercised in a state of war had lost all practical importance. It had become a mere question of abstract right, the decision of which was wisely adjourned by the powers at war, and not suffered to clog the work of a general peace. It is likely, however, that on the breaking out of any new war, this and other questions of a like nature would recur, and on this account it might be of importance to the future peace of the world if these questions could be settled according to some acknowledged rule of equity or policy, and that without delay. —E. B.

Blubber (Germ. *Thran, Fischtran;* Du. *Thraan;* It. *Olio di pesce;* Sp. *Grassa, Aceite de pescado;* Russ. *Salo worwannoe*, *Worwan;* Lat. *Oleum piscinum*), the fat of whales and other large sea-animals, of which train-oil is made. The blubber is the *adeps* of the animal: it lies under the skin, and over the muscular flesh; it is about six inches in thickness, but about the under lip it is two or three feet thick. The whole quantity yielded by one of these animals ordinarily amounts to 40 or 50, but sometimes to 80 or more hundred weight. Formerly train-oil was manufactured from the blubber in the seas round Spitzbergen, and other places where whales were caught; but the practice is now to bring the blubber home in casks, and to prepare the oil afterward.

Board of Trade. Cromwell seems to have given the first notions of a board of trade. In 1655 he appointed his son Richard, with many lords of his council, judges and gentlemen, and about twenty merchants of London, York, Newcastle, Yarmouth, Dover, etc., to meet and consider by what means the trade and navigation of the republic might be best promoted.—THOMAS's *Notes of the Rolls.* Charles II., on his restoration, established a council of trade for keeping a control over the whole commerce of the nation, 1660; he afterward instituted a board of trade and plantations, which was remodeled by William III. This board of superinspection was abolished in 1782; and a new council for the affairs of trade, on its present plan, was appointed September 2, 1786.—HAYDN. In many cities of Europe and the United States, a voluntary *Board of Trade* is established by the merchants of such cities—in some instances termed a "*Chamber of Commerce.*" Such associations are productive of incalculable benefit to the commercial interests at large.

Boat, a small open vessel, propelled on the water by oars or sails. The construction, machinery, and even the names of boats, are very different, according to the various purposes for which they are intended, and the services on which they are to be employed. Thus they are occasionally slight or strong, sharp or flat-bottomed, open or decked, plain or ornamented; as they may be designed for swiftness or burden, for deep or shallow water, for sailing in a harbor or at sea, and for convenience or pleasure. The largest boat that usually accompanies a ship is the *long-boat*, which is generally furnished with a mast and sails. Long-boats fitted for men-of-war are occasionally decked, armed, and equipped, for cruising short distances against merchant ships of the enemy, or smugglers, for impressing seamen, and other services. The *barges*, which are next in order, are longer, slighter, and narrower. They are employed to carry the principal sea-officers, as admirals and captains of ships of war, and are unfit for the open sea. *Pinnaces* exactly resemble barges, but are somewhat smaller, and have never more than eight oars; whereas a barge properly never rows less than ten. The *cutters* of a ship are broader, deeper, and shorter, than the barges and pinnaces: they are fitter for sailing, and are commonly employed in carrying stores, provisions, passengers, and the like, to and from the ship. In the structure of this sort of boat the lower edge of every plank in the side overlays the upper edge of the plank below, which is called by ship-wrights clinker-build. *Yawls* are somewhat less than cutters, nearly of the same form, and used for similar services. They are generally rowed with six oars. The above boats more particularly belong to men-of-war. Merchant vessels above 150 tons have at least two, a long-boat and yawl. Merchant ships employed in the Mediterranean find it more convenient to use a *launch*, which is longer, flatter in the bottom, and better adapted every way to the harbors of that sea, than a long-boat. A *wherry* is a light, sharp boat, used in a river or harbor for carrying passengers from place to place. *Punts* are a sort of oblong, flat-bottomed boats, nearly resembling floating stages. They are used by ship-wrights and caulkers, for breaming, caulking, or repairing a ship's bottom. It is also the name for the smallest boat of yachts, etc. A *moses* is a very flat, broad boat, used by merchant ships among the Caribbee Islands, to bring hogsheads of sugar off from the sea-beach to the shipping anchored in the roads. A *felucca* is a strong passage-boat used in the Mediterranean, and propelled with oars and lateen sails. The *pirogue* of the Southern and Eastern seas is a kind of canoe made of the trunk of a tree hollowed out. It is generally worked with paddles, but sometimes it is decked and furnished with sails and an outrigger. The *proa*, so much used by pirates in the Eastern Archipelago, is sharp at both ends, in order to sail either way. Its lee side is rounded, but the weather side is flat, and provided with an outrigger to secure its stability.—E. B. The invention of boats was so early, and their use so general, the art can not be traced to any age or country. Flat-bottomed boats were made in England in the reign of the Conqueror: the flat-bottomed boat was again brought into use by Barker, a Dutchman, about 1690. The life-boat was first suggested at South Shields; and one was built by Mr. Greathead, the inventor, and was first put to sea, January 30, 1790.—Haydn.

Boatswain, the officer in a ship who has the charge of the boats, sails, rigging, colors, anchors, cables, and cordage. It is also the duty of this officer to summon the crew to their duty; to assist with his mates in the necessary business of the ship; and to relieve the watch when its time expires. He has a mate who has the charge of the long-boat, for setting forth anchors, weighing or fetching home an anchor, warping, towing, or mooring.

Bobbin, a small cylinder of wood, with a little border or head at each end, and bored through to receive an iron pivot. It is used in spinning, to wind thread, worsted, hair, cotton, silk, gold, and silver.

Bobbing, among fishermen, a method of catching eels, different from sniggling. To bob for eels, a number of large lobs are well scoured, and a twisted silk thread is run through them from end to end with a needle: they are then tied fast with the two ends of the silk thread, that they may hang in so many hanks; after which the whole mass is attached to a strong cord, with a plummet fixed a little above the worms to sink the bait, and the cord is made fast to a strong pole. This apparatus is thrown into muddy water: the eels tug lustily at the bait; the rope is then to be drawn in gently, and the eels are brought ashore.

Bogs, commonly the remains of fallen forests, covered with peat and loose soil. Moving bogs are slips of land carried to lower levels by accumulated water. Of recent acts, one relating to Ireland for their drainage, passed March, 1830. The bog land of Ireland has been estimated at 3.000,000 acres; that of Scotland at upward of 2,000,000; and that of England at near 1,000,000 of acres. In January, 1849, Mr. Rees Reece took out a patent for certain valuable products from Irish peat.—*Household Words*, No. 41.

Bohea, a species of tea. *See* Tea.

Bole, a friable earthy substance, a species of the soap-stone family. Specific gravity 1·4 to 2. It is found in the island of Lemnos, whence it is sometimes called Lemnian earth; and in Armenia, Italy, France, Silesia, various parts of South America, etc. Armenian and French boles were at one time not uncommon in this country, being used in the materia medica; but they are now entirely, or almost entirely, discarded. In India, however, Armenian bole still continues to be in extensive demand. It is brought to Bombay from the Persian Gulf. It is soft, feels greasy to the touch, adheres strongly to the tongue, and is very frangible: it is generally of a yellowish brown color; though sometimes it is seen of a fine flesh red, which is the variety held in the highest estimation. Some savage nations, such as the Ottomaques, described by M. Humboldt, are in the habit of allaying the pains of hunger by eating boles. The Javanese, when they wish to become thin, eat cakes, called *tanaampo*, made of bole.—Lewis's *Materia Medica;* Thomson's *Chemistry;* Ainslie's *Materia Indica.*

Bolivia. This name was given in 1825 to a new State or Republic in South America, formed from the provinces of Upper Peru, which formerly constituted part of the vice-royalty of Buenos Ayres, and were well known by the names of Charcas, Potosi, La Paz, Cochabamba, and Santa Cruz de la Sierra. These provinces, on securing their independence, soon after the battle of Ayacucho, 9th December, 1824, found it necessary to come to a determination as to their future political state and institutions; and therefore it became a question with the inhabitants of Upper Peru whether they should continue their former connection with the Buenos Ayrean or Argentine provinces, attach themselves to the republic of Peru, or form their country into a separate and independent republic. But the existing government of Buenos Ayres having with equal judgment and generosity divested itself of the claim which it had on the provinces of Upper Peru, the inhabitants of the latter were left at perfect liberty to decide on the future political government of their country. Deputies from all the provinces were in consequence nominated; and having assembled in Chuquisaca, the capital of the republic, in August, 1825, the result of their deliberations was, that the provinces of Upper Peru should in future constitute a separate and independent nation. This assembly, continuing its sessions, issued a declaration of national independence; and, in the exuberance of their gratitude to General Bolivar for the important influence he had exercised in accomplishing the liberation of their country, they determined on giving the name of Bolivia to the whole country.

Bolivia extends from 9° 30′ to 25° 40′ of S. lat., and from 58° to 71° of W. long. from London, and it is bounded on the north by Peru and Brazil, on the east by Brazil and Paraguay, on the south by the Argentine provinces and Chili, and on the west by the Pacific Ocean and Peru. It has been divided by the constituent Congress of Bolivia into six departments, viz., Potosi, Chuquisaca, La Paz, Santa Cruz, Cochabamba, and Oruro; and these have been subdivided into provinces and cantons. Thus each department includes in its jurisdiction certain provinces of the ancient régime. The department of Potosi contains Atacama, Lipez, Potosi, Porco, Chayanta, and Chicas; Chuquisaca contains Charcas or Chuquisaca, Cinti, Yamparaes, and Tomina; La Paz, the provinces of La Paz, Pacajes, Sicasica, Chulumani, Omasuyos, Larecaja, and Apolobamba; Santa Cruz, the provinces of Santa Cruz, Mojos, Chiquitos, Vallegrande, Pampas, and Baures; Cochabamba contains Cochabamba, Sacaba, Tapacari, Arque, Palca, Clissa, and Misque; and the department of Oruro, the provinces of Paria, Oruro, and Carangas.

The only productions hitherto furnished by Bolivia as articles of commerce have been the precious metals, which were exchanged for various articles of luxury and necessity. The rude and simple fabrics manufactured by the Peruvian Indians are usually appropriated to their own domestic uses: while the valuable vegetable productions, and the herds of cattle and mules, which are reared in the eastern parts of the republic, have hitherto scarcely been sufficient for the supply of the inhabitants of those populous mining districts that are principally dependent on them for subsistence. Cocoa to the value of $200,000 is annually exported from La Paz to other parts of Bolivia and Peru.

Before the Revolution, a very extensive traffic was maintained between the upper provinces of Peru and the provinces of the Rio de la Plata, for supplies of cattle and mules. These were reared in great numbers in all the interior Argentine provinces, expressly for the use of those countries, and were first sent by easy journeys to the luxuriant pastures of Salta and Jujuy, where they were carefully fed and tended during the winter, previous to their being conveyed to their final destination in Bolivia and Peru. Some idea may be formed of the extent of this traffic by stating, that besides all those furnished by the other Argentine provinces, the province of Salta alone supplied annually to Upper and Lower Peru from 60,000 to 80,000 mules, on all of which they realized considerable profits, the prices being proportioned to the distance to which they were conveyed. The war of independence, which has so greatly desolated the northern provinces of the Rio de la Plata, and the diminished working of the mines of Bolivia, have almost annihilated this lucrative traffic; but it may be expected to revive with increasing vigor on their again resuming their former habits of tranquillity, and becoming stimulated to increased exertion, by the accession of laborious and intelligent Europeans, and by the spread of education and intelligence.

By the route of Cordova, Tucuman, and Salta, the provinces of Upper Peru or Bolivia formerly received their supplies of articles of commerce from Europe, which were landed at Buenos Ayres; and by the same channel they likewise obtained large supplies of *Yerba* or Paraguay tea, to the great amount, it is affirmed, of 100,000 *arrobas*, or about 2,500,000 pounds annually, which had been previously conveyed by water from Paraguay to Buenos Ayres, and from thence by wagons and mules to Jujuy and Bolivia; thus enhancing its value by a circuitous and expensive land-carriage of from 2000 to 3000 miles, while, by a more improved system of conveyance, it might be sent by the rivers Vermejo and Pilcomayo into the heart of Bolivia, at a vast saving of trouble and expense. The large amount of goods sent from Buenos Ayres by wagons to Jujuy tended greatly to enrich the various provinces through which they passed, giving employment to numbers of the inhabitants; and Jujuy, which formed the most distant point that could be reached by wagons or carriages, became a place of considerable importance, forming the *entrepôt* of the commerce of Peru and the Argentine provinces. From this place the various articles of commerce were conveyed on mules to their ulterior destination.

The new order of affairs consequent on the Revolution has necessarily produced important changes in this branch of commerce, and Bolivia has in a great measure ceased to receive her supplies of foreign commodities by this expensive route. Commerce, where unrestricted, always finds out the shortest and least expensive channels for the introduction of its commodities. The trade is now in a great degree diverted to the ports of the Pacific, called the Puertos Intermedios. Tacna and Arequipa, with their respective ports, have now become the principal channels through which Bolivia receives the produce and manufactures of other countries. How far the Bolivian government has succeeded in making Cobija or Puerto la Mar of that exclusive commercial importance which it contemplated, remains yet to be ascertained. Nature presents great obstacles to the success of the undertaking, which is certainly a most praiseworthy one; while all the rest of the coast, in which are situated the Puertos Intermedios, forms part of the republic of Peru, to which, therefore, they must necessarily pay transit duties. A new and very important channel of communication for commerce will be opened between Bolivia and the Atlantic, whenever commercial enterprise and increasing civilization shall have established steam navigation on the Rio de la Plata and its tributary streams, the Vermejo and Pilcomayo, and from the mouth of the Amazon to its distant tributaries, the Beni and the Mamori.

By a decree of the republican government of Peru, dated 22d February, 1831, the following judicious regulations have been established for settling the commercial relations of that state with the republic of Bolivia: 1. The productions of the territory of the Bolivian republic, introduced into Peru for its consumption, shall be subject to an import duty of 4 per cent. on their valuation. 2. Those productions of Bolivia which only pass through the territory of Peru for embarkation from its ports, shall only be subjected to a transit duty of 2 per cent. 3. Silver and gold, either coined or otherwise, introduced from Bolivia into Peru, shall be exempted from any duties. 4. All foreign articles of commerce passing through the territory of Peru, and destined for Bolivia, shall only be subjected to the payment of 2 per cent. *ad valorem;* and the decree of 22d January, 1830, which imposed transit duties of from 15 to 45 per cent. on such commodities, has been repealed.

Silver, however, has hitherto been the staple metallic production of Bolivia, and has given to it that celebrity which it has long possessed. In the rich mountain of Potosi alone, from the year 1545 to the year 1800, no less than $823,950,509 were coined; and if to this be added the amount of the preceding years, not included, and that obtained in a clandestine manner, $1,647,901,018 has been obtained in the space of 225 years.—E. B.

Bomb (*βόμβος*, a loud noise), in military affairs, a large shell of cast iron, with a vent to receive a fusee, which is made of wood. The shell being filled with gunpowder, the fusee is driven into the vent within an inch of the head, and fastened with a cement made of quick-lime, ashes, brick-dust, and steel-filings, worked together in a glutinous water; or of four parts of pitch, two of colophony, one of turpentine, and one of wax. This tube is filled with a combustible matter made of two ounces of nitre, one of sulphur, and three of gunpowder-dust, well rammed. To preserve the fusee, it is pitched over, but uncased when the bomb is put into the mortar, and covered with gunpowder-dust, which, taking fire by the flash of the powder in the chamber of the mortar, burns all the time the bomb is in the air; and when the composition in the fusee is spent, it fires the powder in the bomb, which bursts with great violence and commits dreadful devastation.

Bombs may be used without mortars, as was done by the Venetians at Candia, when the Turks had possessed themselves of the ditch. Bombs were rolled down upon them along a plank with ledges set sloping toward their works. Bombs did not come into common use before the year 1634, and then only in the Dutch and Spanish armies. One Malthus, an English engineer, is said to have first carried them into France, where they were used at the siege of Collioure.—E. B.

Bombay (Portug. *Buon-Bahia*, "good harbor"), a city, sea-port, and capital of the presidency, is situated on a narrow neck of land at the southeastern extremity of the island of Bombay, separated from the main land by an arm of the sea, forming, with the contiguous islands of Colabah, Salsette, Butcher's Island, and Caranjah, one of the best harbors in India. Lat. 18° 56′ N., long. 72° 53′ E. In 1716 the population was 16,000; in 1816, 161,350; and, according to the *Bombay Calendar*, in 1845, 235,000. Of these two-thirds are Hindoos, 20,000 Parsees, and the rest Mussulmans, Jews, and Christians; with a great variety of fluctuating population, chiefly sailors and traders. It consists of the fort or old town, 1 mile in length by ¼ mile in breadth, in which the European inhabitants and most of the Parsee merchants reside; and the new town, about 1 mile distant northward, inhabited by the Hindoos and Mohammedan native population, beyond which suburb are many detached villas and bungalows, belonging to European and other residents. Bombay Island was ceded by the Portuguese to the English in 1661, as the dower of Queen Catharine, wife of Charles II., and was taken possession of in 1664; so that it has been in their occupation about 180 years, being by far the oldest of their possessions in the East. In 1668 it was transferred by the crown to the East India Company by letters-patent, in free and common soccage, on payment of the annual rent of £10. But by the present charter it has reverted to the crown, with the rest of the company's assets, being held by the company in trust merely. On its cession to the crown of England, in 1661, its population did not exceed 15,000; but at present it has upward of 230,000 inhabitants. The fort stands on the southeastern extremity of the island, on a narrow neck of land, immediately over the harbor. The fortifications are extensive, and on the sea-side very strong.

Bombay has a lively appearance from the sea; but as a city it is greatly inferior to Calcutta or Madras. The houses within the walls are built of wood, and covered with tiles. Principal edifices in the fort are the court-house, secretariate, and other government offices, custom-house, town-hall, castle, mint, cathedral of St. Thomas, St. Andrew's Scotch church, European hospital, etc. In the centre of the fort is an irregular open space called the "Green;" and outside of the massive fortifications is the esplanade. In the new town are Elphinstone college, Sir J. Jejeebhoy's hospital, the Byculla church and club, the house of correction, theatre, and the great Hindoo temple of *Momba Devi*. On the southwest the fort is connected by Colabba causeway with the island of Colabba, on which are the light-house, observatory, lunatic asylum, some mercantile buildings, and a stone pier. The government-house is at Parell, 6 miles north of the fort. There are two banks—the Bank of Bombay and the Commercial Bank of India. The property of the island belongs principally to the Parsees, who are the chief merchants and moneyed men. The harbor of Bombay is one of the best in India, and affords good anchorage for ships of the largest burden. On it are also excellent building and other docks for ships of the first class. Next to Calcutta and Canton, Bombay is the principal commercial emporium in the East, and for many years its trade has been uniformly increasing. In 1837 a steam navigation was commenced between Bombay and Suez; three steamers were at first employed, which the war in 1843 increased to 8; and a regular monthly passage is now made from London to India, under the arrangements of the Oriental Steam Navigation Company. *Bombay Island*, on which the city is built, is 8 miles in length, and 3 miles in breadth, and is formed of two ranges of green-stone, connected in the middle by sand-stone strata. The interior lies low, and was at one time liable to be flooded by the tide, but an embankment was erected to keep out the sea.

Bombay Harbor is one of the safest and most commodious in India. It is bounded on the west and north by the island of Colabah, or Old Woman's Island, Bombay Island, and the island of Salsette. The first two are separated only by a narrow creek fordable at low water, and Bombay Island was joined to Salsette by a causeway constructed in 1805. On the east side of the harbor, between it and the main land, is Butcher's Island, distant about 4 miles from Bombay; and immediately behind Butcher's Island is the famous island of Elephanta. About 3 miles south from Butcher's Island is the island of Caranjah, on the western side of which, next the harbor, is an extensive shoal. Southwest from Caranjah, distant about 5 miles, is Tull Point; between which and Colabah, or Old Woman's Island, is the entrance to the harbor. There is a light-house on the southern extremity of Colabah Island, elevated about 150 feet above the level of the sea, which in clear weather may be seen at the distance of 7 leagues. The point on which the light-house stands is surrounded on all sides by an extensive reef of rocks divided into prongs: of these, the most dangerous is the prong stretching southwest about 3 miles from the light-house, and forming the northern boundary of the entrance into the harbor. The reef, stretching west-northwest from Tull Point about 3¼ miles, forms the southern boundary of the entrance; the breadth of the channel between them being about 3 miles, with a depth of from 7 to 8 fathoms. In going into the harbor, it is necessary to clear a sunken rock, lying almost due east from the light-house, at about 1½ mile distant; and also a bank, called the middle-ground, lying nearly opposite to and about 1¼ mile from the southern extremity of the town.—*See* NICHOLSON *and* WATSON'S *Plan of Bombay Harbor*.

Docks.—Bombay is the only port of consequence in British India in which the rise and fall of the tide are so considerable as to admit of the formation of extensive wet docks. At ordinary spring-tides the rise is about 14 feet, but occasionally as high as 17 feet. The capacious docks constructed by the East India Company are their property, and are for the most part under the direction of Parsees, who, excepting the Chinese, are the most industrious and intelligent people of the East. Merchant vessels of the largest class, or from 1300 to 1400 tons burden, for the cotton trade to China, have been built in these docks. Frigates and line-of-battle ships have also been occasionally constructed in them, sometimes under the exclusive direction of Parsee artificers. The timber having to be brought from a great distance, ships built at Bombay are very costly; but being, contrary to the practice in other parts of India, entirely constructed of teak, they are the most durable vessels in the world, requiring little repair, and often running 50 or 60 years. Being for the most part built by natives, without any very strict application of the rules of the art, they are commonly, though not always, heavy sailers.

Commerce, etc.—The small and sterile island of Bombay affords no produce for exportation; indeed, hardly a week's consumption of corn for its inhabitants. Nor does the whole presidency of Bombay, although comprising about 130,000 square miles, and from 8,000,000 to 9,000,000 inhabitants, with a net revenue in 1848–'49 of £2,460,000, yield, with the exception of cotton, rice, and coffee, any of the great colonial staples, such as sugar and indigo; a circumstance which may, perhaps, be ascribed to the impolitic restraints upon the employment of British settlers and capital that were long imposed by law, and acted upon with peculiar rigor in this and the sister presidency of Madras, in contradistinction to the greater latitude afforded in Bengal. Bombay is also much less favorably situated, in respect of internal communications, than Calcutta. The Ganges and its tributary streams intersect the richest provinces of India, and give Calcutta a vast command of inland navigation; whereas all the inland trade of Bombay has to be carried on by means of roads that are seldom available for carriages, and which can be used only by pack-bullocks and camels. The transit duties, by which the inland trade was grievously oppressed, have been abolished; and if this judicious measure be followed up by the formation of lines of railways to the principal markets in the interior, a great increase of the trade of the town and improvement of the presidency may be expected.

The principal trade of Bombay is carried on with China, Great Britain, the countries on the Persian and Arabian gulfs, Calcutta, Cutch and Seinde, the Malabar coast, foreign Europe, etc. The imports from China consist principally of raw silk, sugar, and sugar-candy, silk piece goods, treasure, etc. The principal articles of export to China are, raw cotton, opium (18,000 chests), principally from Malwa, sharks' fins and fish maws, sandal-wood, pearls, etc. The exports to China being much greater than the imports, the returns for several years past have been made to a large extent in bills on London, and on the Indian governments, drawn by the merchants in China.

The trade with the United Kingdom has been regularly increasing since the abolition of the restrictive system. The chief articles of import from Great Britain are, cotton and woolen stuffs, cotton yarn, hardware, copper, iron and lead, glass, apparel, fur, stationery, wine, etc. The principal articles of export to Britain are, raw cotton, raw silk from China and Persia, ivory, pepper, and spices, piece goods, coffee from the Red Sea, and wool. The export of the last-mentioned article increased with extraordinary rapidity, the quantity shipped for England in 1833–'34 being only 69,944 lbs.; whereas the shipments for England in 1840–'41 amounted to 3,428,055 lbs. But it has since continued nearly stationary. At present the principal supply of the article is drawn from Cutch and Scinde, and from Marwar, *via* Guzerat; but active measures have been taken by government for improving the flocks in the pastoral country of the Deccan, so that a further and very considerable increase of this new and important trade may be anticipated.

Bombay Presidency, the most westerly and the smallest of the three presidencies of British India, mostly between lat. 14° and 24° N., and long. 72° and 76° E., having northwest and north the Guicowar's dominions, east the territories of Indore and the Nizam, south Goa, Mysore, and the Madras presidency, and west the Indian Ocean. Area, with Scinde and Sattara, 120,065 square miles. Population 10,485,017, and is composed of the following subdivisions: Bombay Island, Poonah, Ahmednuggur, Candeish, Dharwar, South Jaghiredars, South Concan, North Concan, Surat, etc., Baroach, Ahmedabad, Kaira, Sattara, etc. The Western Ghauts separate the western or maritime from the eastern districts, which latter form a part of the great table-land of the Deccan. In the north the mountains belong to the Sautpoora and other ranges connected with the Vindhyan chain. Principal rivers, the Nerbudda, Taptee, Mhye, and Sabermutty, falling into the Gulf of Cambay. Above the Ghauts, the rivers are tributary to the Godavery and Kistnah. Climate for the most part less hot and more healthy than in the other presidencies, a great part of the country being under the influence of the sea-breezes. Rice and cotton are the principal articles of culture, and the cotton of this presidency is decidedly superior to that of the others. Some sugar and indigo are raised in Candeish. Opium is nowhere cultivated, and other great staples of Indian produce are only produced in small quantities; but in return, the cardamoms, pepper, and teak, exported from India, are almost exclusively the growth of this region. The northern districts are famous for their great variety of fruits; cocoa palms cover a very large extent of sandy land in the Concan, etc.; wool has lately been exported in considerable quantities from Bombay; and great exertions have been made to introduce the culture of silk. The cattle of Gujerat are a large and fine breed. West of the Ghauts, the ox and buffalo are almost the only domestic animals. The whole presidency is assessed under the native village system of India, except the districts of Surat and Kaira, where the *ryotwarry* system is in force. In the capital of each collectorate is the seat of a British collector and a judge, subordinate to the central court of Bombay. A few years ago the army comprised about 30,000 men and officers, of whom 6250 were Europeans. The whole of the Indian marine is attached to this presidency. In the south there are many native and Roman Catholic and Nestorian Christians. The Parsees are now almost confined to this part of Asia. Revenue, 1849, 24,603,376 rupees. There are in the presidency an English episcopal bishopric with 24 clergy, a Scottish kirk, and Roman Catholic establishments, which receive government aid. Elphinstone college was founded in 1837, and there are 120 schools for the native Hindoos, in which from 800 to 900 boys receive education, besides nearly 2000 native village schools. Bombay was the earliest possession of the British in the East. It was ceded by the Moguls to the Portuguese in 1530, and it came into the possession of the English in 1662 as a part of the dowry of the Infanta of Portugal, on her marriage with Charles II.; but by far the greater part of the territory has been acquired between 1803 and 1818.—*See* INDIA.

Bombazine, a kind of silk stuff, originally manufactured at Milan, and thence sent into France and other countries. Now, however, it is manufactured in large quantities and of a good quality in Great Britain as well as on the Continent.

Bomb-vessel, or **Bomb-ketch,** a small ship of unusual strength, employed for throwing bombs into a fortress; said to have been invented by M. Reyneau, and first used at the bombardment of Algiers. Till then it had been judged impracticable to bombard a place from the sea.—E. B.

Bond, in *Law*, is a deed whereby the party obliges himself, his executors, or administrators (and, if the deed so express it, his heirs also), to pay a certain sum to another at a day appointed. If this be all, the bond is called a simple one (*simplex obligatio*). But there is generally a condition added, that, if the obligor does some particular act, the obligation shall be void, or else shall remain in full force; as, payment of rent, performance of covenants in a deed, or repayment of a principal sum of money borrowed of the obligee, with interest; which special sum is usually one-half of the penal sum specified in the bond. In case this condition is not performed, the bond becomes forfeited, or absolute at law, and charges the obligor while living, and, after his death, his personal representatives, and his heirs if the heirs be named in the bond. In case of a failure to perform the condition of the bond, the obligee can recover only his principal, interest, and expenses; if the bond were given to secure the payment of money, or if it were given to secure the performance of a covenant, he can recover only reasonable damages for the breach.—E. A.

Bones of cattle and other animals are extensively used in the arts, in forming handles for knives, and various other purposes; but of late years they have been of most importance in agriculture. When employed in the latter, they are, in most instances, ground or reduced to powder, and are commonly used as manure for turnips, being in general drilled in with the seed, though sometimes, also, they are sown broadcast, and with other crops. The quantity used varies from about 25 bushels of *dust* to about 40 bushels *large* an acre. Their effect is said to be considerably increased when they have undergone the process of fermentation. They were first used in England on a large scale as a manure in Lincolnshire; and there can be no doubt that their extensive employment in that county has been one of the chief causes of its rapid improvement, and of the high state of cultivation to which it has attained. Bone-dust is now, however, very largely used, and its influence in increasing the crops of corn and turnips, and consequently, also, the supplies of butcher's meat and farm manure, has been quite extraordinary.

Book-keeping, the art of keeping the accounts and books of a merchant. Book-keeping by double entry means that mode or system in which every entry is double, that is, has both a debtor and a creditor. It is called also the Italian method, because it was first practiced in Venice, Genoa, and other towns in Italy, where trade was conducted on an extensive scale at a much earlier date than in England, France, or other parts of Europe. This method, however familiar to merchants and book-keepers, seems intricate to almost all who have not practiced it; nor is the dryness and difficulty of the task much lessened by the printed works on the subject, which, having been compiled more by teachers than by practical merchants, contain a number of obsolete rules and unnecessary details. To discuss this subject fully would require more space than could be appropriated in this work. We therefore refer our readers to the reliable volumes of Mr. Marsh (published by Appleton & Co., New York) and other writers.

Books (Ger. *Bücher*; Du. *Boeken*; Da. *Böger*; Sw. *Böcker*; Fr. *Livres*; It. *Libri*; Sp. *Libros*; Port. *Livros*; Russ. *Knigi*; Pol. *Ksiaski*, *Ksiegi*; Lat. *Libri*), written or printed treatises on any branch of science, art, or literature, composed in the view of instructing, amusing, or persuading the reader. Ancient books were originally boards, or the inner bark of trees; and bark is still used by some nations, as are also skins, for which latter parchment was substituted. Papyrus, an Egyptian plant, was adopted in that country. Books whose leaves were vellum were invented by Attalus, king of Pergamus, about 198 B.C., at which time books were in volumes or rolls. The MSS. in Herculaneum consist of papyrus, rolled and charred, and matted together by the fire, and are about nine inches long, and one, two, or three inches in diameter, each being a separate treatise. The Pentateuch of Moses, and the history of Job, are the most ancient in the world; and in profane literature, the poems of Homer, though the names of others still more ancient are preserved.—HAYDN.

Prices of Books.—Jerome states that he had ruined himself by buying a copy of the works of Origen. A large estate was given for one on cosmography, by Alfred, about A.D. 872. The *Roman de la Rose* was sold for above £30; and a Homily was exchanged for 200 sheep and five quarters of wheat; and they usually fetched double or treble their weight in gold. They sold at prices varying from £10 to £40 each, in 1400. In our own times, the value of some volumes is very great. A copy of *Macklin's Bible*, ornamented by Mr. Tomkins, has been declared worth 500 guineas.—BUTLER. A yet more superb copy is at present insured in a London office for £3000.—*Times*. *Il Decamerone* of Boccacio, edition of 1471, was bought at the Duke of Roxburgh's sale by the Duke of Marlborough for £2260, June 17, 1812.—PHILLIPS. A copy of the "Mazarin Bible," being the first edition and first book ever printed (by Guttemberg at Mentz, in 1455), was sold at auction in London, in April, 1846, for £500. This copy, the only one known to exist except 19 in public libraries, is now in a private library in New York.—*Id.*

Printed Books.—The first printed books were trifling hymns and psalters, and, being printed only on one side, the leaves were pasted back to back. The first printing was, as a book, the *Book of Psalms*, by Faust and Schæffer, his son-in-law, Aug. 14, 1457. Several works were printed many years before; but as the inventors kept the secret to themselves, they sold their first printed works as manuscripts. This gave rise to an adventure that brought calamity on Faust. He began in 1450 an edition of the Bible, which was finished in 1460. The second printed was *Cicero de Officiis*, 1466.—BLAIR. The first book printed in England was *The Game and Play of the Chesse*, by Caxton, 1474. The first in Dublin was the *Liturgy*, in 1550. The first classical work printed in Russia was *Corn. Nepotis Vitæ*, in 1762. *Lucian's Dialogues* was the first Greek book printed in America (at Philadelphia), 1789. Books of astronomy and geometry were all destroyed in England as being infected with magic, 6 Edw. VI. 1552.—STOWE'S *Chronicles*. According to PETTIGREW (*Biblio. Sussex.*), the first book printed with movable types was the Latin Bible, printed by John Guttemberg at Mayence, about 1455. It was in two folio volumes; and so excellent was the workmanship, both in type, ink, paper, and press-work, that it has scarcely been surpassed since. The succeeding editions for 200 years were much inferior. This edition is called the *Mazarin Bible*, as a copy was first found in the library of Cardinal Mazarin. Only 20 copies are now known to exist, all but one being in public libraries in Europe. Specimens of the *block books*, printed with engraved wooden blocks, instead of type, are now very rare. Of the *Biblia Pauperum*, done in this way, only two copies exist, one of which belongs to a citizen of New York.

Copyright is the right which the authors of books or treatises claim to the exclusive privilege of printing, publishing, and selling them.

Books are divided into *classes*, according to the mode in which the sheets of the paper on which they are printed or written are folded: viz., *folio*, when the sheet is folded into two leaves; *quarto*, when folded into *four*; *octavo*, when folded into *eight*; *duodecimo*, when the sheet is folded into *twelve*, etc. In making these classifications, no attention is paid to the *size* of the sheet.

Progress and present State of the Law as to the Copyright of Books.—It has been doubted whether, in antiquity, an author had any exclusive right to a work, or whether, having once published it, he could restrain others from copying it and selling copies. We incline to think that he could. The public sale of copies of works is often referred to in the classics; and in such a way as warrants the inference that they were productive to the author, which could not have been the case had every one been permitted to copy them at pleasure. Terence, in one of his plays (*Prol. in Eunuch.* l. 20), says, *Fabulam, quam nunc acturi sumus, postquam ædiles emerunt*; but why should the magistrates have bought it, had it been free to every one to copy it? It would have been singular, indeed, had it been otherwise. Of all the species of property a man can possess, the fruits of his mental labors seem to be most peculiarly his own. And though it may, we think, be shown that many serious inconveniences would result from giving the same absolute and interminable property over ideas that is given over material objects, these inconveniences could hardly have been perceived in antiquity. It will also be observed that in antiquity a copyright was of much less value than in modern times. Books could then only be multiplied by copying them with the pen; and if any one chose privately to copy a work, or to buy it of another, it must have been very difficult to hinder him; but when printing had been introduced, the greater cheapness of books not only extended the demand for them in far greater proportion, and consequently rendered copyrights more valuable, but it also afforded the means of preventing their piracy. Printing is not a device by which a few copies of a book can be obtained at a cheap rate. It is productive of cheapness only when it is employed upon a large scale, or when a considerable impression is to be thrown off. And hence, after its invention, piracy could hardly be committed in secret: the pirated book had to be brought to market; the fraud was thus sure to be detected, and the offending party might be prosecuted and punished.

For a considerable time after the invention of printing, no questions seem to have occurred with respect to copyrights. This was occasioned by the early adoption of the licensing system. Governments soon perceived the vast importance of the powerful engine that had been brought into the field; and they endeavored to avail themselves of its energies by interdicting the publication of all works not previously licensed by authority. During the continuation of this system, piracy was effectually prevented. The licensing act (13 & 14 Chas. II. c. 2), and the previous acts and proclamations to the same effect, prohibited the printing of any book without consent of the owner, as well as without a license. In 1694 the licensing act finally expired, and the press then became really free. Instead, however, of the summary methods for obtaining redress for any invasion of their property enjoyed by them under the licensing acts, authors were now left to defend their rights at *common law;* and as no author or bookseller could procure any redress for a piracy at common law, except in so far as he could *prove damage*, property in books was virtually annihilated; it being in most cases impossible to prove the sale of one printed copy out of a hundred. Under these circumstances, applications were made to Parliament for an act to protect literary property, by granting some speedy and effectual method of preventing the sale of spurious copies. In consequence, the statute 8 Anne, c. 19, was passed, securing to authors and their assignees the exclusive right of printing their books for 14 years certain, from the day of publication, with a contingent 14 years, provided the author were alive at the expiration of the first term. Persons printing books protected by this act, without the consent of the authors or their assignees, were to forfeit the pirated copies, and 1*d*. for every sheet of the same. Such books as were not entered at Stationers' Hall were excluded from the benefit of this act.

Every one must be satisfied that 14 years' exclusive possession is far too short a period to indemnify the author of a work, the composition of which has required any considerable amount of labor and research; though 28 years is perhaps, all things considered, not a very improper period. But the grand defect of the statute of Anne consisted in its making the right to the exclusive possession for 28 years contingent on the fact of a person having lived a day more or less than 14 years after the publication of his work. This was making the enjoyment of an important right dependent on a mere accidental circumstance over which man has no control. Could any thing be more oppressive and unjust than to hinder an author from bequeathing that property to his widow and children that would have belonged to himself had he been alive? Nothing, indeed, as it appears to us, can be more obvious than the justice of extending all copyrights to the same period, whether the authors be dead or not.

In the United States, the jurisdiction of this subject is vested in the Federal government by the Constitution (art. 1, sec. 8), which declares that Congress shall have power "to promote the progress of science and useful arts, by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries."

By the acts of Congress, May 31, 1790 (c. 15), and April 29, 1802 (c. 36), the authors of maps, charts, books, engravings, etchings, etc., being citizens of the United States, or resident therein, are entitled to the exclusive right of publishing for 14 years, and, if the author be living at the end of that period, for an additional term of 14 years.

The English law does not distinguish between residents and non-residents, aliens, like the American law.

A copyright may exist in a translation, or in part of a work (as in notes or additional matter); but a *bona fide* abridgment of a book is not considered in England and the United States a violation of the original copyright. So a person may use a fair quotation, if by application he makes it part of his own work; but can not take the whole, or large part, under pretense of quotation. If an encyclopedia or review copies so much of a book as to serve as a substitute for it, it becomes liable to an action for a violation of the law. An encyclopedia is not allowed by its transcripts to sweep up all modern works. In Germany abridgments are not protected as in the United States.

The great practical difficulty in interpreting the copyright acts is in distinguishing between an original work and a copy made, *animo furandi*, from one already in existence. The following is a summary of Mr. Godson's remarks on this subject:

"The identity of a literary work consists entirely in the *sentiments* and *language*. The same conceptions, clothed in the same words, must necessarily be the same composition; and whatever method is taken of exhibiting that composition to the ear or the eye, by *recital*, or by *writing*, or by *printing*, in any number of copies, or at any period of time, the property of another person has been violated; for the new book is still the identical work of the real author. Thus, therefore, a transcript of nearly all the sentiments and language of a book is a glaring piracy. To copy part of a book, either by taking a few pages *verbatim*, when the sentiments are not new, or by imitation of the principal ideas, although the treatises in other respects are different, is also considered to be illegal. Although it was held by Chief-justice Ellenborough that a variance in *form* and *manner* is a variance in *substance*, and that any material alteration which is a *melioration* can not be considered as a piracy; yet a piracy is committed, whether the author attempt an original work, or call his book an abridgment, if the principal parts of a book are servilely copied or unfairly varied. But if the main design be not copied, the circumstance that part of the composition of one author is found in another is not of itself piracy sufficient to support an action. A man may fairly adopt part of the work of another; he may so make use of another's labors for the promotion of science, and the benefit of the public; but having done so, the question will be, Was the matter so taken used fairly with that view, and without what may be termed the *animus furandi?* In judging of a quotation, whether it is fair and candid, or whether the person who quotes has been swayed by the *animus furandi*, the quantity taken, and the *manner* in which it is adopted, of course must be considered. If the work complained of be *in substance* a copy, then it is not necessary to show the intention to pirate; for the greater part of the matter of the book having been purloined, the intention is apparent, and other proof is superfluous. A piracy has undoubtedly been committed. But if only a *small portion* of the work is quoted, then it becomes necessary to show that it was done *animo furandi*, with the intention of depriving the author of his just reward, by giving his work to the public in a cheaper form. And then the *mode* of doing it becomes a subject of inquiry; for it is not sufficient to constitute a piracy that part of one author's book is found in that of another, unless it be nearly the whole, or so much as will show (being a question of fact for the jury) that it was done with a bad intent, and that the matter which accompanies it has been *colorably* introduced.—P. 215–217. If a work be of such a libelous or mischievous nature as to affect the *public morals*, and that the author can not maintain an action at law upon it, a court of equity will not interpose with an injunction to protect that which can not be called property. Even if there be a doubt as to its evil tendency, the lord chancellor will not interfere."—GODSON, p. 212.

Expediency of limiting Copyrights to a reasonable Term.—It is argued by many that copyrights should be made perpetual; that, were this done, men of talent and learning would devote themselves much more readily than at present to the composition of works requiring great labor; inasmuch as the copyright of such works, were it perpetual, would be an adequate provision for a family. But we doubt much whether these anticipations would be realized. Most books or manuscripts are purchased by the booksellers, or published upon the presumption that there will immediately be a considerable demand for them; and we apprehend that when copyrights are secured for 42 years certain, very little more would be given for them were they made perpetual. When an annuity, or the rent or profit arising out of any fixed and tangible property, with respect to which there can be no risk, is sold, if the number of years for which it is to continue be considerable, the price which it is worth, and which it fetches, does not differ materially from what it would bring were it perpetual. But the copyright of an unpublished work is, of all descriptions of property in which to speculate, the most hazardous, and the chances of reaping contingent advantages from it, at the distance of 42 years, would be worth very little indeed.

Perhaps the period of 28 years has been advantageously extended to 42; but we are satisfied that more injury than benefit would result to literature by extending it beyond this term. In France, copyrights continue for 20 years after the death of the author. In most of the German States they are perpetual; this, however, until very recently, hardly indemnified the authors for the ease with which spurious copies might be obtained from other States. But by a late resolution of the Diet, a copyright secured in one State is good in all.

International Copyrights.—The establishment of an international copyright system, that should enable the authors of one country to secure the copyright of their works in other countries, has of late excited a good deal of attention. We doubt, however, whether the advantages that would result from such a system, were it established, would be so great as many seem to suppose. No doubt it would be advantageous for the authors of popular works in Great Britain and the United States, for example, to be able to secure a copyright in both countries; but the real question is, would the interests of literature and of the public be promoted by such arrangement? Now we incline to think that this question must be answered in the negative. The single market of either Great Britain or the United States is quite large enough to secure a sale for really good works sufficient to afford ample encouragement to their authors; and such being the case, it is difficult to see on what ground the republication at a cheap rate in the one country of books originally published in the other should be prevented. Indeed, such prevention would appear, by obstructing the circulation of knowledge and of amusement, to be injurious to both. It has, it is true, been alleged that if we had a copyright system in common with England, English and American books might be published at a less price, inasmuch as the extension of the market would secure them a larger sale. But though this result *might*, we doubt much whether it really *would*, happen. We apprehend that then, as now, authors and publishers would impose such prices on their works as they supposed would realize the largest amount of profit, and that if they thought a high price more likely to do this than a low one, it would be preferred. The extensive reprinting of cheap editions of French works that has for a lengthened period been carried on at Brussels has certainly been disadvantageous to the literati of France. Still, however, the market of that kingdom seems to be sufficiently extensive to insure the unlimited production of works displaying the greatest talent, research, and industry; and it is plain that if the production of valuable works be not checked in France by their being reprinted abroad, the injury done to French men of letters redounds to the advantage of every foreigner who has occasion to look into or consult their works. Every effort should be made to prevent copyrights being invaded by pirates at home, and by the clandestine importation of books printed abroad; but farther than this we should not go. We are well convinced that it is for the advantage of the public and of literature that nations should have full liberty to republish each other's works in such forms and at such times and prices as they may think fit.

The real evil with which our literature has to contend originates in the barefaced piracy carried on at home, and not in the proceedings of foreigners. The latter may, perhaps, interfere a little with the sale of native works, by supplying the public with foreign instead of home editions; but the proceedings of the indigenous pirates are ten times more mischievous. They consist, for the most part, of knaves and drudges, without talent or learning of any sort, save only that of transmuting and adulterating the labors of others, and disguising their own rascality. Such persons fasten like leeches on any new work of talent, research, and industry; they forthwith announce some system, compilation, or abridgment of the same sort, every idea and statement in which is stolen; and then publish their spurious rubbish at a low price, advertise it as being decidedly the best work on the subject, and find numbers of newspaper writers ready to puff off and eulogize their disinterested and meritorious labors! It is difficult, we admit, to deal with such a nuisance, and it can not, perhaps, be abated by legislation. But while we regret the fact, there can not, we believe, be a question that courts and juries have for a lengthened period inclined too much to a lenient interpretation of the law as to piracy; and that literary plunderers, whose robberies are but little disguised, too often escape with impunity.

By the following table it will be seen that the foreign trade in books and maps is limited. The imports are from England and France principally, and also a few from Germany.

DOMESTIC EXPORTS FROM THE UNITED STATES, FOR THE YEARS ENDING JUNE 30TH, 1853, 1854, 1855.

	1853.	1854.	1855.
Books and Maps	$142,604	$187,335	$207,218
Paper and Stationery....	122,212	191,843	185,657

IMPORTS OF PAPER AND BOOKS INTO THE UNITED STATES, FOR THE YEARS ENDING JUNE 30TH, 1853, 1854, 1855.

	1853.	1854.	1855.
Paper and Stationery....	$602,659	$755,829	$768,122
Books and printed matter	723,221	917,044	793,431

Boom (Dutch *boom*, a beam), in naval language, a long spar for spreading out the clew or corner of particular sails; as the jib-boom, studding-sail boom, main boom, square-sail boom, etc. Boom denotes also a strong chain or cable stretched across the mouth of a river or harbor, with spars lashed to it, to prevent the entrance of an enemy's ships.—E. B.

Booming, among sailors, denotes the application of a boom to the sails, in order to accelerate the speed of the ship.—E. B.

Boots and **Shoes**, the external covering for the legs and feet, too well known to require any description. Boots are said to have been the invention of the Carians, and were made of iron, brass, or leather; of the last material, some time after their invention, boots were known to the Greeks, for Homer mentions them about 907 B.C.—For an account of the value of the boots and shoes annually produced, *see* LEATHER, and for the duties on those imported *see* TARIFF.

Borax, or **Tincal** (Arab. *Burak;* Pers. *Tunkar*), one of the salts of soda. It is white, transparent, rather greasy in its fracture; its taste is styptic, and it converts sirup of violets to a green. It readily dissolves in hot water, and swells and bubbles in the fire. It is of great use as a flux for metals.—THOMSON's *Chemistry.* This salt is found in a crystallized state at the bottom of certain lakes in Thibet, and in various localities in Persia, China, South America, and Europe. Formerly, however, the demand of Europe was almost wholly supplied from the East, and especially by importations from Thibet, where the salt is comparatively abundant. Crude borax, when imported, is called *tincal*, being enveloped in a fatty matter, from which it has to be separated by a process that was long known only to the Venetians and Dutch. Large quantities are supplied from the famous lagoons near Monte Cerbole, in Tuscany. These lagoons, which occupy a large extent of surface, consist of an infinite number of low volcanoes, and springs in a furious state of ebullition; the ground, which shakes and burns beneath the feet, is covered with crystallizations of sulphur and other minerals; the whole scene presenting a striking picture of the most tremendous energy and sterility. The vapors that are constantly bursting forth from the boiling lagoons being found to contain boracic acid, it occurred to a most ingenious person, a M. Larderel, to construct pans through which the vapors being made to pass impregnate the water in them with the acid. The pans are kept boiling by the heat of the lagoons; and the water being evaporated, the acid is deposited in crystals. In consequence of this discovery, the lagoons, from being altogether worthless, have become most valuable. From 10,000 to 12,000 pounds (12 ounces each) of acid were, a few years ago, daily produced; and this vast supply, and the facility with which borax may be obtained from the acid, has occasioned a great reduction in its price, and enabled it to be much more extensively employed than before.—*See Dr.* Bowring's *Report on Tuscany.*

Bordeaux, a large and opulent commercial city of France, on the Garonne, about 75 miles from its mouth, lat. 44° 50′ 26″ N., long. 0° 34′ W. Population, in 1851, 130,927. The commerce of Bordeaux is very extensive. The Garonne is a noble river, with depth of water sufficient to enable large ships to come up to the city, laying open, in conjunction with the Dordogne and their tributary streams, a large extent of country. The commerce of Bordeaux is greatly promoted by the famous canal of Languedoc, which communicates with the Mediterranean. By its means Bordeaux is enabled to furnish the south of France with colonial products at nearly as cheap a rate as Marseilles. Wines, brandies, and fruits are the staple articles of export; but the merchants apply themselves more particularly to the wine trade. Most part of their other business is confined to dealing on commission; but this they conduct almost invariably on their own account. The reason they assign for this is, that the difficulties attending the purchase, racking, fining, and proper care of wines, so as to render them fit for exportation, are so very great, as to make it almost impossible to conduct the business on any thing like the ordinary terms so as to satisfy their employers. Colonial products, cotton, dye-stuffs, pepper, hides, tobacco, rice, form the principal articles of importation.

Account of Port Charges, Brokerage, and other public Disbursements payable in Bordeaux on account of a French or Foreign Vessel of 300 Tons Burden, from a Foreign Port to Bordeaux, or from Bordeaux to a Foreign Port.

Nature of Charges.	On a French or British Vessel.		On a Foreign Vessel.	
	In French Money.	In Sterling Money.	In French Money.	In Sterling Money.
	Francs. c.	£ *s.* *d.*	*Francs. c.*	£ *s.* *d.*
Report and pilotage from sea to Bordeaux for a vessel drawing 14 French feet water (15 feet 3·9 in British)	218 93	8 15 2	247 50	9 18 0
Lazaretto dues	61 0	2 18 10	61 8	2 18 10
Moving vessel up and mooring her	10 0	0 8 0	10 8	0 8 0
Entering vessel at custom-house, and brokerage inward	100 0	4 0 0	100 0	4 0 0
Advertisement for freight and passengers, 6 francs (4*s.* 10*d.*) to each newspaper				
Tonnage money and navigation dues on 300 tons	495 0	19 16 0	1239 0	49 11 2
Visiting officers, clearances, harbor master, etc.	14 75	0 11 10	14 75	0 11 10
Manifest and freight list	15 0	0 12 0	15 0	0 12 0
Ballast taken in or out, 1 franc 25 centimes per ton (1*s.*)				
Consul's bill. Usual fees (English vessels), 17 francs 25 cent. (15*s.*)				
Pilotage from Bordeaux to sea	220 0	8 16 0	245 34	9 16 3
Broker's commission outward, care and attendance for expediting the vessel:				
In ballast, 50 c. per ton (5*d.*), say 120 fr. at most (£4 16*s.*) average	300 0	12 0 0	300 0	12 0 0
Loaded per charter or on owner's account, 1 fr. (10*d.*) per ton				
Loaded in freight, 1 franc 50 centimes (1*s.* 3*d.*) per ton				
Total	1434 66	57 7 10	2232 59	89 6 1

N. B.—No regard paid to the nature of the cargo, as all goods are imported either for consumption or exportation, which does not expose vessels to pay more or less charges.

Wine.—The culture of the vine is by far the most important branch of industry carried on in the department of the Gironde. The annual produce of its wines, the red growths of which are known by the general name of *claret*, amounts to about 2,500,000 hectolitres, or about 55,000,000 imperial gallons. The vineyards are the property of about 12,000 families, and the expenses of their cultivation are estimated to amount to 45 or 46 million francs a year. The best growths are from the confines of the "Landes," behind Bordeaux; the secondary growths are chiefly the produce of the country between the Garonne and Dordogne, and the *Palus*, a district of a strong rich soil bordering the banks of those rivers. The first growths of the red wines are denominated *Lafitte*, *Latour*, *Château-Margaux*, and *Haut Brion.* The first three are the produce of the district of *Haut Medoc*, northwest of Bordeaux, and the last of the district called *des Graves.* These wines are all of the highest excellence; their produce is very limited, and in favorable years sells at from 3000 to 4000 francs the tun, which contains 210 imperial gallons; but when they have been kept in the cellar for six years the price is doubled, so that even in Bordeaux a bottle of the best wine can not be had for less than 6 or 7 francs. The *Lafitte* is the most choice and delicate, and is characterized by its silky softness on the palate, and its charming perfume, which partakes of the nature of the violet and the raspberry. The *Latour* has a fuller body, and, at the same time, a considerable aroma, but wants the softness of the *Lafitte.* The *Château-Margaux*, on the other hand, is lighter, and possesses all the delicate qualities of the Lafitte, except that it has not quite so high a flavor. The *Haut Brion*, again, has more spirit and body than any of the preceding, but is rough when new, and requires to be kept 6 or 7 years in wood; while the others become fit for bottling in much less time.—Henderson *on Wines*, p. 184.

Among the secondary red wines, those of *Rozan*, *Gorce*, *Leoville*, and *Larose*, *Bran-Mouton*, *Pichon-Longueville*, and *Calon*, are reckoned the best. The third-rate wines comprise those called *Pauillac*, *Margaux*, *St. Jullien*, *St. Estèphe*, *St. Emilion*, etc. It is but seldom that any of these growths are exported in a state of purity. The taste of the English, for example, has been so much modified by the long-continued use of port, that the lighter wines of the Gironde would seem to us to want body. Hence it is usual for the merchants of Bordeaux to mix and prepare wines according to the markets to which they are to be sent. Thus the strong rough growths of the *Palus* and other districts are frequently bought up for the purpose of strengthening the ordinary wines of Medoc; and there is even a particular manufacture, called *travail à l'Anglaise*, which consists in adding to each hogshead of Bordeaux wine three or four gallons of Alicant or Benicarlo (large quantities of which are imported into Bordeaux by way of Cette and the canal of Languedoc), half a gallon stum wine, a bottle of alcohol, and sometimes a small quantity of hermitage. This mixture undergoes a slight degree of fermentation; and when the whole is sufficiently "fretted in," it is exported under the name of claret. This mixture chiefly consists of secondary wines, the first-rate growths falling far short of the demand for them.—Henderson, p. 184; see also Jullien, *Topographie des Vignolles*, p. 203. But even the first-class wines are most frequently intermixed with the best secondary growths; and it is customary to employ the wines of a superior to mix with and bring up those of an inferior vintage. Hence we need not wonder at the statement of a gentleman who, after living twenty years in the best society in Bordeaux, doubted whether he had tasted more than *three times* any pure wine of the first quality! The *white* wines of the Gironde are of two kinds; those called *Graves*, which have a dry, flinty taste, and an aroma somewhat resembling cloves: of these, the principal are, *Sauterne*, *Barsac*, *Preignac*, and *Langon*. These are said by Jullien to be *trés-moelleux, ou, pour mieux dire, semi-liquoreux et assez spiritueux.* The white wines of the Gironde have for several years past been advancing in estimation and value, and may be said, speaking generally, to come to us in a less adulterated state than the red wines. About half the wines of the Gironde are sent to other parts of France: one-fifth part is consumed in the department; one-fifth is exported, the finest growths to England, but the larger quantity to the north of Europe and Holland; and about one-fifth part is supposed to be converted into brandy. A person accustomed to good society in London, and, indeed, in most other parts of the country, would be apt to conclude that French wines were consumed in England to the almost total exclusion of other wines. But any such inference would be in the last degree erroneous. The fact is, that French wines are rarely drunk, except by the upper classes, and their consumption is inconsiderable, compared with that of the middle and lower classes. So much is this the case, that while, in 1852, 2,489,350 gallons port, and 2,696,857 gallons sherry, were entered for home consumption, the entries of *all* descriptions of French wines (including champagne, claret, Sauterne, and every thing else) amounted to only 475,948 gallons!—See *post*, art. WINE. The purchase of wines, whether from the grower or merchant, is always effected through brokers, some of whom have acquired a reputation for accuracy in dissecting the different flavors, and in tracing the results of the wines by certain measures of training or treatment. England takes off nearly half the highest-priced wines, and very little of any other quality. Except in Bordeaux itself, there is but a very moderate portion of the superior Medoc consumed in France. The capital takes off only second, third, and fourth rate wines. The Dutch, who are large consumers of Bordeaux wine, go most economically to work. They send vessels to the river in the wine season, with skillful supercargoes, who go among the growers, and purchase the wines themselves cheaper even than a broker would do. They live on board ship, take their own time to select, and wait often for months before the cargo is completed; but they attain their object, getting a supply of good sound wine, and at as low a rate, with all charges of shipping included, as the wine-merchants can deliver it into their stores in Bordeaux. They never purchase old wine; they take only that newly made, which, being without the support of stronger-bodied wines, must be consumed in the course of 2 or 3 years. They follow the same system at Bayonne, where 2 or 3 ships go annually for the white wines of Jurançon, etc. The cargo wines, which are the lowest class, are so manufactured that it is hardly possible to know of what they are composed. They are put free on board for £2 per hogshead and upward, according as they are demanded. They will not bear exposure in a glass when shipping; the tasters have a small flat silver cup expressly for them. These wines are principally shipped to America and India, and some at a higher price to the north of Europe.

Brandies, and Spirits of Wine.—The quantity distilled in the neighborhood of Bordeaux is estimated at about 18,000 pieces, of 50 veltes each; ditto, in the Armagnac, 20,000 ditto; ditto, in the Marmauduis, 8000 ditto; making in all 46,000 pieces, ordinary proof. Of this quantity France takes off about 23,000 pieces for consumption; England, 2500; United States, 10,000; India, 2500; north of Europe, 5000; in all 43,000 pieces. Languedoc produces annually about 40,000 pieces, of 80 veltes each, the greater part of which comes to Bordeaux to be forwarded to the different ports of the north of France, or to foreign countries. France consumes about two-thirds of the above quantity; the remaining one-third goes to the north of Europe. The prices of brandy are from 130 fr. to 150 fr. per 50 veltes, ordinary proof; spirits of wine, from 4 fr. to 5 fr. per velte. The greatest shipments of brandy take place to England from the port of Formay, on the Charente. Cognac, from which the brandy takes its name, and where there are large distilleries, is a few leagues up the river. The quantity exported is far greater than what is made at Cognac; the two leading distillers there (Martel and Henessey) buying great quantities from the small cultivators. The greater part of the wines made about Angoulême, and thence down toward the sea, are of inferior quality, and fit only for making brandy; and so little do the prices vary, that the proprietors look upon it nearly in the same light as gold. When they augment their capital by savings or profits, it is employed in keeping a larger stock of brandy, which has the further advantage of paying the interest of their capital by its improved value from age. England is said to receive upward of 6000 pieces annually from Charente. At Bordeaux, as at Paris and Marseilles, there is a constant gambling business in time bargains of spirits of wine. It is in the form of spirits of wine that nearly all the brandy consumed in France is expedited, as in this form there is a great saving in carriage.—For an official account of the exports of wine and brandy from France, *see* WINE. The fruits exported consist almost entirely of prunes and almonds. The latter come principally from Languedoc. Bordeaux possesses some iron foundries, cotton factories, sugar refineries, glass works, etc., but labor and living are too high to admit of its becoming a considerable manufacturing city.

Banking Establishments.—The "Bordeaux Bank," which had a capital of 3,000,000 fr., in shares of 1000 fr. each, was incorporated, in 1848, with the Bank of France, of which it is now a branch. Its affairs have been well managed.—*See* BANKS, FOREIGN.

Brokers.—No one is allowed to act as a mercantile broker in France who is not 25 years of age, and who has not served 4 years in a commercial house, or with a broker, or a notary public. They are nominated by the government, after their qualifications have been ascertained by the Chamber of Commerce. All brokers must deposit the sum of 8000 fr. in the treasury as a guarantee for their conduct, for which they are allowed interest at the rate of 4 per cent. All foreigners are obliged to employ ship brokers to transact their business at the custom-house; and although masters and owners of French vessels might sometimes dispense with their services, they never do so, finding it to be, in all cases, most advantageous to use their intervention. All duties outward on vessels and cargoes are paid by the ship brokers, who invariably clear out all vessels, French as well as foreign.

Operation of the French Commercial System on the Trade of Bordeaux, etc.—The trade of this great city has suffered severely from the short-sighted, anti-social policy of the French government. This policy was first broadly laid down, and systematically acted upon, by Napoleon; and we believe it would not be difficult to show that the privations it entailed on the people of the Continent powerfully contributed to accelerate his downfall. But those by whom he has been succeeded have not hitherto seen the expediency of returning to a sounder system; on the contrary, they have carried, in some respects at least, the "continental system" to an extent not contemplated by Napoleon. Notwithstanding the vast importance to a country like France of supplies of iron and hardware at a cheap rate, that which is produced by foreigners is excluded, though it might be obtained for a third part of the price of that which is manufactured at home. A similar line of policy has been followed as to cotton-yarn, earthen-ware, etc. And in order to force the manufacture of sugar from the beet-root, oppressive duties have been laid, not only on foreign sugar, but even on that imported from the French colonies. The operation of this system on the commerce and industry of the country has been most mischievous. By forcing France to raise at home articles for the production of which she has no natural or acquired capabilities, the exportation, and consequently the growth, of those articles in the production of which she is superior to every other country, has been very greatly narrowed. All commerce being bottomed on a fair principle of reciprocity, a country that refuses to import must cease to export. By excluding foreign produce—by refusing to admit the sugar of Brazil, the cottons and hardware of England, the iron of Sweden, the linens of Germany, and the cattle of Switzerland and Wirtemberg—France has done all that was in her power to drive the merchants of those countries from her markets. They are not less anxious than formerly to obtain her wines, brandies, and silks; inasmuch, however, as commerce is merely an exchange of products, and as France will accept very few products belonging to others, they can not, how anxious soever, maintain that extensive and mutually beneficial intercourse with her they would otherwise carry on: they sell little to her, and their purchases are, of course, proportionally diminished. This, indeed, is in all cases the necessary and inevitable effect of the prohibitive system. It never fails to lessen exportation to the same extent that it lessens importation; so that, when least injurious, it merely substitutes one sort of industry for another—the production of the article that had been obtained from the foreigner for the production of that which had been sent to him as an equivalent.

France is not only extremely well situated for carrying on an extensive intercourse with foreign countries, but she is largely supplied with several productions which, were she to adopt a liberal commercial system, would meet with a ready and advantageous sale abroad, and enable her to furnish equivalents for the largest amount of imports. The superiority enjoyed by Amboyna in the production of cloves is not more decided than that enjoyed by France in the production of wine. Her claret, Burgundy, Champagne, and brandy are unrivaled, and furnish of themselves the materials of a vast commerce. Indeed, the production of wine is, next to the ordinary business of agriculture, by far the most extensive and valuable branch of industry in France. It is stated by the landholders and merchants of the department of the Gironde, in the admirable *Pétition et Mémoire à l'Appui*, presented by them to the Chamber of Deputies in 1828, that the quantity of wine annually produced in France amounts, at an average, to about 40,000,000 hectolitres, or 1,060,000,000 gallons; that its value is not less than from 800,000,000 to 1,000,000,000 francs, or from £32,000,000 to £40,000,000 sterling; and that upward of *three millions* of individuals are employed in its production. In some of the southern departments it is of paramount importance. The population of the Gironde, exclusive of Bordeaux, amounts to about 450,000 individuals, of whom no fewer than 230,000 are supposed to be directly engaged in the cultivation of the vine. Here, then, is a branch of industry in which France has no competitor, which even now affords employment for about a tenth part of her population, and which is susceptible of indefinite extension. She has, in this single article, the means of carrying on the most extensive and lucrative commerce. "Le gouvernement Français," says M. Chaptal, in his work *Sur l'Industrie Française*, "doit les plus grands encouragements à la culture des vignes, soit qu'il considère ses produits relativement à la consommation intérieure, soit, qu'il les envisage sous le rapport de notre commerce avec l'étranger, *dont il est en effet la base essentielle*."

But instead of laboring to extend this great branch of industry, government has consented to sacrifice it to the interests of the iron-founders, the cotton and linen manufacturers, and the planters of Martinique and Guadaloupe! We do not, indeed, imagine that they were at all aware that such would be the effect of their policy. Theirs is only one instance, among myriads that may be specified, to prove that ignorance in a ministry is quite as pernicious as bad intentions. The consideration, apparently not a very recondite one, that, notwithstanding the bounty of nature, wine was not gratuitously produced in France, and could not, therefore, be exported except for an equivalent, would seem never to have occurred to the ministers of Louis XVIII. and Charles X. But those whose interests were at stake did not fail to apprise them of the hollowness of their system of policy. In 1822, when the project for raising the duties on sugar, iron, linens, etc., was under discussion, the merchants of Bordeaux, Nantes, Marseilles, and other great commercial cities, the silk manufacturers of Lyons, and the wine-growers of the Gironde, and some other departments, presented petitions to the Chambers, in which they truly stated that it was a contradiction and an absurdity to attempt selling to the foreigner without, at the same time, buying from him; and expressed their conviction that the imposition of the proposed duties would be fatal to the commerce of France, and would consequently inflict a very serious injury on the wine-growers and silk manufacturers. These representations did not, however, meet with a very courteous reception. They were stigmatized as the work of ignorant and interested persons. The Chambers approved the policy of ministers; and, in their ardor to extend and perfect it, did not hesitate deeply to injure branches of industry on which several millions of persons are dependent, in order that a few businesses, nowise suited to France, and the support of which costs her several millions a year, might be bolstered up and protected! It is plain, had there not been some powerful counteracting cause in operation, that the exports of wine from France should have been very greatly augmented since the peace of 1815. The United States, Russia, England, Prussia, and all those countries that have at all times been the great importers of French wines, have made prodigious advances in wealth and population since 1789; and had the commerce with them not been subjected to injurious restrictions, there is every reason to think that their imports of French wine would have been much greater now than at any former period. So far, however, from this being the case, they have declined in a most extraordinary degree. This is proved beyond all question by the following extract from a report made to the Council General of the Gironde in 1841, and published by its orders and with its sanction. "Previously to 1790, the wine trade at Bordeaux had an immense development. The books of our most ancient houses, transmitted down religiously from father to son, and the registries of our lands, prove that in the years preceding 1787 our exports had reached more than 100,000 tuns of wine, 10,000 casks of brandy, and 5000 of vinegar. They also show that from 1200 to 1400 vessels from the north took large quantities of wine, in return for their national produce, which they easily disposed of among us. It was a most lucrative commerce, for we then sent 15,000 tuns to Prussia, 18,000 to England and Ireland, 6000 to Dantzic, 40,000 to Hamburg, Lubeck, and Bremen, 15,000 to Holland, 7000 to Sweden, 5000 to Denmark and Norway, and 12,000 to Russia. But at that period we had not closed our frontiers to the produce of all these nations; we received at moderate duties their woolens, linens, hemp, iron, wood, cattle, and other articles, the consumption of which was less expensive, and the quality better, than similar articles made at home, and forced on us by customs duties. At present, notwithstanding the rapid increase of commercial affairs, notwithstanding the new nations of America, the advantages of a more expeditious, certain, and economical navigation, the demands of nations increased in number and industry, and consequently more disposed to purchase for consumption, our commerce is declining in a most alarming manner. Authentic documents prove that in 1839 our exports only reached 1339 tuns to England, 2499 to Russia, 147 to Sweden, 342 to Norway, 2964 to Prussia, 612 to Denmark, 8188 to the Hans Towns, and 7621 to the Netherlands. Since then our exports have not increased, so that instead of 100,000 tuns at least taken by the north of Europe from the department of the Gironde previously to 1790, not more than 25,000 tuns are taken at present. Yet the taste for wine and the necessity to use it have not been weakened among the various nations; but the exaggerated duties with which its introduction has been loaded only allow it to be consumed by the wealthy classes, who are every where the least numerous. These duties are established in retaliation of those which France lays on foreign productions. If the exportation of wine has diminished in so great a proportion, the cause must be sought in the protective system. When the variations in the exports of wine are attentively examined, and their decrease looked to since 1822, when this system attained its height, to 1840, it is impossible not to be struck with the fact that these variations are intimately connected with the system itself. The decrease in the exports of wine has followed the increased development of the protective system, and therefore we are forced to draw this conclusion, that *it is this system which destroys our export trade*. Yet foreign consumption is the most certain and most profitable for Bordeaux wines, and it is particularly in the markets of the north of Europe and of England that the wines of the finest quality which our department produces find purchasers. Let us, then, insist on the necessity of reopening these markets, which have been closed by the enormous amount of duties imposed by foreigners in reprisal of those laid by us on their products."

Besides the injury inflicted on the wine trade by the prohibitive system of commercial policy adopted in France, and the retaliatory measures it has provoked in other countries, it has suffered severely from the octrois and other duties on internal consumption. But the depression, though felt every where, is greatest in the Gironde, which is especially dependent on its export trade. This is strikingly evinced by the large stocks of wine that remain in the hands of the growers and merchants, and by the fall in its price. This has, of course, reacted on the vineyards, many of which have become all but unsalable; and a stop has been put to every sort of improvement. Nor have matters been in the least amended during the current year: on the contrary, they seem to be gradually getting worse. Such is the poverty of the proprietors, that wine is now frequently seized and sold by the revenue officers in payment of arrears of taxes; and such is at present the extent of the evil, that in the course of this year (1843) the committee of wine growers have applied to government for a loan of 2,000,000 francs to be applied to the payment of taxes due by the wine growers.

Such are the effects of the restrictive system of policy on the wine trade of France—on a branch of industry which, as already seen, employs *three millions* of people. It is satisfactory, however, to observe that the land-owners and merchants are fully aware of the source of the misery in which they have been involved. They know that they are not suffering so much from hostile or vindictive measures on the part of foreigners as from the blind and senseless policy of their own government; that they are victims of an attempt to counteract the most obvious principles—to make France produce articles directly at home, which she might obtain from the foreigner in exchange for wine, brandy, etc., at a third or a fourth part of the expense they now cost. *They can not export, because they are not allowed to import*. Hence they do not ask for bounties and prohibitions; on the contrary, they disclaim all such quack nostrums; and demand what can alone be useful to them, and beneficial to the country—a free commercial system. And notwithstanding the powerful interests involved in the support of the prohibitive policy, we can not doubt but that, in the end, they will be compelled to give way; and that France, by opening her ports to a freer importation of foreign products, will insure the proportional extension of her exports of wines, brandies, silks, and other products, which she can furnish more cheaply and of a better quality than any other country. It is reasonable to suppose that the experience that has been afforded of the ruinous effects of the prohibitive system, and the more general diffusion of correct ideas with respect to the real sources of wealth, will at no distant period occasion the adoption of such changes in the commercial legislation of France as may render it more conducive to her interest, and more in accordance with the spirit of the age. Indeed, we incline to think that but for the unfortunate misunderstanding about the Turkish question, and the irritation thence arising, a commercial treaty on a comparatively liberal footing would have been already entered into between France and this country; and it is much to be wished that some such arrangement should speedily be completed. If, indeed, we were hostile to France, we should wish her to continue her present system, for it must effectually prevent her making any considerable progress either in manufactures or commerce; but we disclaim being actuated by any such feelings. We are truly anxious for her prosperity, for her sake and our own; for unless she be surrounded by Bishop Berkeley's wall of brass, whatever contributes to her well-being must, in some degree, redound to the advantage of her neighbors.—J. R. M.

"Were such narrow and malignant politics to meet with success," said Mr. Hume, writing in the middle of the last century, and when the prosperity of others was generally regarded with an evil eye, "we should reduce all our neighboring nations to the same state of sloth and ignorance that prevails in Morocco and the coast of Barbary. But what would be the consequence? They could send us no commodities; they could take none from us: our domestic commerce itself would languish for want of emulation, example, and instruction; and we ourselves should soon fall into the same abject condition to which we had reduced them. I shall, therefore, venture to acknowledge, that not only as a man, but as a British subject, I pray for the flourishing commerce of Germany, Spain, Italy, and even France itself. I am, at least, certain that Great Britain, and all those nations, would flourish more did their sovereign and ministers adopt such enlarged and benevolent sentiments toward each other."—*Essay on the Jealousy of Trade.*

Borneo, or, as it is called by the natives, Bruné, an island forming part of the great East Indian Archipelago, and, next to New Holland, which may be considered as a species of continent, the largest in the known world. It reaches from about 7° N. to 4° S. lat., and from 109° to 118° E. long. Its length may be estimated at 750 miles, its greatest breadth at 600, and its average breadth at 350. Its area has been calculated by Baron Melville, of Carnbee, at 12,745 geographical square leagues. It exhibits the usual insular structure, a mass of lofty mountains in the centre, sloping gradually down to level and alluvial tracts along the seashore. It is in every part intersected by fine rivers, many of them navigable to a considerable distance from the sea. The interior of Borneo is covered with immense forests, filled with wild animals, particularly orang-outangs. A great part of the coast is marshy, so that it is in portions only that it displays the exuberance of tropical fertility. Of all the East Indian islands, Borneo ranks lowest as to civilization and improvement. Nothing, perhaps, has tended so powerfully to check its progress as the solid and unbroken form of its coasts, destitute of those large bays or inland seas which have always proved the nursery of commerce.

The commerce of Borneo, though not equal to its extent and natural capacities, is by no means inconsiderable. Gold is its principal export. Mr. Milburn estimates the annual quantity exported at 200 peculs, or 26,000 lbs. avoirdupois, which would coin into upward of 900,000 guineas. Like some other commodities, it is divided, by a grotesque scale, into three kinds, called the head, the belly, and the feet; the first being the best, and the two others gradually diminishing in value. Camphor is exported to the extent of thirty peculs (3990 lbs.), all to China, where it is more esteemed than that of Sumatra. The singular Chinese luxuries of *biche-de-mer*, or sea-slug, and edible birds' nests, are found in Borneo, as over all the Indian Archipelago. Pepper to a considerable amount, canes and ratans of various descriptions, sago, and a little tin, complete the list of exports. The chief import is opium to a very great extent, with piece goods, hardware, coarse cutlery, arms, and toys. By far the greater proportion of the trade is in the hands of the Chinese.—E. B.

Boston, city, capital of Massachusetts, and metropolis of New England, the second commercial city, and the fourth in population in the United States of America, is mostly situated on a peninsula, 3 miles long, and a little more than 1 mile broad, at the head of Massachusetts Bay. The harbor extends from Point Alderton to Medford, a distance of 14 miles; is 8 miles in width, and covers an area of 75 square miles. It has a depth of water sufficient for 500 vessels of the largest class to ride at anchor in safety. The entrance is barely sufficient for two ships of a large class to sail abreast, and is defended by three fortresses, two of which, situated on George's and Castle islands, are on the largest scale, and constructed with all the improvements of modern science; the third, or the citadel, on Governor's Island, is still incomplete, but, when finished, the defenses may be considered impregnable.

The territory now covered by the city was, in 1630, a peninsula, connected with the main land by a narrow isthmus: this tract contained 600 acres—it was called Shawmut or Trimountain, and derived its name from its springs, and three lofty hills. The spot was undoubtedly selected for its security from the inroads of the Indians, and its facilities for trade. Before the Revolutionary War, Boston became the most commercial town in the colonies. The narrow limits of the peninsula have long since been found insufficient for the growth of the population, and her extended commerce. Dorchester Point, containing 600 acres, was first annexed, then Noddle's island, comprising 600 acres more, and several hundred acres have been reclaimed from the sea; but so rapid has been the increase of population, that the number of inhabitants of the suburbs within a few miles of the city limits nearly equals the city proper. Boston lies in 42° 21′ 27″ N. lat., 71° 3′ 30″ W. long., from Greenwich, England. It is 105 miles south-southwest from Portland, Maine; 216 miles from New York, *via* Stonington, 236 *via* New Haven and Springfield; 313 Philadelphia; 411 Baltimore; 449 Washington; 990 Charleston, South Carolina, and 1838 from New Orleans. The population in 1790 was 18,033; in 1800, 24,937; in 1810, 33,250; in 1820, 43,298; in 1830, 61,391; in 1840, 93,383; in 1850, 138,788; and in 1854, 178,000.

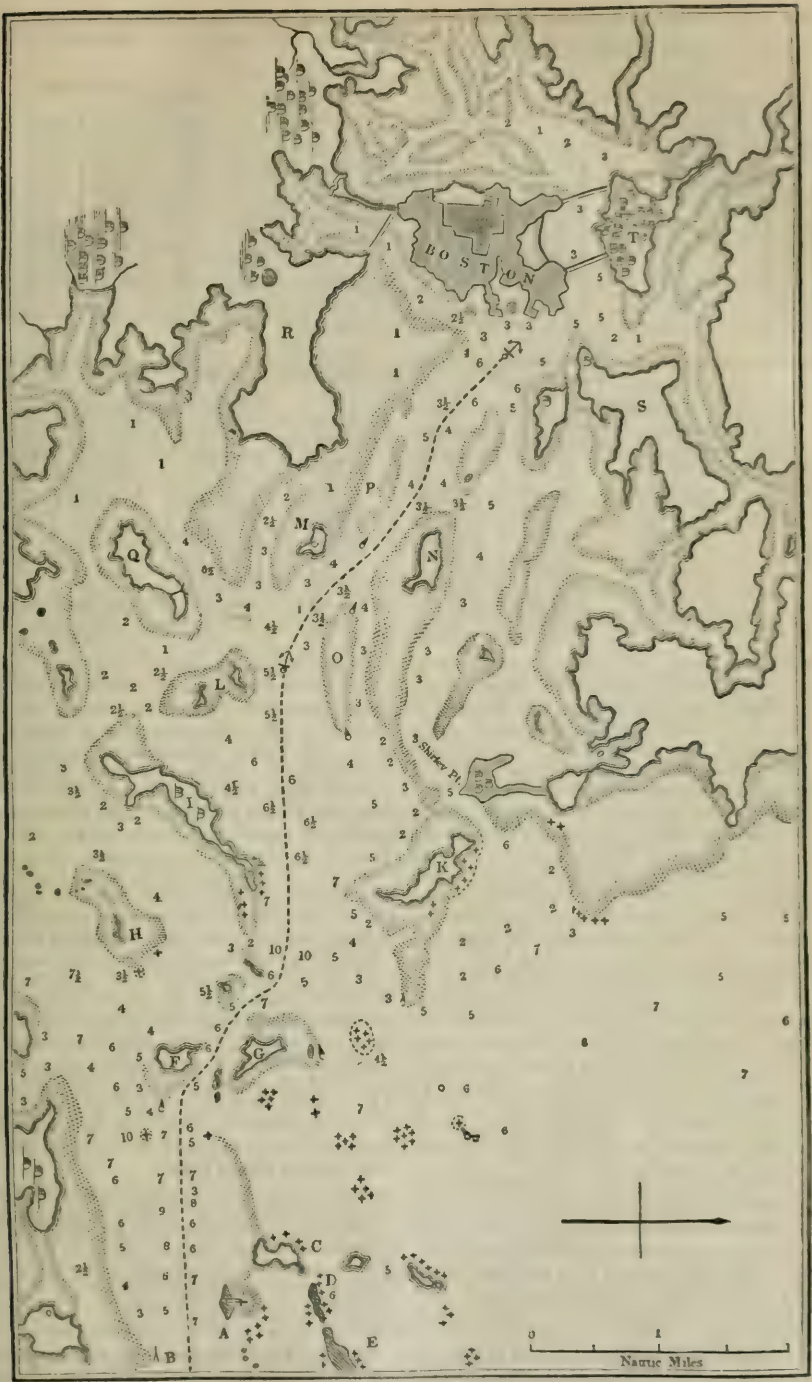
Boston has overstepped her sea-girt isles, and attached herself to the main land by one wide, enlarged avenue, the Neck, paved, and planted with trees; by one granite structure, the Western avenue, a mile and a half in length, 6 bridges, 8 railroads, and 3 ferries; 8 railroads branch into 16, and 10 avenues divide into 30, within the first 9 miles from the Exchange. The city exhibits a picturesque and beautiful appearance when approached from the sea; and in surveying its several parts, the visitor finds much to admire. Beacon Hill, on which the State House stands, is 110 feet above high-water mark; it was originally 30 feet higher. Fort Hill, on the east side, fronting the harbor, is 80 feet, and Copp's Hill, in the north part, is 50 feet above high water. On this hill the British had a battery in 1775, from which, during the memorable battle of Bunker Hill, they bombarded and burned Charlestown. Mount Washington, or Dorchester Heights, is 130 feet above the sea. On these heights, the Americans under Washington erected a fortification, in 1775, which soon compelled the British to evacuate Boston.

TABLE OF THE RATES OF PILOTAGE ON OUTWARD AND INWARD BOUND VESSELS IN THE PORT OF BOSTON.

OUTWARD.								INWARD.							
From November 1 to May 1.				From May 1 to November 1.				From November 1 to May 1.				From May 1 to November 1.			
Ship drawing Water.	Dol. per Foot.	Ships drawing Water.	Dol. per Foot.	Ships drawing Water.	Dol. per Foot.	Ships drawing Water.	Dol. per Foot.	Ships drawing Water.	Dol. per Foot.	Ships drawing Water.	Dol. per Foot.	Ships drawing Water.	Dol. per Foot.	Ships drawing Water.	Dol. per Foot.
7 ft.	0·90	17 ft.	1·10	7 ft.	0·75	17 ft.	1·00	7 ft.	1·45	17 ft.	1·87	7 ft.	1·10	17 ft.	1·35
8	0·90	18	1·20	8	0·75	18	1·00	8	1·45	18	2·50	8	1·10	18	1·88
9	0·90	19	1·30	9	0·75	19	1·25	9	1·45	19	2·75	9	1·10	19	1·88
10	0·95	20	1·50	10	0·80	20	1·50	10	1·56	20	3·00	10	1·20	20	1·88
11	1·00	21	2·00	11	0·85	21	1·75	11	1·72	21	4·00	11	1·25	21	2·80
12	1·05	22	2·50	12	0·90	22	2·00	12	1·77	22	4·00	12	1·30	22	3·00
13	1·10	23	2·75	13	0·95	23	2·25	13	1·77	23	4·00	13	1·35	23	3·00
14	1·10	24	2·75	14	0·95	24	2·25	14	1·87	24	4·00	14	1·35	24	3·00
15	1·10	25	2·75	15	0·95	25	2·25	15	1·87	25	4·00	15	1·35	25	3·00
16	1·10			16	0·95			16	1·87			16	1·35		

STATEMENT OF THE DECLARED VALUE OF GOODS, WARES, AND MERCHANDISE EXPORTED FROM THE DISTRICT OF BOSTON AND CHARLESTOWN DURING THE YEARS 1853, 1854.

Quarter ending.	American Merchandise.		Foreign Merchandise.	
	1853.	1854.	1853.	1854.
March 31	$3,184,914	$2,084,941	$415,857	$627,016
June 30	3,115,180	2,078,925	515,121	607,957
September 30	1,962,028	2,059,292	477,575	582,789
December 31	2,350,707	2,450,255	365,656	574,317
Total in American vessels	$10,613,029	$8,674,113	$1,774,209	$2,392,079
March 31	$768,286	$934,822	$279,208	$293,268
June 30	1,672,030	2,250,874	378,954	430,790
September 30	1,745,472	2,587,796	220,427	301,710
December 31	3,000,572	2,206,398	321,366	185,167
Total in foreign vessels	$7,186,360	$7,979,890	$1,199,575	$1,210,835
Total in American vessels (as above)	10,613,029	8,674,113	1,774,209	2,392,079
Total	$17,999,389	$16,654,003	$2,973,784	$3,602,914



PLAN OF BOSTON HARBOR.

References to Plan.—A, outer light-house, 65 feet high, having a revolving light, alternately brilliant 40, and obscured 20 seconds; B, buoy on the outward edge of the shoal, off Alderton Point; C, D, E, Great, Middle, and Outward Brewster's Islands; F, George's Island. The passage for ships, lying between this island and the rocks on the opposite side of Lovell's Island (G), being very narrow, it is, in effect, the key of the harbor; and large sums have recently been expended on its fortification. To the south of George's Island and Hospital Island (H) is Nantasket road, where there is good anchorage. The outer harbor lies to the west of Lovell's (G) and George's (F) Islands, being separated from the inner harbor by Castle Island (M) and Governor's Island (N). On the north end of Long Island (I) is a harbor fixed light, 25 feet high; K, Deer Island; L, Spectacle Island; O, Middle Ground, dry at three-quarter ebb; P, Upper and Middle Ground, having, at ebb, only 5 feet water; Q, Thomson's Island; R, Dorchester Peninsula; S, Noodle Island; T, Charlestown. Governor's Island (N), Castle Island (M), and Noodle's Island (S), are all fortified. The course that a ship ought to steer is marked by the dotted line leading between the light-house and Alderton Point, and between George's Island (F) and Lovell's Island (G). The soundings are laid down in fathoms at low water.

STATEMENT EXHIBITING THE NUMBER AND TONNAGE OF AMERICAN AND FOREIGN VESSELS, AND OF VESSELS IN THE COASTING TRADE, WHICH ENTERED INTO AND CLEARED FROM THE DISTRICT OF BOSTON AND CHARLESTOWN DURING THE FISCAL YEARS 1848–1856, ENDING JUNE 30.

Year ending June 30.	American.				Foreign.				Coasting Trade.			
	Entered		Cleared.		Entered.		Cleared.		Entered.		Cleared.	
	No of Vessels.	Tons.	No. of Vessels.	Tons.	No of Vessels.	Tons.	No. of Vessels.	Tons.	No. of Vessels.	Tons.	No. of Vessels.	Tons.
1848	1155	269,297	1012	229,851	1826	163,375	1828	164,019	1628	345,888	3110	554,730
1849	975	248 095	882	214,145	2062	203.026	2034	195,185	1422	324,134	2980	580.078
1850	1028	260,540	904	215,801	1908	213,295	2199	208,776	1423	326,837	3171	602,506
1851	944	236.939	881	207,944	2042	275,317	2045	286,828	1623	314.979	2843	518.408
1852	903	257,344	848	224 784	1899	260,758	1896	285,845	3670*	727,171	2818*	571,577
1853	906	287,969	1246	265.513	2089	294,521	2112	314,682	2340*	620,232	2918*	629,489
1854	991	320.638	990	284.530	2083	333,249	2064	329,038	2003*	583,989	3047*	640,947
1855	1073	373,826	1033	353.587	2071	334,298	1911	334,238	1675	491,439	2941	663,193
1856	1055	354,528	1036	337,133	2033	327,853	2039	310,164	1504	385,531	2773	702,321

* In these years the number of vessels arriving and departing, but which did not enter and clear, are included in the statement. In the other years only such as entered and cleared are given.

VALUE OF IMPORTS INTO, AND EXPORTS FROM, THE DISTRICT OF BOSTON AND CHARLESTOWN TO FOREIGN PORTS FOR THE ELEVEN FISCAL YEARS ENDING JUNE 30, 1856.

Years	Domestic Goods.		Foreign Goods.		Domestic and foreign Exports.		Foreign Imports
	Total Value.	Of which were Gold and Silver.	Total Value.	Of which were Gold and Silver.	Total Value.	Of which were Gold and Silver	Total Value.
1846..........	$5,669,595	$55.574	$2,298,436	$404,241	$8.968.031	$460,815	$22.615.117
1847..........	7,872,992	30.018	1,843.999	344.453	9,716,991	374,471	35.5 3.968
1848..........	8,149.933	191.100	4,054.879	2,359.757	12,204,812	2,550.857	27.182.308
1849..........	6,714,590	33,597	1,977.483	144,999	8,692,073	178,593	23,341,145
1850..........	6,953.528	170,847	2,188,124	388,621	9,141,652	559.468	28,659,733
1851..........	8.269.645	805,925	2,228,508	459.930	10.498.153	1,265 855	30,508,417
1852..........	11,110,010	3.970,025	2,278,502	236,718	13.388,512	4,206,743	31,958,192
1853..........	15,203,203	3,736,939	2,891,480	267,610	18,094,683	4,004,549	39,300,912
1854..........	16,408,341	4.930,487	3,343,575	337,963	19,751,916	5,268,450	45,988,545
1855..........	22,970,460	12,022,598	3.671,201	256.470	26.641.661	12,279,068	43,256,279
1856..........	24,673.577	11,860,362	3,312,076	149,721	27,985 653	12,010,083	41,661,088

India Trade of Boston.—This important branch of business has attained in Boston at the present time a magnitude little thought of by the early founders of this trade. Salem was the pioneer in many branches of the India trade, and for many years a great mart for the sale of teas, spices, dye-stuffs, drugs, coffee, etc. Ships and brigs from two hundred to three hundred and fifty tons burden were at that time the class and size of the vessels employed. The course of trade, and the superior advantages of Boston and New York as central markets, have diverted this business very much from its ancient seat. Quite a number of Salem houses have still an extensive interest in the East India and Pacific business, but their vessels are, for the most part, fitted from and arrive at Boston or New York. The East India and Pacific trade of the United States employs, in all its various branches, at the present time some six hundred ships and barks. Most of these vessels—at least two-thirds of them—are owned in Boston and New York, and many of the remaining third at ports east of Boston, in Massachusetts and Maine. To show the extent of the Boston trade with India, we would state that one hundred and nine ships were, in January, 1857, expected at this port from Calcutta alone previous to August 1, 1857.

The sale of the heavy and bulky kinds of East India goods at Boston has greatly increased within a few years, in consequence of the enormous growth of the manufactures and general trade of the commonwealth. The annual sale at the present time in Boston of the principal articles of East India produce would much surprise any one not acquainted with the extent and rapid growth of this important branch of our business. One would hardly believe that we received at this port nearly as many bushels of linseed as of Indian corn; yet for several years past such has been the fact.—*Boston Board of Trade Report*, 1857, p. 104.

Mediterranean Trade.—Among the various branches of commerce which have contributed to augment the wealth and extend the fame of Boston, none deserve mention more than the Mediterranean and fruit trade. At various ports of Malaga, Palermo, Messina, Marseilles, Genoa, Leghorn, Trieste, etc., the merchants of Boston enjoy a large portion of the American trade; and at some of the above-named places the trade may be said to be entirely controlled by the cities of New York and Boston, the other commercial cities of the United States having but an occasional vessel arriving at their ports from these places. It is well known that Boston has nearly the entire control of the American trade with Turkey through that country's principal port of Smyrna.—*Boston Board of Trade Report.*

Direct Trade with British Provinces.—The treaty between the United States and Great Britain, concluded the 5th of June, 1854, known as the "Reciprocity Treaty," was intended to regulate a direct reciprocal free trade between the British North American provinces and the United States in certain designated articles of their respective growth and production. This purpose is clearly stated in the preamble of the treaty, and in the act of Congress carrying it into effect.

On an application, therefore, for the free admission of certain products of the British North American Provinces, imported into the United States from Havana and London, the Treasury Department decided that they could not be so admitted; and that the articles, if of the growth and production of the North American British Provinces, and designated as free in the treaty, would be entitled to the privilege of free entry only when imported directly from those provinces into the United States.

STATEMENT EXHIBITING THE DECLARED VALUE OF MERCHANDISE TRANSPORTED IN BOND TO CANADA FROM THE DISTRICT OF BOSTON AND CHARLESTOWN, DURING THE TEN YEARS ENDING JUNE 30, 1856.

1847................	$21.715	1852..	$1,966.172
1848................	24.348	1853.............	4 947,484
1849................	33,140	1854.............	5,178,911
1850................	151.817	1855.............	4,970.408
1851................	594,709	1856.............	4,787,386

This table fully illustrates the operation of the Reciprocity Treaty and other treaties with Great Britain in reference to Canada.

It may not be uninteresting to mention here that the "Clearing-house" for the banks in Boston, which was organized January 15, 1856, is in full operation, and perfectly successful. The business began March 29, 1856, and the transactions from that date to the 31st December, inclusive, amount to $1,129,794,519, being a monthly average of $125,532,724. With the commencement of the Clearing-house all the bank ledger accounts of daily transactions with each other were merged into one Clearing-house account.—*Ibid.*

Ship Building.—Number of vessels launched during the years 1854 and 1855, at East Boston, Medford, Chelsea, South Boston, and Charlestown:

	1854.		1855.	
	Number.	Tonnage.	Number.	Tonnage.
East Boston....	30	42,654	20	19,575
Medford	13	12,760	10	8,870
Chelsea	10	10,116	5	4,805
South Boston...	4	4,254	4	5,000
Charlestown....	3	2,363	2	1,308
Total.......	60	72,147	41	39,558

Estimating this amount at $60 a ton, which is a fair average price paid for ships during the year, the amount of the ship-building in Boston and vicinity during 1855 is as follows:

	Tons.	Value.
East Boston	19,575	1,174,500
Medford	8,870	532,200
South Boston..........	5,000	300,000
Chelsea	4,805	288,300
Charlestown...........	1,308	78,400
Total............	39,558	$2,373,480

Duties collected at Boston.—The annexed statement exhibits the amount of duties collected at the port of Boston in each year, from 1838 to 1853, distinguishing the amount paid on merchandise brought in American and foreign vessels.

Years.	American.	Foreign.	Total.
1838	$2,305,197	$105,958	$2,411,155
1839	3,134,514	160,315	3,294,829
1840	2,364,506	92,419	2,456,926
1841	3,013,083	213,599	3,226,683
1842	2,543,748	236,437	2,780,186
1843	2,734,134	757,884	3,491,019
1844	4,800,877	1,234,067	5,034,945
1845	4,027,336	1,222,297	5,249,634
1846	3,630,744	1,241,825	4,872,510
1847	3,936,325	1,512,036	5,448,361
1848	3,790,267	1,118,559	4,908,827
1849	3,607,608	1,429,702	5,037,310
1850	3,903,440	2,224,377	6,127,817
1851	3,899,822	2,596,704	6,496,527
1852	3,826,428	2,466,622	6,293,050
1853	4,588,777	3,137,415	7,696,193

In the year ending June 30, 1853, the amount of duties was upward of a million dollars more than in any previous year. The foreign trade of Boston has increased very rapidly since the Cunard steamers commenced running between that port and Liverpool.

British Royal Mail Packets.—The mail packets between England and America (nine in number) leave Liverpool every Saturday, alternately for Boston and New York. The latter convey large quantities of the more valuable descriptions of goods; the imports by them into Boston in 1846 being estimated at $4,445,000. They also convey large numbers of the more opulent class of passengers.

Insurance Companies.—Insurance, both fire and marine, is carried on to a great extent by joint-stock companies, and to some extent also by individuals. The stocks of the different insurance companies amounted, in 1856, to $5,000,000. There is a great deal of risk in the business, which is more, indeed, like a lottery than a regular trade; and the dividends consequently vary from next to nothing to 10 and sometimes even 20 per cent. and upward. The dividends paid by the different companies varied, at an average of the previous ten years, from 3½ to 20 per cent.

Banks.—There were, in January, 1857, in Boston, 36 banking companies, having an aggregate capital of $31,960,000. Their dividends have recently varied from 5½ to 10 per cent.

East Boston, a part of the city, Suffolk county, Massachusetts. Population, in 1850, 10,214; and in 1854, 15,000.

The following summary of statistics will exhibit the amount of capital invested in manufacturing and mechanical business in East Boston, the number of hands employed, and the amount of annual products:

Business.	Capital.	No. of Hands.	Annual Product.
Manufacturing and mechanics	$1,858,000	1192	$3,769,916
Ship-building	71,000	292	831,300
Lumber, wood, coal, etc......	45,000	—	332,000
Teaming, trucking, etc.......	32,000	275	140,000
Curing and packing fish	49,000	23	158,500
Total............	$2,055,000	1785	$5,231,716

Steam power is used in twenty of the establishments mentioned in the table, and several others are making preparations to use it. There were built in 1850 at the different ship-yards fourteen ships and barks, making an aggregate tonnage of 14,035 tons. East Boston, with its superior location for commercial and manufacturing purposes, will doubtless soon double its present population. It has a water frontage of 17,000 feet on the deep water of the harbor, as well adapted and better protected for commerce than wharves in the city proper. The Grand Junction Railroad unites East Boston with all the principal roads from the city, thus affording an unbroken chain of railroad communication from the deep-water wharves in this section of the city through the great manufacturing districts of New England to the Canadas, the lakes, and the Great West, greatly to the advantage of the commerce of Boston, by bringing to and taking from the ships and warehouses all merchandise intended for the interior, and products and manufactures destined for shipment, free from expense of transhipment. East Boston was formerly known as Maverick's, Noddle's, and Williams' Island. In 1814 the citizens of Boston erected a fort on its eastern extremity, which was called Fort Strong. In 1830 some eight or ten of the most enterprising capitalists purchased this island, and commenced laying it out into streets and lots, with a view of making it an important part of the city. Among the important improvements in that portion of the city termed East Boston are the introduction of the Cochituate water by the city of Boston, the construction of the Grand Junction Railroad, and the construction of the sea-wall across the Basin, thus reclaiming a large quantity of low lands which were hitherto partially covered by the tide-waters. These lands consist of marsh and flats to the extent of about ninety-five acres, lying between Westwood Island and the Eastern railroad.—*See* MASSACHUSETTS.

Botany Bay. A bay of the Pacific Ocean, on the east coast of Australia, New South Wales, county of Cumberland, five miles south of Sydney, about five miles in length and breadth. Lat. 34° S., long. 151° 15′ E. It was discovered by Captain Cook in 1770, and derived its name from the variety of new plants then observed on its shores. It became an English penal colony in 1787. On its coast is a column erected in 1825 to the memory of the French navigator, La Perouse.—*See* SYDNEY.

Botargo, called in Provence *Bouargues*, a sausage made on the shores of the Mediterranean and the Black Sea, of the roe of the mullet. The best come from Tunis and Alexandria.

Bottles (Fr. *Bouteilles;* Ger. *Bouteillen;* It. *Botiglie, Fiaschi;* Russ. *Buldki;* Sp. *Botellas*), glass vessels for holding liquids, too well known to require any description. They are manufactured in considerable quantities. The imports of bottle glass into the United States average about $140,000 annually. The imports of all other descriptions of glass amount to about $2,200,000 yearly, and are very constant. About one-fourth of this consists of window glass. The principal places of manufacture of bottle glass, in the United States, are Pittsburg, Pennsylvania, and East Cambridge, Massachusetts.—For further details, *see* GLASS.

Bottles, of glass, were first made in England about 1558. The art of making glass bottles and drinking-glasses was known to the Romans at least before 79 A.D., for these articles and other vessels have been found in the ruins of Pompeii. A bottle which contained two hogsheads was blown, we are told, at Leith, in Scotland, in January, 1747–'8.

Bottom, in *Mercantile Language*, is a familiar expression for a ship; as in the phrase *to ship goods in foreign bottoms.*—E. B.

Bottomry, a maritime contract by which a ship (or bottom) is hypothecated in security for money borrowed for the purposes of her voyage, under the condition that, if the ship arrive at her port of destination, the borrower personally, as well as the ship, shall be liable for the repayment of the loan, together with such premium thereon as may have been agreed on; but that, if the ship be lost, the lender shall have no claim against the borrower, either for the sum advanced or for the premium. In consideration of the risk thus incurred by the lender, the premium (which is sometimes termed *maritime interest*) is usually high: it may range from 10 to 25 per cent., or even more, according to the nature of the risk, or the difficulty of procuring the necessary funds. The freight may be pledged as well as the ship, and, if necessary, the cargo also. When money is borrowed on the security of the cargo, it is said to be taken up at *respondentia*, a term which seems to have been introduced from the circumstance of the borrower engaging to *answer* for the repayment of the loan on the arrival of the goods. But though the terms are distinctive, there is no essential difference in the nature of bottomry and respondentia contracts, and both are regulated by the same principles of maritime law. Indeed, the contract of respondentia is now seldom or never entered into unless in conjunction with that of bottomry.

A bottomry contract may be written out in any form which sufficiently shows the conditions agreed on between the two parties; but it is usually drawn up in the form of a *bond*. The document must show, either by express terms, or from its general tenor, that the risk of loss is assumed by the lender; this being the consideration for which the high premium is conceded. The lender may transfer the bond by indorsation, in the same manner as a bill of exchange or bill of lading, and the right to recover its value becomes invested in the indorsees.

According to the law of England, a bottomry contract remains in force so long as the ship exists *in the form of a ship*, whatever amount of damage she may have sustained. Consequently, the "constructive total loss," which is recognized in marine insurance when the ship is damaged to such an extent that she is not worth repairing, is not recognized in reference to bottomry, and will not absolve the borrower from his obligation; but if the ship go to pieces the borrower is freed from all liability under the bottomry contract; and the lender is not entitled to receive any share of the proceeds of such of the ship's stores or materials as may have been saved from the wreck. Money advanced on bottomry is not liable, in England, for general average losses.

If the ship should *deviate* from the voyage for which the funds were advanced, her subsequent loss will not discharge the obligation of the borrower under the bottomry contract. If she should not proceed at all on her intended voyage, the lender is not entitled to recover the bottomry premium in addition to his advance, but only the ordinary rate of interest for the temporary loan. As the bottomry premium is presumed in every case to cover the risks incurred by the lender, he is not entitled to charge the borrower with the premium which he may pay for *insurance* of the sum advanced in addition to that stipulated in the bond.

The contract of bottomry seems to have arisen from the custom of permitting the master of a ship, when in a foreign country, to pledge the ship in order to raise money for repairs, or other extraordinary expenditures rendered necessary in the course of the voyage. Circumstances often arise in which, without the exercise of this power on the part of the master, it would be impossible to provide means for accomplishing the voyage; and it is better that the master should have authority to burden the ship, and, if necessary, the freight and cargo also, in security for the money which has become requisite, than that the adventure should be defeated by inability to proceed. But the right of the master to pledge the ship or goods must always be created by necessity; if exercised without necessity the contract will be void. Accordingly, the master of a British ship has no power to grant a bottomry bond at a British port, or at any foreign port where he might have been able to raise funds on the personal credit of the ship-owners. Neither has he any power to pledge the ship or goods for private debts of his own; but only for such supplies as are indispensable for the purposes of the voyage.

The bottomry lender must use reasonable diligence to ascertain that a real necessity exists for the loan; but he is not bound to see to the application of the money advanced. If the lender have originally advanced the funds on the personal credit of the master or owners, or on any other security than that of bottomry, he is not entitled at a subsequent period to convert his claim into a bottomry obligation; and although the master should grant him such obligation, it would not bind the owners. In every case a bond procured by compulsion would be void.

The power of the master to pledge the cargo depends upon there being some reasonable prospect of benefit to it by his so doing. He has no such power except in virtue of circumstances which may oblige him to assume the character of *agent for the cargo*, in the absence of any other party authorized to act on its behalf. Under ordinary circumstances he is not at liberty to pledge the cargo for repairs to the ship. If, indeed, the goods be of a perishable nature, and if it be impossible to get the ship repaired in sufficient time to obviate serious loss on them by delay without including them under the bottomry contract, he has power to do so; because it may fairly be assumed, in the case supposed, that the cargo will be benefited by this procedure. But if there be time to communicate with the proprietors of the cargo, it is his duty to give them notice before resorting to this course. The general principle is, that the master must act for the cargo, with a reasonable view to the interests of its proprietors, under the whole circumstances of the case. When he does this his proceedings will be sustained; but should he manifestly prejudice the interests of the cargo by including it under bottomry for the mere purpose of relieving the ship, or of earning the freight, the owners of the cargo will not be bound by the bottomry contract. Any bottomry or respondentia bond may be good in part, or bad in part, according as the master may have acted *within* or *beyond* the scope of his legitimate authority in granting it. If two or more bottomry bonds have been granted at different stages of the voyage, and the value of the property be insufficient to discharge them all, the last-dated bond has the priority of payment, as having furnished the means of preserving the ship, and thereby preventing the total loss of the security for the previous bonds.

In a recent case in the English Admiralty Court (the Cynthia, 20 L. 7, 54), it was decided that a bond granted by a British consul over a British ship, the master of which had been murdered in a mutiny by the crew, was valid, although the new master, appointed by the consul, had not been required to sign it.

When the sum due under a bottomry bond over ship, freight, and cargo, is not paid at the stipulated time, proceedings may be taken by the bond-holder for recovery of the freight, and for the sale of the ship; and should the proceeds of these be insufficient to discharge the claim, a judicial sale of the cargo may be resorted to. As a general rule, the value of the ship and freight must be exhausted before recourse can be taken against the cargo.

The bottomry premium must be ultimately paid by the parties for whose especial benefit the advances were obtained, as ascertained on the final adjustment of the average expenditures at the port of destination.

For further information on this subject the reader is referred to the cases of the Gratitudine, 2 Rob. A. R. 240, 272; the Lochiel, 3 Rob. 34; the Alexander, 1 Rob. 346; to Soares *v.* Rahn, 3 E. F. Moore; Dobson *v.* Lyall, 8 Jurist 969; and especially to the cases of the Lord Cochrane, 8 Jurist 714, and of Jacobsen *v.* Reinhardt, 22 Scottish Jurist 309. See also MARSHALL on *Insurance*, book 2; PARK on *Insurance*, c. 21; ARNOULD on *Insurance; Lord* TENTERDEN on the *Law of Merchant Ships*, part 2, c. 3.—E. B.

Bougainville, Count Louis Antonie M., a circumnavigator of the eighteenth century, was born at Paris, 1729. He first studied law, and was afterward a distinguished soldier, diplomatist, scholar, and navigator, and remarkable in each for his energy of character. He fought in Canada, under Montcalm, where he was wounded, in 1758. On the death of his superior and friend, he returned to France, and served with distinction in Germany, in 1761. On the conclusion of peace, he entered the French navy, and led the expedition intended to form a settlement in the Falkland Islands, for which he sailed in 1763. The prior claim of the Spanish government to these islands compelled him to surrender them, and he returned to France, the government of which commissioned him to carry the surrender into execution, on receiving from the Spanish government remuneration for his expenses. Having accomplished this, he set sail on his voyage of circumnavigation, and having enriched geographical science by a number of new discoveries, he returned to France in March, 1769. During the American war, he was again in service, from which, however, he wholly retired in 1790, and devoted himself exclusively to scientific research.

Boulogne-sur-mer (*Gesoriacum*), a fortified seaport town of France, capital of arrondissement, department Pas de Calais, on the English Channel, at the mouth of the Lianne, and on the Boulogne and Amiens Railroad, 140 miles from Paris, and 112 from London, and 19 southwest from Calais. Lat. (of the column) 50° 44′ 32″ N., long. 1° 36′ 15″ E. Population, 1853, 31,000, of whom a great number are English residents. It is divided into the Upper and Lower towns. The first, on a hill whence the English coast is distinctly visible, is well, though irregularly built, and has two squares ornamented with fountains, a feudal citadel, and ramparts, a modern cathedral, an episcopal palace, a town hall, and a house in which Le Sage, the author of Gil Blas, lived and died. The Lower, or new town, stretching from the Upper town to the sea, is newly and regularly built, and more populous. It has fine public baths, with ball and concert rooms, a commercial college, a theatre, a museum, including a library of 23,000 volumes, a hospital, custom-house, and barracks. Boulogne has also an English library and reading-room, six English churches, several excellent hotels, a great number of boarding-schools (both French and English), a school of navigation, tribunal of commerce, societies of agriculture, commerce, and arts; manufactories of coarse woolens, sail-cloth, cordage, bottle-glass, and earthen-ware. In its vicinity are important marble quarries. Its fisheries are very extensive, and furnish the chief supply of fish for the Paris markets; but the town is mainly indebted for its prosperity to its English residents, who, since the peace, have resorted thither in great numbers, particularly during the summer. Steamers make the passage to Folkstone in two hours, and to London in about twelve hours; and the number of passengers who disembark here annually exceeds 50,000. The port is not very easy of access, being formed by two wooden piers stretching out only to low-water mark, but the tide rises upward of 16 feet, and ships find pretty good anchorage about half a mile from the harbor. It was on the heights of Boulogne that the Emperor Caligula, A.D. 40, encamped an army of 100,000 men for the fruitless purpose of invading Britain, and here also, in 1804, nearly 18 centuries later, the Emperor Napoleon assembled an army of 180,000 men, and a flotilla of 2400 transports, with the same design. The *Colonne Napoléone*, a column 164 feet high, nearly one mile from the town, commemorates the latter futile attempt.

Bounties. They were first granted on the exportation of British commodities—a new principle introduced into commerce by the British Parliament. The first bounties granted on corn were in 1688. First legally granted in England for raising naval stores in America, 1703. Bounties have been granted by Great Britain on sail-cloth, linen, and other goods, and by this country on fisheries.—*See* FISHERIES. *Elements of Commerce.* Bounties on production are most commonly given in the view of encouraging the establishment of some new branch of industry; or they are intended to foster and extend a branch that is believed to be of paramount importance. In neither case, however, is their utility very obvious. In all old settled and wealthy countries, numbers of individuals are always ready to embark in every new undertaking, if it promise to be really advantageous, without any stimulus from government; and if a branch of industry already established be really important and suitable for the country, it will assuredly be prosecuted to the necessary extent, without any encouragement other than the natural demand for its produce.

However injurious to the state, it has been pretty generally supposed that bounties on exportation are advantageous to those who produce and export the articles on which they are paid. But the fact is not so. A trade that can not be carried on without the aid of a bounty must be a naturally disadvantageous one. Hence, by granting it, individuals are tempted to engage or continue in businesses which are necessarily very insecure, and are rarely capable of being rendered lucrative; at the same time that they are prevented, by trusting to the bounty, from making those exertions they naturally would have made had they been obliged to depend entirely on superior skill and industry for the sale of their produce. The history of all businesses carried on by the aid of bounties proves that they are hardly less disadvantageous to those engaged in them than to the public.

Bowditch, Nathaniel, a self-taught American mathematician, born in 1773, of humble parents, at Salem, in Massachusetts. He was bred to his father's business as a cooper, and afterward was apprenticed to a ship-chandler. His taste for mathematics early developed itself; and he acquired Latin that he might study Newton's *Principia*. In 1795 he sailed as supercargo, in which capacity he made four long voyages; and, being an excellent navigator, he afterward commanded a vessel, instructing his crews in taking lunar and other observations. He edited three editions of Hamilton Moore's Navigation. In 1804 he became actuary to a Boston insurance company; and in the midst of his active and useful career published a translation of the *Mécanique Celeste* of Laplace, with annotations; a work which will better prove the great acquirements of this self-taught philosopher than any labored panegyric. He died in 1838, at Boston. A statue of this distinguished mathematician has been erected to his memory in Mount Auburn Cemetery, Cambridge, Massachusetts.

Bowline, a rope leading forward from the leech (side border) of a square-sail, to keep it tightly out. When a vessel is sailing close-hauled she is then said to be sailing *on a bowline* or *on a taut bowline*. Bowline bridles are the spans of cord by which the bowline is fastened to the leech.—E. B.

Bowsprit, or **Boltsprit**, a large spar which projects over the stem of a ship, resting slopewise on the head of the main stem, and having its lower end fastened to the partners of the foremast, and further supported by the forestay. It carries the sprit-sail, sprit-top-sail, and jack-staff; and its length is usually the same as that of the foremast.—E. B.

Box-haul, in *Navigation*, to bring a ship, when close-hauled, round upon the other tack, when she refuses to stay and there is not room to wear.—E. B.

Boxing the Compass, denotes the rehearsing the points in their proper order.—E. B.

Box-wood (Germ. *Buchsbaum;* Du. *Palmhout;* Fr. *Buis;* It. *Busso*, *Bosso*, *Bossolo*), the wood of the box-tree (*Buxus sempervirens*), growing wild from Massachusetts to Florida. A very common name in the United States is dogwood, though both names are used. This tree was greatly admired by the ancient Romans, and has been much cultivated in modern times, on account of the facility with which it is fashioned into different forms. Box is a very valuable wood. It is of a yellowish color, close-grained, very hard, and heavy; it cuts better than any other wood, is susceptible of a very fine polish, and is very durable. In consequence, it is much used by turners, and mathematical and musical instrument makers. It is too heavy for furniture. It is the *only* wood used by the engravers of wood-cuts for books; and provided due care be exercised, the number of impressions that may be taken from a box-wood cut is very great. In France, box-wood is extensively used for combs, knife-handles, and button moulds; and sometimes, it has been said, as a substitute for hops in the manufacture of beer. The value of the box-wood sent from Spain to Paris is reported to amount to about 10,000 francs a year. In 1815, the box-trees cut down on Box-hill, near Dorking, in Surrey, England, produced upward of £10,000.

Bracelets. They were early worn and prized among the ancients; we read of them in almost all nations: those that were called *armillæ* were usually distributed as rewards for valor among the Roman legions.—*Nouv. Dict.* Those of pearls and gold were worn by the Roman ladies; and armlets are female ornaments to the present day.—Haydn.

Bradford, a parliamentary borough, market, and parish of England, county of York, West Riding, on an affluent of the Aire, and branch of the Leeds and Liverpool canal, 8 miles west of Leeds, on the Leeds Railroad. Area of parish, 34,146 acres. Population in 1851, 149,543. Population of the borough, 103,778. Area of parliamentary borough, comprising the townships of Bradford, Manningham, Bowling, and Horton, 6590 acres. The town, built entirely of stone, has streets mostly narrow, but well paved and lighted. Bradford is now the principal seat of the worsted yarn and stuff manufactures in England, and the great mart for the long wools used in these fabrics. In 1838 it had 142 worsted, 9 woolen, and 2 cotton mills, employing together 11,675 hands. In the same year there were in the town upward of 1500 power looms, each producing three to four pieces per week. Its rapid advance is mainly attributable to its central position in the great manufacturing district of Yorkshire, and to the abundance of coal and iron in its immediate vicinity. The Leeds and Liverpool canal connects it with both the Irish and North Seas.

Bran, the thin skins or husks of corn, particularly wheat, ground, and separated from the corn by a sieve or bolter.

Brandy Germ. *Brantewein;* Du. *Brandewyn;* Fr. *Eau de vie*, *Brandevin;* It. *Aquarzente;* Sp. *Aguardiente;* Port. *Aguardente;* Russ. *Wino;* Lat. *Vinum adustum*), a spirituous and inflammable liquor, obtained by distillation from wine and the husks of grapes. It is prepared in most of the wine countries of Europe; but the superiority of French brandy is universally admitted. The latter is principally distilled at Bordeaux, Rochelle, Cognac, the Isle de Rhé, Orleans, Nantes, and in Poitou, Touraine, and Anjou. That of Cognac is in the highest estimation. Wines of all descriptions, but chiefly those that are strong and harsh (*poussés*), are used in the manufacture of brandy. The superior vintages, and those that have most flavor, are said to make the worst brandy. It is naturally clear and colorless. The different shades of color which it has in commerce arise partly from the casks in which it is kept, but chiefly from the burned sugar, sanders wood, and other coloring matter intentionally added to it by the dealers. It is said that the burned sugar gives mellowness to the flavor of the liquor, and renders it more palatable. The art of distillation is believed to have been first discovered by the Arabians. From a passage in the *Testamentum Novissimum* of the famous Raymond Lully, who flourished in the thirteenth century, it would appear that the production of brandy and alcohol from wine was familiar to his contemporaries.—P. 2, edit. *Argent.* 1571. But the practice does not appear to have been introduced into France till 1313.—*Le Grand d'Aussi Vie privé de François*, tome iii. p. 64. When first introduced, brandy or burned wine (*vinum adustum*) appears to have been used principally as an antiseptic and restorative medicine; and the most extravagant panegyrics were bestowed on its virtues. It was described as a sovereign remedy in almost all the disorders of the human frame; it was commended for its efficacy in comforting the memory and strengthening the reasoning powers; it was extolled, in short, as the elixir of life, and an infallible preservative of youth and beauty.—Henderson's *History of Wine*, p. 24. Dr. Henderson says that the experience of later times has shown how little the eulogy was merited; but in this he is contradicted by Burke, who maintains, with equal eloquence and ingenuity, that "the *alembic* has been a vast benefit and blessing."—*Thoughts and Details on Scarcity*, p. 41. Brandy formed, for a lengthened period, a prominent article in the exports of France—few ships sailing from Bordeaux, Rochelle, or Nantes, without taking a certain quantity of it on board; but of late years there has been an extraordinary falling off in the exports of brandy as well as of wine. We subjoin

An Account of the Quantities and Values of the Brandy exported from France during each of the 10 Years ending with 1839, to the United Kingdom and to all Countries.

Years.	To the United Kingdom.		To all Countries.	
	Quantity.	Value.	Quantity.	Value.
	Litres.	*Francs.*	*Litres.*	*Francs.*
1830	9,028,140	8,164,071	17,913,336	15,337,280
1831	6,936,719	5,480,000	14,132,788	11,960,000
1832	13,569,445	12,208,900	23,787,732	20,732,624
1833	10,857,676	9,230,760	22,089,926	18,703,180
1834	7,829,366	6,654,956	16,146,280	13,712,700
1835	6,512,650	5,226,120	18,458,224	14,937,883
1836	7,179,544	5,939,123	19,991,396	16,262,194
1837	5,905,236	4,783,241	18,838,909	14,928,811
1838	7,410,510	6,002,613	20,609,714	16,668,437
1839	5,234,289	4,187,431	15,418,655	12,393,509
Totals	80,463,575	67,877,215	187,386,960	155,636,618
Average of ten years	8,046,357½	6,787,721½	18,738,696	15,563,661⅘
Average of the 10 years in imperial gallons	1,771,155		4,124,740	

The export value of brandy from France to the United States in the year 1853 was 16,661,000 francs; wines, 23,402,000 francs.

IMPORTATION OF BRANDY INTO THE UNITED STATES, TREASURY REPORT, 1855.

Year ending June 30.	Gallons.	Value.
1844................	782,510	$606,633
1845................	1,081,314	819,450
1846................	963,147	839,231
1847................	954,417	931,082
1848................	1,370,111	1,135,089
1849................	2,964,091	1,347,514
1850................	4,145,802	2,659,537
1851................	3,163,783	2,128,679
1852................	2,751,810	1,792,729
1853................	3,854,956	3,251,408
1854................	2,152,366	2,255,344
1855................	1,024,497	1,479,362

Brass, an alloy of copper and zinc. This name, however, has not been exclusively applied to the alloy of these metals; for the gun-metal, which has been also called brass, is an alloy of copper with tin. The same alloy, with more tin, is used in machinery, and is preferred to the alloy of copper and zinc on account of its greater hardness. It appears from the analysis of the brass of the ancients that it was an alloy of copper and tin. A small portion of tin gives to copper great hardness, and renders it capable of bearing much greater resistance. A larger portion of tin gives increased hardness, but is less fitted to bear a straining resistance, on account of its brittleness. Its elasticity is very great, which fits it for bells. In this state it is called bell-metal; and with a still greater proportion of tin it forms an alloy employed for the mirrors of reflecting telescopes. The alloy of copper with tin is easily distinguished from that with zinc, from the agreeable color of the latter, which varies with the proportions of the metals. Pinchbeck has the least proportion of zinc. Common brass has more zinc, and the gold-colored alloy called prince's metal contains a still greater proportion of zinc. An alloy of copper with a very large proportion of zinc is used for the common white metal buttons.

Brass-color is prepared by braziers and colormen to imitate brass. There are two kinds, the red brass or bronze, and the yellow or gilt brass. The latter is made only of copper-filings, the smallest and brightest that can be found; with the former it is usual to mix some red ochre, finely pulverized.

The various alloys of copper with tin and zinc forming the different kinds of brass, are to be considered as chemical compounds, and, of course, governed by the same laws of definite proportions which obtain in the more conspicuous compounds. On these principles, which can not be doubted, we have an unerring rule for uniting these and other metals in the best proportions, the weights of their atoms being previously known. The weight of the atom of copper being 8, tin 7·35, and zinc 4, the following tables exhibit the proportions of the various alloys, expressed in atoms, and their proportions by weight, the third column pointing out the color and character of the resulting compound. C, Z, and T are to represent the atoms of the metals respectively.

COMPOUNDS OF ZINC WITH COPPER.

Atoms.	Proportions by Weight.	Character and Color of the Compounds.
C+Z	2 to 1	The best proportions for common brass.
C+2 Z	1 to 1	The alloy called prince's metal, of a beautiful gold color.
C+3 Z	2 to 3	Of a paler yellow, very little malleable.
C+4 Z	1 to 2	Still lighter in color, and not malleable.
C+5 Z	2 to 5	Yellowish-white and brittle.
C+6 Z	1 to 3	Very brittle, nearly white.
2 C+Z	4 to 1	A very malleable brass, used in watch-work.
3 C+Z	6 to 1	An alloy much harder than copper, and inclining to its color.

COMPOUNDS OF TIN WITH COPPER.

Atoms.	Proportions by Weight.	Character and Color of the Compounds.
T+C	11 to 12	A very brittle and rather white alloy.
2 T+C	11 to 6	Still more brittle and more white.
3 T+C	11 to 4	Very white, used for speculums.
4 T+C	11 to 3	Coarse-grained, and too brittle for any purpose.
T+2 C	11 to 24	A yellowish alloy, very hard and sonorous.
T+3 C	11 to 36	Bell-metal.
T+4 C	11 to 48	A very hard alloy, used for some culinary vessels.
T+5 C	11 to 60	Softer, but not malleable.
T+6 C	11 to 72	Still increased in softness, and of a yellower color.
T+7 C	11 to 84	Used for some purposes in machinery.
T+8 C	11 to 96	An alloy used for cannon.
T+9 C	11 to 108	More common for cannon and machinery, and used for bronze statues.

Hitherto the proportions of these alloys have depended upon the practice of workmen, guided by numerous trials; but what confirms the law of definite proportions, is the necessity of adhering to fixed proportions, ascertained by trial. By attending to the proportions pointed out above, the most striking and proper compounds will be produced, without the trouble of trial. Any intermediate proportions will, doubtless, be marked by defective color, irregular crystallization, or imperfect malleability.

Although the most direct way of forming these different kinds of brass is by immediately combining the metals together, one of them, which is most properly called brass, was manufactured long before zinc, one of its component parts, was known in its metallic form. The ore of the latter metal was cemented with sheets of copper, charcoal being present; and the zinc was united with the copper without becoming visible in a distinct form. The same method is still practiced for making brass.—E. B.

Brass was known among all the early nations.—USHER. The British, from the remotest period, were acquainted with its use.—WHITTAKER. When Lucius Mummius burned Corinth to the ground, 146 B.C., the riches he found were immense, and during the conflagration, it is said, all the metals in the city melted, and, running together, formed the valuable composition described as *Corinthian brass*. This, however, may well be doubted, for the Corinthian artists had long before obtained great credit for their method of combining gold and silver with copper; and the Syriac translation of the Bible says that Hiram made the vessels for Solomon's temple of Corinthian brass. Articles made of this brilliant composition, though in themselves trivial and insignificant, were yet highly valued. —DU FRESSNOY.

Brazil, an extensive empire of South America, occupying a large proportion of the eastern and central part of that country, extending between lat. 4° 28′ N. and 32° 45′ S., and long. 34° 55′ and 65° 20′ W. Length from north to south, about 2630 miles; greatest breadth, 2540 miles. Its internal boundaries come in contact with all the different states and territories of South America, with the exception of Chili and Patagonia, while the Atlantic Ocean washes its shores from its northeast to its southern limits.

Brazil was discovered by Alvarez de Cabral, a Portuguese, who was driven upon its coasts by a tempest in 1500. He called it the land of the Holy Cross; but it was subsequently called Brazil, on account of its red wood, and was carefully explored by Amerigo Vespucci about 1504. The gold mines were first opened in 1684; and the diamond mines were discovered in 1730. The French having seized on Portugal in 1807, the royal family and nobles embarked for Brazil. A revolution took place here in 1821. Brazil was erected into an empire, when Don Pedro assumed the title of emperor, Nov. 18, 1825. He abdicated the throne of Portugal, May 2, 1826; and that of Brazil, in favor of his infant son, now (1855) emperor, April 7, 1831, and returned to Portugal, where a civil war ensued.—HAYDN.

The empire is divided into 19 provinces, 14 situated along the shores of the ocean, and four in the interior, the relative population of which is exhibited in the following table, drawn up according to the most recent and accurate authorities.

Provinces.	Area in Square Miles.	Population.
Maritime Provinces.		
Para	534,270	165,000
Maranham	94,900	390,000
Piauhy	100,668	80,000
Ceara	66,378	190,000
Rio Grande do Norte	28,860	110,000
Paraiba	51,948	260,000
Pernambuco	103,896	600,000
Alagoas	75,036	220,000
Sergipe del Rey	40,484	175,000
Bahia	202,020	780,000
Espirito Santo	43,290	140,000
Rio de Janeiro	89,466	850,000
Santo Paulo	173,160	458,000
Santa Catarina	31,746	90,000
Santo Pedro do Sul	118,758	260,000
Interior Provinces.		
Amazonas	750,000	125,000
Minas Geraes	216,450	900,000
Matto Grosso	865,800	180,000
Goyaz	360,750	185,000
Total	3,956,800	6,150,000

The surface of Brazil is about equally divided into uplands and lowlands, or valleys. Two parallel mountain ranges traverse the country from north to south, forming elevated ridges of table-land — the greatest height of the central range being from 6000 to 7000 feet. Several minor ranges intersect the country, inclosing tracts, some of which are elevated, and others low-lying plains. The northern part of Brazil consists of the greater part of the vast plain through which flows the River Amazon and its tributaries, and varying in width from 350 to 800 miles. The rivers, lakes, and water courses are so numerous as completely to intersect this great plain, the soil of which is deep and soft, and covered for the most part with dense forests. Southeast of this is another plain. The principal rivers in this direction are the Tocantins, Araguay, Paranahiba, San Francisco, Belmonte, Doce, Paraiba do Sul, and Rio Grande do Sul, all of large size, but of difficult navigation, in consequence of rapids, etc. The table-land on the west is separated from the Andes of Bolivia by a large and extensive plain, traversed by those rivers which join to form the Madeira; the elevation of this plain is from 1200 to 1500 feet. On the banks of the Iriuana, and westward to the north branch of the Serra Parecis, extends a sandy and nearly barren desert, called Campos dos Parecis. From seven lakes (Sete Lagoas) on this table-land rises the River Paraguay, which flows southward through a swampy country, and then through the great plain of Paraguay to join the Parana. The latter has a course of 1000 miles, and receives the Rio Grande, the Paranahiba, Sapucahy, Pardo, etc. Several small streams flow in a southeast direction into the Atlantic. The Uruguay flows south through another table-land of smaller dimensions to the plain of the Missiones. The principal lakes are Patos, an enlargement of the Rio Grande, and Lake Mirim. Many others of less size are in the western provinces. The climate of the Amazon valley is of a tropical nature; only the dry and rainy seasons are not very distinctly marked. The nights are cloudless; but in the morning clouds accumulate and continue till the afternoon, when thunder and lightning, with torrents of rain, prevail for two hours, and all again is clear. The climate of Central and West Brazil is more varied, the heat in the dry season being excessive, while frosty nights are of frequent occurrence in winter; rain in some situations is of rare occurrence. The climate in the valley of the southeast coast is, notwithstanding its low latitude, as genial as that of Italy, being clear and serene, and refreshed by the sea-breeze from the east. At Rio Janeiro the annual mean of Fahrenheit's thermometer is 77°. The shores of the east coast are generally low-lying, the ground rising gradually behind into the mountain region, which runs parallel to the coast. The harbors are generally good, particularly those of Rio de Janeiro and Bahia. The population of Brazil consists of Europeans, whites born in the country, who call themselves Brazilians; Mulattoes, Mamalucoes, or offsprings of whites and native Indians; Negroes; Mestizoes, or Zamboes, mixed castes between Negroes and Indians; and the Aborigines, or American Indians. The slave population consists of Negroes and mixed breeds. Of the Aborigines, a portion are in a civilized condition, who are styled Cabocloes; the rest are in a savage and unreclaimed state. Dense forests furnish almost every variety of useful and ornamental timber, more than 100 species of palms, logwood, mahogany, Brazil, and numerous other dyewoods, with sassafras, sarsaparilla, ipecacuanha, and a great variety of other drugs. Cocoa, caoutchouc, and manioc, are indigenous products; maize, sugar, coffee, cotton, rice, wheat, and tobacco, have been introduced by European culture. The culture of the tea-plant was, some years ago, unsuccessfully attempted by a colony of Chinese, in the province of Saõ Paulo; the *yerba maté*, or Paraguay tea, is, however, an abundant product of the western provinces. The horse, ox, and sheep, derived from European stocks, have long been naturalized in the country; and vast herds of cattle are reared on all the more open parts. Hides, horns, bones, tallow, and other animal products, form leading articles of the export trade. Wild animals comprise the jaguar, hyena, tiger-cat, and other rapacious genera; with the tapir, wild-hog, etc., and a great variety of birds of the richest plumage; the animal as well as the vegetable products here presenting the greatest diversity. The diamond mines of Minas Geraes are the most productive at present known. Estimated value of the diamonds produced here, from 1740 to 1850, exceeds $20,000,000. Other gems, and large quantities of gold, besides silver, copper, iron, and platinum, are among the mineral products of the same province. Manufactures are almost wholly in their infancy in Brazil, being confined to cotton weaving, tanning, and the production of goods of primary necessity; and nearly all branches of industry are performed by slave labor. From its central position in reference to the chief commercial countries of the globe, and its very extensive line of coast, Brazil is most favorably situated for trade, which, though extensive, is not yet nearly commensurate with the resources of the empire. The articles imported in 1850 consisted, of cottons, 42,560 packages; woolens, 5488; linens, 5695; silks, 1088, and mixed goods, 1263; codfish, 54,602 quintals; coal, 42,007 tons; ale and porter, 23,704 barrels; flour, 283,893 barrels; candles—sperm, 90, composition, 6052, and tallow, 1043 boxes; wines—Portugal, 14,033 pipes, Mediterranean, 7644, and Bordeaux, 4421; butter, 25,561 firkins; cordage, 5480 coils, etc.

The produce of the country exported consisted of, coffee, 1,846,213 bags; hides, 147,296; sugar, 7824 cases; rum, 3892 pipes; rice, 8229 bags; horns, 256,949; tobacco, 28,755 rolls; rose-wood, 36,547 pieces; half-tanned hides, 12,744; tapioca, 17,737 barrels, etc. The imports from the United States, in 1851, amounted in value to $3,764,409, consisting mostly of flour and other provisions, and cotton manufactures; the exports at the same period amounted to $10,547,860, mostly in coffee, sugar, and hides.

Commerce of Brazil.—From the report of the Minister of Finance, read in the Chamber of Deputies on the 10th May, we gather the following particulars of the imports into, and exports from, the empire of Brazil, for the years 1854–'55. The commerce of Brazil with foreign nations, during the year 1854–'55, employed 5075 ships or vessels, measuring 1,657,015 tons.

The revenue of the last three years amounted to—1852–'53, $18,191,458; 1853–'54, $17,249,806; 1854–'55, $17,797,950. Total, 53,239,214. Average, $17,746,405.

On the 31st of December, 1855, the exterior public debt amounted to £5,635,900. The passive interior funded debt, $28,969,600.

Countries.	Imports.	Proportions.		Exports.	Proportions.	
		1853–'54.	1854–'55.		1853–'54.	1854–'55.
Great Britain and her possessions	$22,775,420	53·72	53·59	$19,687,362	32·43	32·32
France and her possessions	4,989,187	11·71	11·67	4,086,131	7·95	9·02
United States	3,995,868	9·06	8·25	11,903,644	28·35	26·28
Portugal and her possessions	3,234,396	6·83	7·63	2,324 889	4·35	5·12
Hanseatic Towns	2,442,233	6·25	5·76	3,387,579	8·27	7·57
Rio de la Plata	2,108,545	5·03	4·97	2,087,433	4·25	4 61
Belgium	885,752	2·16	4·97	1,391,847	1·78	3·07
Spain and her possessions	665,468	0·84	1·45	488,969	0·84	0·96
Chili	564.133	0·49	1·33	789,558	1·02	1·63
Sardinia	377,584	0·78	0·89	608,978	0·88	1·34
Sweden and Norway	189,774	0·26	0·45	1,254,649	2·18	2·77
Austria	130,277	0·84	0·31	812,011	3·53	1·79
Holland and her possessions	58,750	0·07	0·14	109,611	0·13	0·24
Other countries	322,327	0·94	0·76	687,557	1·23	1·47
Denmark	....	..	..	779,938	2·64	1·72
Turkey	....	..	..	134,709	0·15	0·29
Re-exportation	300.460	..	..	....	..	..
Total	$43,040,174			$50.534.865		

A decree of the government of Brazil, under date of January 10th, 1855, exempts foreigners from permits of residence, and permits them to travel in the interior of the empire with such passports as they may have brought with them, and, for the want of such, with the passport of their respective ministers, consuls, or vice-consuls, the same bearing the *visa* of the Brazilian authorities.

[Translation.]

Art. 1. Permits of residence are abolished, and foreigners coming to the empire are exempted from the same.

Art. 2. At every police office a book shall be kept for the registration of foreigners entering or leaving the empire.

Art. 3. On the occasion of the police visit foreigners shall state their names, condition, the place of their nativity, profession, the object for coming here when they arrived, and where they intend to reside. In those places where no police visit is made, the aforesaid declaration shall be made before the chief of police, delegate, or sub-delegate within twenty-four hours after landing, under penalty of from $10 to $50 fine, imposed by the competent authority.

Art. 4. The declaration alluded to in the foregoing article does not exonerate captains and masters of merchant vessels from the obligation imposed upon them by the twenty-fifth article of regulation No. 120, of January 31st, 1842, to declare, in a statement signed by them, the number, name, employment, occupation, and place of nativity of the passengers they bring with them, with or without passports.

Art. 5. The declaration of the foreigner and of the master or captain of the vessel shall be immediately transmitted to the bureau of police by the visiting officer or the authority who receives them.

Art. 6. The visiting officer, the chief of police, or the delegate or sub-delegate to whom the foreigner presents himself, shall examine his passport, and the same being found in due form, it shall be returned to him visaed, dated, and signed.

Art. 7. If there should be any doubt as to the legality of the passport, or the foreigner come without one, the chief of police, the delegate, or sub-delegate shall permit him to land if there is no reason for suspecting him to be a criminal; but if he should be suspicious, and have no certificate to present in his favor from his minister, or, in the absence thereof, from his respective consul or vice-consul, the chief of police, the delegate or sub-delegate shall compel the vessel which brought him to take him back, reporting the circumstance to the government at the capital, and to the president in the provinces.

Art. 8. To enable a foreigner to travel from one province to another, or in the interior of the same, the passport with which he arrived in the empire will be sufficient, provided it bears the *visa* of the competent authority with this clause, "For the province of ———." The visa must be dated, signed, paid for, and renewed every time the foreigner leaves one province for another.

Art. 9. But if the foreigner should happen to have come without a passport, or have lost the one he brought with him to the empire, the passport of the minister, or, in the absence thereof, that of his respective consul or vice-consul, with the visa of the Brazilian authorities, as set forth in the preceding article, shall answer the same purpose.

Art. 10. A foreigner who has resided in the empire for two years, being in possession of an establishment, and conducted himself well, or being married to a Brazilian, shall be at liberty to travel freely like a Brazilian, after having obtained from the chief of police a certificate of either of said conditions. this certificate is revokable in case of a change of circumstances.

Art. 11. In case of there being no diplomatic or consular agent, or the foreigner be a refugee or emigrant, or not come under the provisions of the preceding article, the passport shall be issued by the chief of police, the delegate, or sub-delegate, the same being always free of charge for the emigrant or the poor.

Art. 12. The ministers of state, or the chief clerks of the several departments at the seat of government, the presidents or their secretaries in the capitals of the provinces, the chief of police, the delegate or sub-delegate, at the place of landing or of departure, shall be empowered to grant the passport or the visa referred to in the preceding articles. The powers conferred by this decree upon the chief of police, the delegate and sub-delegate, are not concurrent, but shall be exercised by the delegate in places where no chief of police resides, or by the sub-delegate where no chief of police or delegate exists.

Art. 13. In consideration of the foregoing articles, the respective portions of the articles in regulation No. 120, of January 31st, which referred to permits of residence, and to passports for foreigners traveling in the interior of the empire, are hereby abolished.

Brazil-nuts, or **Chestnuts of Brazil**, the fruit of the Juvia (*Bertholletia excelsa*), a majestic tree growing to the height of one hundred or one hundred and twenty feet, abounding on the banks of the Orinoco, and in the northern parts of Brazil. The nuts are triangular, having a cuneiform appearance, with sutures at each of the angles; the shell is rough and hard, and of a brownish ash color. The kernel resembles that of an almond, but is larger, and tastes more like a common hazel-nut; it contains a great deal of oil, that may be obtained by expression or otherwise. These nuts do not grow separately or in clusters, but are contained, to the number of from fifteen to fifty or more, in great ligneous pericarps or outer shells, generally of the size of a child's head. This outer shell is very hard and strong, so that it is rather difficult to get at the nuts, which are closely packed in cells inside. The natives are particularly fond of this fruit, and celebrate the harvest of the juvia with rejoicings; it is also very much esteemed in Europe. The nuts exported to England and the European continent are chiefly from Para, and form an article of considerable commercial importance.—HUMBOLDT's *Personal Narrative*, vol. v. p. 538, English translation.

Brazil-wood (Fr. *Bois de Brésil*; Ger. *Brasilienholz*; Du. *Brasilienhout*; It. *Legno del Brasile*, *Verzino*; Sp. *Madera del Bresil*; Port. *Pao Brasil*). It has been commonly supposed that this wood derived its name from the country in which it is principally produced; but Dr. Bancroft has conclusively shown that woods yielding a *red dye* were called Brazil-woods long previously to the discovery of America; and that the early voyagers gave the name of Brazil to that part of that continent to which it is still applied from their having ascertained that it abounded in such woods.—

See the learned and excellent work, *Philosophy of Colors*, vol. ii. p. 316–321. It is found in the greatest abundance, and is of the best quality, in the province of Pernambuco, where it is called *Pao de rainha*, or Queen's wood; but it is also found in many other parts of the Western hemisphere. The tree is large, crooked, and knotty; the leaves are of a beautiful red, and exhale an agreeable odor. Its botanical name is *Cæsalpinia Brasileto*, but it is called by the natives *ibiripitanga*. Notwithstanding its apparent bulk, the bark is so thick, that a tree as large as a man's body with the bark will not be so thick as the leg when peeled. When cut into chips, it loses the pale color it before had, and becomes red, and when chewed has a sweet taste. It is used for various purposes by cabinet-makers, and admits of a beautiful varnish, but its principal use is in dyeing red; and though the color is liable to decay, yet, by mixing with it alum and tartar, it is easily made permanent. There is also made of it, by means of acids, a sort of liquid lake or carmine for painting in miniature. Brazil-wood has been for many years past a royal monopoly; its exportation, except on account of government, being prohibited under the severest penalties. Owing to the improvident manner in which it has been cut down by the government agents, it is now rarely found within several leagues of the coast. Indeed, we are assured that many of the planters have privately cut down the trees on their estates, and used the timber as fire-wood, that they might not expose themselves to annoyance from the arbitrary and vexatious proceedings of these functionaries. The quantity of Brazil-wood imported into Great Britain is but inconsiderable. Its price in the London market, exclusive of the duty (2*s.* per ton), varies for the first quality from £60 to £80 per ton.—*Dr.* BANCROFT *in loc. cit. Encyclop. Metrop. Modern Traveler*, vol. xxix. p. 87; MALTE BRUN, vol. v. p. 525, English edition, etc.

Bread, the principal article in the food of most civilized nations, consists of a paste or dough formed of the flour or meal of different sorts of grain mixed with water, and baked. When stale dough or yeast is added to the fresh dough, to make it swell, it is said to be *leavened;* when nothing of this sort is added, it is said to be *unleavened*.

Historical Sketch of Bread.—The President de Goguet has endeavored, with his usual sagacity and learning, to trace the successive steps by which it is probable men were led to discover the art of making bread (*Origin of Laws*, etc. vol. i. p. 95–105, English translation); but nothing positive is known on the subject. It is certain, however, from the statements in the sacred writings, that the use of unleavened bread was common in the days of Abraham (*Gen.* xviii. 8); and that leavened bread was used in the time of Moses, for he prohibits eating the Paschal lamb with such bread.—*Exod.* xii. 15. The Greeks affirmed that Pan had instructed them in the art of making bread; but they no doubt were indebted for this art, as well as for their knowledge of agriculture, to the Egyptians and Phœnicians, who had early settled in their country. The method of grinding corn by hand-mills was practiced in Egypt and Greece from a very remote epoch; but for a lengthened period the Romans had no other method of making flour than by beating roasted corn in mortars. The Macedonian war helped to make the Romans acquainted with the arts and refinements of Greece; and Pliny mentions that public bakers were then for the first time established in Rome.—*Hist. Nat.* lib. xviii., c. 11. The conquests of the Romans diffused, among many other useful discoveries, a knowledge of the art of preparing bread, as practiced in Rome, through the whole south of Europe. The use of yeast in the raising of bread seems, however, from a passage of Pliny (lib. xviii. c. 7), to have been practiced by the Germans and Gauls before it was practiced by the Romans; the latter, like the Greeks, having leavened their bread by intermixing the fresh dough with that which had become stale. The Roman practice seems to have superseded that which was previously in use in France and Spain; for the art of raising bread by an admixture of yeast was not practiced in France in modern times till toward the end of the seventeenth century. It deserves to be mentioned that, though the bread made in this way was decidedly superior to that previously in use, it was declared by the faculty of medicine in Paris to be prejudicial to health; and the use of yeast was prohibited under the severest penalties. Luckily, however, the taste of the public concurring with the interest of the bakers, proved too powerful for these absurd regulations, which gradually fell into disuse; and yeast has long been almost every where used in preference to any thing else in the manufacture of bread, to the wholesomeness and excellence of which it has not a little contributed.

The species of bread in common use in a country depends partly on the taste of the inhabitants, but more on the sort of grain suitable for its soil. But the superiority of wheat to all other farinaceous plants in the manufacture of bread is so very great, that, wherever it is easily and successfully cultivated, wheaten bread is used, to the nearly total exclusion of most others. Where, however, the soil or climate is less favorable to its growth, rye, oats, etc., are used in its stead. A very great change for the better has, in this respect, taken place in Great Britain within the last century. It is mentioned by Harrison, in his description of England (p. 168), that in the reign of Henry VIII. the gentry had wheat sufficient for their own tables, but that their *household* and poor neighbors were usually obliged to content themselves with rye, barley, and oats. It appears from the household book of Sir Edward Coke that, in 1596, rye bread and oatmeal formed a considerable part of the diet of servants, even in great families, in the southern counties. Barley bread is stated in the grant of a monopoly by Charles I., in 1626, to be the usual food of the ordinary sort of people.—*Sir* F. M. EDEN *on the Poor*, vol. i. p. 561. At the Revolution, the wheat produced in England and Wales was estimated by Mr. King and Dr. Davenant to amount to 1,750,000 quarters.—DAVENANT'S *Works*, vol. ii. p. 217. Mr. Charles Smith, the very well informed author of the Tracts on the Corn Trade, originally published in 1758, states that in his time wheat had become much more generally the food of the common people than it had been in 1689; but he adds (2d ed. p. 182, Lond. 1766) that, notwithstanding this increase, some very intelligent inquirers were of opinion that even then not more than *half* the people of England fed on wheat. Mr. Smith's own estimate, which is very carefully drawn up, is a little higher; for, taking the population of England and Wales, in 1760, at 6,000,000, he supposed that 3,750,000 were consumers of wheat; 739,000 of barley; 888,000 of rye and 623,000 of oats. Mr. Smith further supposed that they individually consumed, the first class, 1 quarter of wheat; the second, 1 quarter and 3 bushels of barley; the third, 1 quarter and 1 bushel of rye; and the fourth, 2 quarters and 7 bushels of oats.

About the middle of last century, hardly any wheat was used in the northern counties of England. In Cumberland, the principal families used only a small quantity about Christmas. The crust of the goose pie, with which almost every table in the county is then supplied, was, at the period referred to, almost uniformly made of barley meal.—EDEN *on the Poor*, vol. i. p. 564.

Every one knows how inapplicable these statements are to the condition of the people of England at the present time. Wheaten bread is now universally made use of in towns and villages, and almost every where in the country. Barley is no longer used, except in the distilleries and in brewing; oats are employed only in the feeding of horses; and the consumption of rye bread is comparatively inconsiderable. The produce of the wheat crops has been, at the very least, *quadrupled* since 1760. And if to this immense increase in the supply of wheat we add the still more extraordinary increase in the supply of butchers' meat (*see article* CATTLE), the fact of a very signal improvement having taken place in the condition of the population, in respect of food, will be obvious.

But great as has been the improvement in the condition of the people of England since 1760, it is but trifling compared to the improvement that has taken place since the same period in the condition of the people of Scotland. At the middle of last century, Scotch agriculture was in the most depressed state; the tenants were destitute alike of capital and skill; green crops were almost wholly unknown; and the quantity of wheat that was raised was quite inconsiderable. A field of eight acres sown with this grain, in the vicinity of Edinburgh, in 1727, was reckoned so great a curiosity that it excited the attention of the whole neighborhood.—ROBERTSON'S *Rural Recollections*, p. 267. But even so late as the American war, the wheat raised in the Lothians and Berwickshire did not exceed a third part of what is now grown in them; and taking the whole country at an average, it will be a moderate estimate to say that the cultivation of wheat has increased in a *tenfold* proportion since 1780. At that period no wheaten bread was to be met with in the country places and villages of Scotland, *oat cakes* and *barley bannocks* being universally made use of. But at present the case is widely different. The upper and also the middle and lower classes in towns and villages use only wheaten bread, and even in farm-houses it is very extensively consumed. There is at this moment hardly a village to be met with, however limited its extent, that has not a public baker. In many parts of England it is the custom for private families to bake their own bread. This is particularly the case in Kent, and in some parts of Lancashire. In 1804 there was not a single public baker in Manchester, and their number is still very limited.

The word bread is sometimes used for all the necessaries of human life, especially in the Scriptures. Ching-Noung, the successor of Fohi, is reputed to have been the first who taught men (the Chinese) the art of husbandry, and the method of making bread from wheat, and wine from rice, 1998 B.C.—*Universal History*. Baking of bread was known in the patriarchal ages; see *Exodus*, xii. 15. Baking bread became a profession at Rome, 170 B.C. During the siege of Paris by Henry IV., owing to the famine which then raged, bread, which had been sold, while any remained, for a crown a pound, was at last made from the bones of the charnel-house of the Holy Innocents, A.D. 1594. —HENAULT. In the time of James I. the usual bread of the poor was made of barley; and now in Iceland, cod-fish, beaten to powder, is made into bread; and the poor use potato-bread in many parts of Ireland. Earth has been eaten as bread in some parts of the world: near Moscow is a portion of land whose clay will ferment when mixed with flour. Some of the Indians of the Southwest eat a white earth with salt; and the Indians of the Oronoko eat a white unctuous earth. —GREIG; PHILLIPS.

Bread-making.—Bread is a most important and generally used article of food, and its proper preparation is a matter of the first importance. In New York it is chiefly composed of wheat flour, although rye and Indian meal enter somewhat into the composition of some species. 100 parts of wheat flour consist of

Starch	68	parts.
Gluten	24	"
Sugar	5	"
Vegetable Albumen	3	"

Of these different constituents, the gluten is that which gives to it the universal preference it enjoys over all other articles for bread-making. In oats, barley, and rye, the amount of gluten is small. As its name imports, it gives to the flour, when mixed with water, in the form of dough, its *glutinous* or adhesive property; and hence, although wheat flour can easily be converted into a plastic paste with water, yet it is found exceedingly difficult or impossible to make an adhesive dough with rye or oat meal flour without the addition of a portion of wheat flour.

The quality of wheat flour is greatly improved by three or four months' age, and it makes a much stronger bread after this period than before. If, however, it is kept too long, it is not only liable to fermentation, but loses in part its glutinous property. It is the custom with bakers, who seldom use flour before it is of the age indicated, to mix that of three or four months' age with that which is one or two years old; beyond this period it can not be well kept without especial care; and, indeed, so great is the demand, that it is seldom permitted to accumulate for a longer time.

Most of the bread used in New York is *fermented* or raised bread, which is induced by adding to the dough a portion of leaven, or yeast, which quickly diffuses itself through the whole mass, and causes it to ferment. This fermentation, which, although daily observed, is far from being so well understood as at first sight might be supposed, evolves a quantity of fixed air into the dough, which the gluten of the flour, by its tenacity, causes to be retained in the little cells seen in the raised dough before baking, or in the bread as it comes into the consumer's hands. Flour is now sold which contains tartaric acid and saleratus, or soda, in a dry state. When water is added to this, it causes an evolution of the carbonic acid gas contained in the soda, or potash, and the bread is suddenly raised without the process of fermentation.

The method of making bread in large bakeries is to sift a quantity of flour into a kneading-trough, into which is thrown a quantity of hot water in which salt has been dissolved. Into this mixture yeast is cast in the centre, and worked with a portion of the surrounding mass, which is made of the consistence of a stiff batter. The surface is covered with a little loose flour, and the whole is left in a state of repose until it begins to manifest decided signs of "working," when it is kneaded into dough.

This dough is sprinkled with a little flour, covered with a warm woolen cloth, and left for an hour and a half, when it is subjected to a second but less general kneading, cut in pieces, weighed, and shaped into the form it is intended to assume in the loaf, and set aside for some time in a warm place. When ready for the oven, the loaves are placed in it, baked, and removed in the form of bread. The loaf increases to about twice the size which it had in the form of dough, but loses somewhat in weight in the process of baking.

In most European countries the weight of the loaf is regulated by law, the assize being attended with strict regulations and penalties; but in this country the subject of quantity and quality, as a general rule, has been left for the baker and his customers to regulate between themselves, it being considered that competition would probably regulate this matter as advantageously for the consumer as it could be done by strict legal enactments. This is the more advisable, because the baker has it in his power to increase the weight of his loaf by adulterations, which are difficult to detect, without adding to its nutritious properties. As it is, he is free to select the mixture of flour which is best suited to the wants and tastes of his customers.

There is a great difference in the ability of various kinds of flour to make a given quantity of bread. A portion of this difference consists in the capacity of the flour to absorb and retain water, which is not only used to moisten the flour, but absolutely enters into the composition of the bread. Notwithstanding a large portion of the water used in making dough is expelled by the heat of the oven in baking, yet a sufficiency is retained to increase the weight of the bread largely over the solid materials used in making it.

When the bread is weighed immediately after baking, it is found that for every 100 pounds of flour about 138 pounds of bread are made. This will diminish, by keeping, four or five pounds, but even when stale it is much above the weight of the flour actually used. As a general rule, fifteen pounds of flour and ten pounds of water will make twenty pounds of bread, so that *one-fourth of each loaf of bread consists of water chemically combined and solidified.*

Each baker has his own standard for the size and weight of his loaves, as well as his particular method of making bread. As a general rule, the sixpenny loaf weighs from one pound two ounces to one pound six ounces, and larger loaves bear a like proportion of weight to price. Those whose custom is among the more fashionable classes use a higher-priced quality of flour, and make a smaller loaf, while those who supply the laboring class of the community use a good but less high-priced flour, and furnish their customers with a large loaf. Many of the shops contain American, French, and German loaves, while large numbers of establishments confine themselves to the one or the other of these species. The chief difference between the American and French bread consists in the larger quantity of yeast used in the latter, and its greater porosity, or want of closeness. The German bread is more dense than either of these, and contains, in addition to wheat flour, a small admixture of rye flour, which gives to it a slightly sweetish taste, much relished by those accustomed to its use.

The amount of bread consumed every where is very great. According to M. Husson, the Parisian uses about one pound each day, or three hundred and sixty pounds each year. The Londoner consumes in the same time about three hundred pounds; and the New Yorker about two hundred and sixty pounds. The reason of this great disparity in the consumption of bread in these three great cities is easily seen in the larger quantity of meat and vegetables used in the one than in the other. The Londoner consumes more meat than the Parisian, and consequently less bread, while the amount both of meat and vegetables used by the New Yorker exceeds that of the Londoner; and his consumption of bread is proportionably diminished. This, however, is subject, in every country, to great variations; but it may be safely assumed that the family that uses much meat consumes but little bread; and that which consumes but little meat requires a corresponding increase in the amount of bread.

Bread-fruit. The bread-fruit is a large, globular berry, of a pale-green color, about the size of a child's head, marked on the surface with irregular six-sided depressions, and containing a white and somewhat fibrous pulp, which, when ripe, becomes juicy and yellow. The tree that produces it (*Artocarpus incisa*) grows wild in Otaheite and other islands of the South Seas, is about 40 feet high, with large spreading branches, and has large, bright green leaves, deeply divided into seven or nine spear-shaped lobes. We are informed, in Captain Cook's first Voyage round the World, that the eatable part of this fruit lies between the skin and the core, and that it is as white as snow, and somewhat of the consistence of new bread. When gathered, it is generally used immediately; if it be kept more than 24 hours, it becomes hard and choky. The inhabitants of the South Sea islands prepare it as food by dividing the fruit into three or four parts, and roasting it in hot embers. Its taste is insipid, with a slight tartness, somewhat resembling that of the crumb of wheaten bread mixed with Jerusalem artichoke. Of this fruit, the Otaheitans make various messes by mixing it with water, or the milk of the cocoa-nut, then beating it to a paste with a stone pestle, and afterward mingling with it ripe plantains, bananas, or a sour paste, made from the bread-fruit itself, called *mahie*. It continues in season eight months, and so great is its utility in the island of Otaheite, "that," observes Captain Cook, "if in those parts where it is not spontaneously produced, a man plant but ten trees in his whole lifetime, he will as completely fulfill his duty to his own and to future generations as the native of our less temperate climate can do by plowing in the cold of winter, and reaping in the summer's heat, as often as these seasons return; even if, after he has procured bread for his present household, he should convert the surplus into money, and lay it up for his children." Not only does this tree supply food, but clothing, and numerous other conveniences of life. The inner bark, which is white, and composed of a net-like series of fibres, is formed into a kind of cloth. The wood is soft, smooth, and of a yellowish color, and is used for the building of boats and houses. In whatever part the tree is wounded, a glutinous milky juice issues, which, when boiled with cocoa-nut oil, is employed for making bird-lime, and as a cement for filling up cracks in such vessels as are intended to hold water. Some parts of the flowers serve as tinder, and the leaves are used for wrapping up food, and other purposes. As the climate of the South Sea islands is considered not very different from that of the West Indies, it was, about 42 years ago, thought desirable that some of the trees should be transferred, in a growing state, to the English islands there. His majesty's ship, the *Bounty*, sailed, in 1787, for this purpose, to the South Seas, under the command of Lieutenant, afterward Admiral Bligh. But a fatal mutiny of the crew at that time prevented the accomplishment of this benevolent design. The commander of the vessel, however, returned in safety to his country, and a second expedition, under the same person, and for the same purpose, was fitted out in the year 1791. He arrived in safety at Otaheite, and, after an absence from England of about 18 months, landed in Jamaica with about 352 bread-fruit trees in a living state, having left many others at different places in his passage thither. From Jamaica these trees were transferred to other islands; but the Negroes having a general and long-established predilection for the plantain, the bread-fruit is not much relished by them. Where, however, it has not been generally introduced as an article of food, it is used as a delicacy; and, whether employed as bread, or in the form of pudding, it is considered highly palatable by the European inhabitants.—E. A.

Breadstuffs. Next to the cotton trade, that of breadstuffs and provisions is the most important in our foreign export trade, and of far more importance in its general bearings upon commerce, and amounts yearly to about *one-fifth* of the total exports from the United States. As will appear from the table below, the exports are increasing very rapidly, having quadrupled from 1844 to 1854. It is probable that this increase will continue, as the same causes are now operating to enlarge the demand that have increased the exports for the past.

Great Britain has always been the best customer for the surplus breadstuffs of the United States. To most other countries which take breadstuffs of us, our shipments of flour have been comparatively uniform, whether the crop was large or small; but to British ports the shipments have varied with the quantity we have had to spare, although averaging nearly half the total clearances of all foreign ports. Brazil and the West Indies are regular customers for our flour, as they purchase about the same quantity every year, and, after Great Britain, take the largest quantity in a series of years; but a large portion of our shipments of grain (with wheat and corn) go to British ports. Thus, of 18,583,151 bushels of wheat shipped to all ports from July 1, 1849, to June 30, 1855, 14,061,211 were sent to Great Britain; and of 43,737,597 bushels corn exported to all ports within the same period, 36,663,951 bushels had the same destination. We annex a tabular statement showing the exports from all ports of the United States to all foreign ports, of wheat, wheat flour and Indian corn, both in quantity and value, from 1849 to 1855 inclusive, with a comparison of the quantity of each sent to Great Britain. The totals are all taken from official documents, and may be relied upon as authentic, although it must be noted that of many direct clearances to Great Britain for orders there are sometimes considerable quantities directed from thence to Continental ports. The "famine" of 1847 led to large shipments of breadstuffs, and to the inauguration of free trade in England, and we commence, therefore, with 1848–'49, when the business had become settled under this system. The periods noted are for the fiscal years ending June 30:

Exports from the United States, of Wheat, Wheat Flour, and Indian Corn, from 1849 to 1855, both inclusive.

Articles.	To Great Britain.	To all Foreign Ports.	Value.
1849.	Quantity.	Quantity.	$
Wheat, bushels.	1,072,780	1,527,534	1,756,848
Flour, barrels ..	953,815	2,108,013	11,280,582
Corn, bushels ..	12,396,242	13,257,309	7,966,369
1850.			
Wheat, bushels.	316,926	608,661	643,745
Flour, barrels ..	370,777	1,385,448	7,079,570
Corn, bushels ..	5,957,206	6,595,092	3,892,193
1851.			
Wheat, bushels.	592,583	1,026,755	1,025,732
Flour, barrels ..	1,004,783	2,292,335	10,524,331
Corn, bushels ..	2,760,329	3,426,811	1,761,549
1852.			
Wheat, bushels.	2,049,557	2,694,540	2,555,209
Flour, barrels ..	1,532,094	2,799,339	11,869,143
Corn, bushels ..	1,894,700	2,627,075	1,540,225
1853.			
Wheat, bushels.	3,572,248	3,890,141	4,354,403
Flour, barrels ..	1,388,065	2,920,918	14,783,394
Corn, bushels ..	1,653,840	2,274,909	1,374,077
1854.			
Wheat, bushels.	6,058,903	8,036,665	12,420,172
Flour, barrels ..	2,026,121	4,022,376	21,701,444
Corn, bushels ..	5,965,850	7,768,816	6,074,277
1855.			
Wheat, bushels.	396,215	798,884	1,329,246
Flour, barrels ..	189,712	1,204,540	10,896,908
Corn, bushels ..	5,935,284	7,807,585	6,961,571

The ordinary shipments in former years have not included any thing direct for France. In the first year named above (1849) there were no exports of flour to French ports, and only 108 bushels of wheat; in 1852 the total includes 2700 barrels of flour, and in 1853 only 8784 barrels; but in the year ending June 30, 1854, there were shipped direct to France 1,041,086 bushels of wheat, 728,279 barrels of flour, and 39,200 bushels of Indian corn. In the following fiscal year (1854–'55) the shipments of flour to the same ports had dwindled down to 8557 barrels, and there was no shipment of wheat, but the exports of corn increased to 312,740 bushels. During the year 1855, the partial failure of the crops on the Continent of Europe led to large direct shipments, and the total exports to France for 1855–'56, not yet officially compiled, have been larger than ever before recorded to the same ports. As soon as the threshing of wheat commenced in the west and north of France in 1855, its bad quality and light weight created a general panic, and prices continued to advance up to the first of January. The abundance caused by the large receipts from this country, Spain, and other sources of supply, caused a downward tendency in prices throughout January, 1856, and every thing was promising for the next harvest until the inundations in May. These checked the decline without wholly arresting it; but as the harvest approached, the hopes of an average crop became less sanguine, and it is now generally admitted that the supply will be deficient from five to ten million hectolitres, that is, from fourteen to twenty-eight millions of bushels. The quantity of arable land in France is set down at 56,810,000 acres, of which fourteen million hectares, or 34,580,000 acres, are devoted to the culture of grain. The average annual product is 495,000,000 bushels of wheat, oats, rye, maize, and meslin, of which about one-fourth are oats, and two-fifths, or 198,000,000 bushels, are wheat. With an average crop, France has heretofore been able not only to supply her wants, but to furnish about 5,500,000 bushels of wheat (or its equivalent in flour) for the consumption of Great Britain. It is evident that this export trade must be cut off or greatly reduced during the current year, as the crop in France is below the wants of her own people. Indeed the total exports to Great Britain from all the French ports for the year 1855 amounted to an equivalent of only 880,000 bushels, or about 15 per cent. of the usual shipments, and this was all foreign produce, shipped from bond.

Statement exhibiting the aggregate Value of Breadstuffs and Provisions exported Annually from the United States, from the Year 1821 to 1855, both inclusive.

Year ending September 30.	Amount.	Year ending September 30.	Amount.
1821	$12,341,901	1839	$14,147,779
1822	13,886,856	1840	19,067,535
1823	13,767,847	1841	17,196,102
1824	15,059,484	1842	16,902,876
1825	11,634,449	1843*	11,204,123
1826	11,303,496	1844†	17,970,135
1827	11,685,556	1845	16,743,421
1828	11,461,144	1846	27,701,121
1829	13,131,858	1847	68,701,921
1830	12,075,430	1848	37,472,751
1831	17,538,227	1849	38,155,507
1832	12,424,703	1850	26,051,373
1833	14,209,128	1851	21,998,651
1834	11,524,024	1852	25,857,027
1835	12,009,399	1853	32,985,322
1836	10,614,130	1854	65,941,323
1837	9,588,359	1855	38,895,348
1838	9,636,650	Total	720,834,956

* 9 months, to June 30. † 12 months, to June 30.

In Great Britain the crop this year is very good; but it is never sufficient to supply the wants of the people. The total imports of breadstuffs into the United Kingdom for the last three years (reckoning flour, etc., at its equivalent in grain) are as follows:

Years.	Equal to Bushels Wheat.
1853	84,419,632
1854	63,267,240
1855	56,227,608

The high prices have contributed to reduce the imports into the United Kingdom during the last two years to the lowest possible point; but the first six months of the current year the total imports amounted to 1,859,000 quarters, showing an increase of 161,000 quarters, or 1,248,000 bushels, and must continue at about this rate throughout the remainder of the year. Even with a good harvest, the kingdom must need at least 40,000,000 bushels of grain, or its equivalent in flour, for its own consumption. Of this amount Russia—Northern and Southern ports—whose supplies were cut off during the war, can now furnish 10,000,000 bushels; Prussia, whose harvest is this year below the average, 10,000,000 bushels; all other countries 5,000,000 bushels; leaving 15,000,000 to come from the United States. If prices rule at a comparatively low rate, the consumption will be increased, and the quota from this country may reach 20 or 25 millions of bushels. Spain and Portugal have hitherto exported to both France and England, the shipments to the latter last year being upward of 4,000,000 bushels.

It is difficult to ascertain the exact production of the United States. The total arable land under actual cultivation is given in the Census of 1850 at 113,032,614 acres, of which 51,700,000 acres were producing breadstuffs. The following was the total production of grain as given in the Census returns for 1840 and 1850:

Articles.	1840.	1850.
	Bushels.	Bushels.
Wheat..................	84,823,272	100,485,944
Rye	18,645,567	14,188,813
Oats......................	123,071,341	146,584,179
Corn	377,531,875	592,071,104
Barley....................	4,161,504	6,167,015
Buckwheat...............	7,291,743	8,956,912
Total	615,525,302	867,453,967

A large amount of arable land has been brought under cultivation since 1850, and those most conversant with the West think that the product of wheat has increased 50 per cent. since the date last given, while other grain has increased 20 to 25 per cent. The total yield of wheat being computed at 150,000,000 bushels, it is easy to see that the export demand can be filled without creating any extraordinary excitement throughout the country. Last year the farmers anticipated such high rates, that many of them refused to sell in time, and thus were obliged to dispose of their stock far below the average price. This year the early sales promised to be the best, but there appears to be a limit below which foreign orders will rapidly diminish any home accumulation. At present good white wheat is worth here about $1 60, and good red about $1 50. We scarcely expect to see a decline of 20 cents from these rates during the current season, but within that range an active foreign business may be expected. The prospects for Indian corn can not be given until nearer the close of the harvest. Flour will fluctuate more than wheat in price; sales have been made to arrive in England at a price which would net here about $5 for a standard superfine, but this is generally thought to be an inside price. We have compiled from the official records a statement of the average export price in flour since 1836. The highest price, since 1800, was $14 75 per barrel, at which all the shipments averaged in the year 1817. The lowest was $4 25, which was the average of 1852. The following is the average of the total shipments to all ports in each year for the last twenty years. The price in 1854–'55 was enhanced materially by the demand arising for export to Europe during the war with Russia. At intervals of that period first brands produced over $13 in the New York market, and common shipping flour over $10 per barrel.—*See* CENSUS REPORT, UNITED STATES.

YEARLY AVERAGE PRICE OF THE EXPORTS OF WHEAT FLOUR FROM THE UNITED STATES TO FOREIGN PORTS, FROM 1836 TO 1855.

Years.	Price.	Years.	Price.	Years.	Price.	Years.	Price.
1836	$7 50	1841	$5 20	1846	$5 18	1851	$4 77
1837	10 25	1842	6 00	1847	5 95	1852	4 24
1838	9 50	1843	4 50	1848	6 22	1853	5 60
1839	6 75	1844	4 75	1849	5 35	1854	7 88
1840	5 37	1845	4 51	1850	5 00	1855	10 10

The periods before noted are the government fiscal years, ending June 30. The average of 1856 is not yet made up, but will be considerably below that of 1855. If any think we have overestimated, in the following table, the present production of wheat in this country, we have only to remind them that the cultivation of this grain for export received but little stimulus until the repeal of the British corn laws; and since that time we have added the States of Illinois, Iowa, and Michigan to our wheat-producing States, and by means of railroads made them equal competitors with the Atlantic States.—*See Art.* WHEAT.

PRODUCTION OF WHEAT, RYE, AND INDIAN CORN IN THE UNITED STATES, IN 1850.

States and Territories.	Wheat.	Rye.	Indian Corn.
	Bushels.	Bushels.	Bushels.
Maine..........	296,259	102,916	1,750,056
New Hampshire.	185,658	183,117	1,573.670
Vermont........	535,955	176,233	2,032,396
Massachusetts...	31,211	481,021	2,345,490
Rhode Island ...	49	26,409	539,201
Connecticut.....	41,762	600,893	1,935,043
New York	13,121,498	4,148,182	17,858,400
New Jersey.....	1,601,190	1,255,578	8,759,704
Pennsylvania ...	15,367,691	4,805,160	19,835,214
Delaware.......	482,511	8.066	3,145.542
Maryland.......	4,494,680	226,014	11,104,631
District of Col...	17,370	5.509	65.230
Virginia........	11,232,616	458.930	35.254,319
North Carolina..	2,130,102	229,563	27,941,051
South Carolina..	1,066,277	43,790	16,271,454
Georgia	1,088,534	53,750	30,080,099
Florida.........	1,027	1,152	1,996,809
Alabama........	294,044	17,261	28,754,048
Mississippi......	137,990	9,606	22,446,552
Louisiana.......	417	475	10,266,373
Texas..........	41,689	3,108	5,926,611
Arkansas.......	199,639	8,047	8,893.939
Tennessee......	1,619,381	89,163	52,276,223
Kentucky.......	2,140,822	415,073	58,675,591
Ohio...........	14,487,351	425,718	59,078,695
Michigan.......	4,925,889	105.871	5.641,420
Indiana........	6,214,458	78,792	52,964,363
Illinois.........	9,414,575	83,364	57,646,984
Missouri........	2,981,652	44,268	36,214,537
Iowa...........	1,530,581	19,916	8,656,799
Wisconsin......	4,286,131	81,253	1,988,979
California.......	17,328	....	12,236
Minnesota Ter...	1,401	125	16,725
Oregon Territory	211.493	106	2.918
Utah Territory ..	107,702	210	9.899
New Mexico	196,516	....	365,411
Total........	100.503.899	14,188,639	592,326,612

AN ACCOUNT OF THE EXPORTS OF FLOUR AND WHEAT, INDIAN CORN AND INDIAN CORN MEAL, RYE, SHIP BREAD, ETC., FROM THE UNITED STATES, DURING THE YEAR ENDING 30TH JUNE, 1847, KNOWN AS THE "FAMINE YEAR" IN IRELAND, SPECIFYING THE COUNTRIES TO WHICH THE SAME WERE SENT, AND THE QUANTITIES SENT TO EACH.

TO AMERICA.

Articles.	British North American Colonies.	West Indies.	South America.	North America generally.
Flour, barrels....................	272,299	483,571	328,937	66,993
Wheat, bushels	919,058	15,105	....	200
Indian corn, bushels	119,615	593,029	3,964	23,925
Corn meal, barrels	39,936	176,418	2,750	10,354
Rye meal, barrels.................	27,401	3,480	101	180
Rye, oats, etc.	$24,312	$113,355	$2,291	$18,599
Ship bread, barrels................	20,506	54,788	1,711	21,218
Ship bread, kegs..................	220	13,267	7,437	673

TO EUROPE.

Articles.	Great Britain.	Ireland.	France.	Spain and Portugal.	Other parts of Europe.
Flour, barrels....................	2,144,581	342,495	612,641	1312	113,429
Wheat, bushels	2,078,652	465,911	749,242	..	170,421
Indian corn, bushels	7,527,586	7,998,939	7,248	4892	22,203
Corn meal, barrels	426,070	287,013	4,401	..	605
Rye meal, barrels	4,030	2,362	3,006	..	8,332
Rye, oats, etc.	$565,322	$66,580	$50,697	..	$752,081
Ship bread, barrels................	34,736	11,994	3,771	..	1,728
Ship bread, kegs..................	6,647	556	16	..	548

TO OTHER COUNTRIES.

Articles.	Asia generally.	Africa generally.	South Seas and Pacific.	Total to all Parts.	Total Value of Exports.
Flour, barrels....................	8,674	36,800	764	4,382,496	$26,133,811
Wheat, bushels	1,362	....	..	4,399,951	6,049,350
Indian corn, bushels	175	24,474	..	16,326,050	14,395,212
Corn meal, barrels	77	436	..	948,060	4,301,334
Rye meal, barrels.................	....	....	..	48,092	225,502
Rye, oats, etc.	$4,596	$2,368	$131	....	1,600,962
Ship bread, barrels................	3,166	5,609	1,753	160,980	556,266
Ship bread, kegs..................	163	1,482	100	31,082	
Total value................	....	....	..	....	$53,262,437

Breakers, a name given to those billows that break violently over rocks lying below the surface of the sea. —E. B.

Breakwater is any obstruction of wood, stone, or other material, as a boom or raft of wood, sunken vessels, etc., placed before the entrance of a port or harbor, or any projection from the land into the sea, as a pier, mole, or jetty, so placed as to break the force of the waves, and prevent their action on ships and vessels lying at anchor within them. Thus the piers of the ancient Piræus and of Rhodes; the moles of Naples, Genoa, and Castellamare; the piers of Ramsgate, Margate, Folkstone, Howth, and the wooden dike de Richelieu, thrown across the port of Rochelle, may all be denominated *Breakwaters*. In French it is sometimes called *Battre d'Eau*; a name which appears to have been applied to the mole at Tangier, a work commenced in 1663, under the direction of Lord Tiviot, Sir J. Lawson, and Sir Hugh Cholmley, and finished, or rather discontinued, in 1676, after having cost England the sum of £243,897 *5s.* 4½*d.* The term *Breakwater*, however, has of late years been considered as more peculiarly appropriate to large insulated dikes of stone, whether of regular masonry or sunk promiscuously in rough masses, so placed as to form an artificial island across the mouth of an open roadstead, and thereby, from obstructing and breaking the waves of the sea, to convert a dangerous anchorage into a safe and commodious harbor for the reception of ships of war or merchantmen.

Of this description of dike for creating an artificial harbor on a grand scale, fit for the reception of ships of war of the largest class, there are remarkable examples in the breakwaters of Cherbourg, Plymouth, Portland, Delaware, etc. The first stone of the breakwater at Plymouth was lowered in the presence of multitudes of the people, August 12, 1812. It was designed to break the swell at Plymouth, and stretches 5280 feet across the Sound; it is 360 feet in breadth at the bottom, and more than 30 at the top, and consumed 3,666,000 tons of granite blocks, from one to five tons each, up to April, 1841; and cost a million and a half sterling. The architect was Rennie.—*See Art.* CHERBOURG and DELAWARE BREAKWATERS.

Breeches. Among the Greeks this garment indicated slavery. It was worn by the Dacians, Parthians, and other Northern nations; and in Italy, it is said, it was worn in the time of Augustus Cæsar. In the reign of Honorius, about A.D. 394, the *braccari*, or breeches-makers, were expelled from Rome; but soon afterward the use of breeches was adopted in other countries, and at length it became general.—HAYDN.

Bremen, one of the free Hanseatic cities, on the Weser, about 50 miles from its mouth, lat. 53° 4¾′ N., long. 8° 48′ 3″ E. Population in 1849, 53,478. Its situation renders Bremen the principal emporium of Hanover, Brunswick, Hesse, and other countries traversed by the Weser. The charges on the buying, selling, and shipping of goods are very moderate. The principal German exports are, woolen goods, linens, grain, oak bark, glass, smalts, hides, rape-seed, beef and pork, rags, wool, wine, etc. The wheat and barley shipped here are mostly inferior; but the oats are useful common feed; beans are good. The linens are mostly the same as those from Hamburg. The imports consist of tobacco (of which large quantities are re-exported), coffee, sugar, and other colonial products; whale-oil, iron, rice, hides, wines, raw cotton, cotton stuffs and yarn, earthen-ware, brandy, tar, tea, dye-woods, timber, hemp, etc.

Bremen has long been, and continues to be, the most important *entrepôt* on the Continent for the sale of tobacco. In 1851, about 5000 hands were engaged in the manufacture of cigars, of which the export was estimated at 235,000 boxes of 1000 each; but an increase of the duty on cigars imported into the German Customs Union subsequently gave the trade a check.

Entrance to Bremen.—The entrance to the Weser lies between the Mellum and other sands on the southwestern, and the Teglers Plaat, etc. on the northeastern side. Its course from Bremerlehe to its mouth is nearly southeast and northwest. It is buoyed throughout. The buoys on the right or starboard side, when entering, being black and marked with letters, while those on the left or larboard are white and numbered. The first or outer black buoy has a gilt key upon it, and is, therefore, called the *schlussel*, or key buoy; it lies in 10½ fathoms, bearing northeast 5 miles from Wrangeroog light. This is an intermitting light, having replaced, in 1850, the old coal-fire beacon on the island of Wrangeroog, opposite to the northern extremity of East Friesland. It is, according to the most authentic statements, in lat. 53° 47½′ N., long. 7° 51′ 55″ E.; is elevated 63¾ feet above high-water mark, being alternately visible and invisible for the space of a minute. A light-vessel is moored in the fair-way of the Weser, between the black buoys E and F, and the white buoys 2 and 3. She has two masts; during the day a red flag, with a white cross upon it, is kept flying at the main-mast; and at night she exhibits 7 lantern lights, 28 feet above deck. This vessel is on no account to leave her station, unless compelled by the ice. Large vessels do not now generally ascend farther than Bremerlehe, on the east side of the river, about 38 miles below Bremen, where a new and spacious harbor, called "Bremer Haven," has been constructed. But vessels not drawing more than 7 feet water come up to town; and those drawing from 13 to 14 feet may come up to Vegesack, about 13 miles from Bremen. The latter had, in 1849, a population of 3538, and Bremer Haven of 3618.—See the *Sailing Directions for the North Sea*, published by Mr. Norrie.

ACCOUNT OF THE ARRIVALS OF SHIPS AT BREMEN IN 1850 AND 1851, SPECIFYING THE COUNTRIES FROM WHENCE THEY CAME, AND THE NUMBERS AND TONNAGE OF THOSE FROM EACH.

Countries.	1850.		1851.	
	Vessels.	Tons.	Vessels.	Tons.
Great Britain	381	49,237	402	52,481
Denmark..........	84	2.531	107	3.270
France	44	5,049	51	6,068
Holland...........	151	8,313	217	14.364
Prussia............	133	12,160	136	10,452
Russia.............	66	7,473	125	15,561
Sweden and Norway	151	9,558	172	10.600
United States......	128	62.049	131	64,714
Cuba..............	61	13,146	57	12,245
Hayti	18	4,310	17	3,398
Porto Rico.........	19	3,515	21	3,863
Mexico	8	1,301	6	942
Venezuela.........	13	2,485	11	1.859
Brazils............	14	2,873	50	9.066
Other places.......	20	5,400	34	7.578

Breslau, a city of Prussia, capital of the province of Silesia, and of the circle of same name, on the Oder, at the influx of the Ohlau, and on the railroad from Berlin to Vienna, 409 feet above the Baltic, 190 miles southeast of Berlin. Lat. (of observatory) 51° 6′ 57″ N., long. 17° 2′ 33″ E. Population of the circle in 1849, 1,174,676; of the city, 112,194, of whom nearly three-fourths are Protestants. It is the greatest emporium for the linens of Silesia, for which it has four annual fairs of eight days each, and the greatest mart for wool in Germany. It has manufactures of linen, woolen, cotton, and silk fabrics, lace, needles, plate, jewelry, earthen-ware, colors, soap, alum, starch, snuff, and sealing-wax; and an extensive trade in mining produce, timber, flax, hemp, madder, corn, and oxen, from the southern Russian provinces, and in Hungarian wines and other merchandise. It has an active trade on the Oder, and communicates by railroad with Berlin and Frankfort on the north, Dresden on the west, Cracow and Warsaw on the east, and Vienna in the south. It was bombarded and taken by the French, January 7, 1807, and its fortress, then partly destroyed, has since been entirely razed.

Brewing is the art of preparing an exhilarating or intoxicating beverage by means of a process of fermentation; but at the present day the term is usually limited to the manufacture of different kinds of beer, from infusions of malt or of grains. In all countries, savage and civilized, one kind or other of exhilarating or intoxicating drink is prepared. In the warmer regions of the globe the juice of various palm-trees is extracted, and, when fermented, forms the favorite beverage. Over all the warmer regions of South America, and in Mexico, the universal drink is *Pulque*, the fermented juice of the American aloe (*Agave Americana*). *Guarapo*, a favorite drink with the Negro races is the fermented juice of the sugar-cane; and when the sugar-cane is not in season, these races prepare fermented drinks from honey and from rice. In many Northern countries, and even occasionally in the highlands of Scotland, the juices of the birch, maple, or ash, are fermented, and form a palatable drink. *Koumis*, the intoxicating beverage of the Mongols and the Tartars, is the fermented milk of the mare. In countries favorable to the growth of the vine, wine is the usual beverage. The Peruvians and many other Indians prepare their favorite intoxicating drink, *chicha*, from maize. The Arabians, Abyssinians, and several tribes in Africa, prepare their fermented drink, *bousa*, from the flour or bread made from teff (*Poa Abyssinica*); but the durrha or millet (*Sorghum vulgare*), and even barley itself, are occasionally substituted for the teff to prepare the muddy, sour *bousa*. The universal Russian beverage, *kvass* or *quass*, a sharp, acid, muddy liquid, almost the same in taste and appearance as "bousa," is made by mixing rye bread or rye flour, or sometimes barley flour, with water, and fermenting it. The well-known national German drink, the *weiss bier*, is prepared from a fermented infusion of wheat malt with only a sixth part of barley malt. But over almost all the civilized world, the fermented infusion of barley malt, seasoned or not with hops or other bitters, when it takes the name of beer, is the favorite beverage.—E. B.

Bribe. The giving or offering a recompense or reward to any person to induce him to neglect his duty.

Bricks and Tiles, well-known articles used in the building and covering of houses. They are made of baked clay and sand.

Fire-bricks.—A mode has been invented intended to do away with manual labor in the manufacture of fire-bricks made from ground clay, by passing it directly from the grinding-mill to the machine, where it is made into bricks ready for the kiln, instead of adding water and making it into a paste according to the present process. The invention consists of a combination of hydraulic machinery, for compressing clay in a pulverized state into bricks, and for changing the position of the moulds in which the clay is compressed, so that they may fill and discharge themselves after compression. After the clay is formed into bricks the sides and end of the mould recede, and leave them free, without any forcing, which effectually prevents all liability to fracture or damage. A machine with two moulds will produce from 2000 to 4000 per day.

Bridges. So early and general, and the expedients for their construction so various, their origin can not be traced; they were first of wood. The ancient bridges in China are of great magnitude, and were built of stone. Abydos is famous for the bridge of boats which Xerxes built across the Hellespont. Trajan's magnificent stone bridge over the Danube, 4770 feet in length, was built in A.D. 103. The Devil's bridge, in the canton of Uri, so called from its frightful situation, was built resting on two high rocks, so that it could scarcely be conceived how it was erected, and many fabulous stories were invented to account for it. At Shaffhausen an extraordinary bridge was built over the Rhine, which is there 400 feet wide: there was a pier in the middle of the river, but it is doubtful whether the bridge rested upon it; a man of the lightest weight felt the bridge totter under him, yet wagons heavily laden passed over without danger. This bridge was destroyed by the French in 1790. Suspension bridge at Niagara Falls completed July 29, 1848. The ancient bridges in England were of wood, and were fortified with planks and merlined; the first bridge of stone was built at Bow, near Stratford, A.D. 1087. Westminster bridge, then the finest erected in these realms, and not surpassed by any in the world, except in China, was completed in twelve years, 1750. The other London bridges are Blackfriars, completed 1770; London (rebuilt), 1831; Southwark, of iron, 1819. The first iron bridge, on a large scale, was erected over the Severn, in Shropshire, 1779. The finest chain suspension bridge is that of the Menai Strait, completed in 1825. Hungerford suspension bridge, 1845.—HAYDN.

Bridgewater Canal, the first great work of the kind in England, was begun by the Duke of Bridgewater, styled the father of canal navigation in that country, in 1758. Mr. Brindley was the architect. The canal commences at Worsley, seven miles from Manchester; and at Barton bridge is an aqueduct which, for upward of 200 yards, conveys the canal across the navigable River Irwell: the canal is 29 miles long.

Brimstone. *See* SULPHUR.

Bristles (Fr. *Soies;* Ger. *Borsten;* Du. *Borstels;* It. *Setole;* Sp. *Cerdas, Setas;* Pol. *Szezeciny;* Russ. *Schtschetina;* Lat. *Setæ*), the strong glossy hairs growing on the back of the hog and the wild boar.

Bristol, a city, sea-port, and county of England, situated chiefly in Gloucestershire, and partly in Somersetshire, on the Avon, at its confluence with the Frome, and 8 miles southeast of its embouchure in the Bristol Channel, 11½ miles northwest of Bath, 33½ miles south-southwest of Gloucester, and 118¼ miles west of London, with which it is connected by the Great Western Railroad. Lat. of cathedral, 51° 27′ N., long. 2° 36′ W. Area of border, including the distance added by the municipal act, 9870 acres. Population in 1801, 39,914; in 1841, 123,188; and in 1851, 137,328. Bristol extends over several hills and intermediate valleys. It long ranked as the second commercial emporium of England, but its progress has not kept pace with that of other ports more advantageously placed as outlets of great manufacturing districts. It has, however, large iron and brass founderies; copper, tin, zinc, and glass works; chemical and color works; sugar refineries and distilleries; and considerable manufactures of pins, shot, china, earthen-wares, soap, leather, tobacco, cottons, hats, and floor-cloths, with extensive establishments for ship-building; and in its vicinity are large brick and coal works. The Avon at Bristol, though narrow, is deep enough for large ships, and early in the present century its course was turned for some distance at a cost of £700,000, and its own channel now forms a harbor furnished with locks and quays 6000 feet in length. Ships of large burden and first-rate steamers load and discharge cargo at Kingroad, in the mouth of this river. The city retains a large share of the West India trade. Imports consisting chiefly of sugar, molasses, rum, coffee, tobacco, with wool, turpentine, hemp, timber, wine, and brandy, from North and South America, the Baltic, and France. Bristol communicates by railroad with Birmingham and Exeter, with the Thames, etc., by the Kennet and Avon canal. It was the first port in Britain whence regular steam communication with the United States was established. It has a chamber of commerce and several mercantile corporate bodies; and it lately had six banking companies. In 1848 it was made a free port. The city is divided into ten wards, and governed by a mayor, sixteen aldermen, and forty-eight councilors. Its corporation has jurisdiction on the Avon from four miles above the city down to the sea, and along the channel to Clevedon; also the right to license pilots for numerous ports on the Bristol Channel. Markets daily, that on Thursday for cattle. Fairs for horses, leather, etc., March 1st and September 1st. Spring Assizes for civil causes, Quarter Sessions, Sheriff's and other courts are held here. Bristol belongs to Clifton and Bedminster poor-law union. Under Henry VIII. it was made a bishop's see, lately united with that of Gloucester. It sends two members to the House of Commons. It was a fortified city as early as the fifth century. In Norman times it had a castle built by the Earl of Gloucester, son of Henry I. In 1831 it was the scene of a violent riot, during which its Episcopal palace and many other buildings were destroyed. Among its distinguished natives may be noticed Sebastian Cabot, Chatterton, Southey, and the sculptor Bailey. Bristol confers the title of Marquis on the Hervey family. The scenery in the vicinity, especially at Hotwell Saline Spring, is exceedingly beautiful.

Bristol Channel, an arm of the Atlantic, entering between St. Ann's Head on the north and Land's End on the south, extending into the southwest part of Great Britain, between lat. 50° and 51° 40′ N., and long. 3° and 5° 30′ W., bounded northward by South Wales, and southward by the English counties of Somerset, Devon, and Cornwall. At its eastern extremity it terminates in the estuary of the Severn, besides which river it receives the Parrat, Taw, Torridge, Taff, and Towy. Sandy island, with its light-house, is in the mouth of the channel, and the towns of Ilfracombe, Combe-Martin, Watchet, Swansea, Kidwelly, and Tenby, are on its coasts. It contains Milford Haven, Carmarthen Bay, and Swansea Bay on the north, and Barnstable, Porlock, and Bridgewater Bay on the south. Its tides flow rapidly upward, and, meeting with the currents of the Severn, cause the phenomenon called the bore.

Britain. *See* GREAT BRITAIN.

Brocade (Spanish *brocado*), a stuff of gold, silver, or silk, raised and enriched with flowers, foliages, and other ornaments. Formerly the word signified only a stuff woven all of gold, both in the warp and in the woof, or all of silver, or of both mixed; at present all stuffs which are raised and enriched with flowers or other figures are called brocades. The trade in this article was carried on by the Venetians.—ANDERSON. Its manufacture was established with great success at Lyons in 1757.

Brokerage, the commission or percentage paid to brokers on the sale or purchase of bills, funds, goods, etc.—*See* FACTORAGE.

Brokers. Those both of money and merchandise were known early in England. Their dealings were regulated by law, and it was enacted that they should be licensed before transacting business, 8 & 9 Will. III. 1695–'96. The dealings of stock-brokers were regulated by act 6 Geo. I. 1719, and 10 Geo. II. 1736. Some derive the word *broker* from the French *broier*, "to grind;" others from *brocarder*, "to cavil or higgle;" and others, again, from a trader broken, and that from the Saxon *broc*, "misfortune."

A broker is an agent or intermediate person appointed for transacting special business on account of another, but differing somewhat from an ordinary factor in functions and responsibility. Of this class there are various descriptions exercising employment without the smallest analogy, though all are brought under the general name of brokers; and of these the principal are exchange brokers, whose province is to ascertain the rates and relation of exchange between countries; stock-brokers, who negotiate transactions in the public funds; insurance brokers, who effect insurances on lives or property, and pawnbrokers, who advance money on goods, on condition of being allowed to sell the goods, if the sum advanced is not repaid with interest, within a limited time.—*See* AGENT, INSURANCE, and SALE.

Separating pawnbrokers and those dealers in old wares who are called brokers, as both distinct from the class to whom the term in its broader acceptation applies, the broker is an agent for both parties, the buyer and the seller; and for the general principles of jurisprudence applicable to his position, reference may be made to the word AGENT. It is a marked peculiarity, however, of the broker as an agent, that his quality of agency is not only palpable in the face of the transaction, but he is agent for both parties, and therefore those subtle niceties of law which arise out of the agent acting as principal can not apply to this class of agencies. The function of the broker is, indeed, a very simple one, and easily separates itself from the usual intricacies of the law of sale and of agency. It is his proper function to find buyers and sellers, and to bring them together that they may transact with each other. Hence the rise of such a class in any department of business is an indication of its great increase. In small towns, and in narrow and peculiar departments of business, the buyers and the sellers know each other, and need not be at the expense of employing a third party. But where both bodies are numerous, and the individual members of each find enough to occupy their attention in the production of their commodity, or its purchase and distribution, there is economy in the establishment of a distinct class who bring the buyer and the seller together. The late enlargement of the railway system has created a peculiar and extensive system of brokerage transactions.—E. B.

Brokers are divided into different classes, as bill or exchange brokers, stock-brokers, ship and insurance brokers, pawnbrokers, and brokers, simply so called, or those who sell or appraise household furniture distrained for rent. Exclusive, too, of the classes now mentioned, the brokers who negotiate sales of produce between different merchants usually confine themselves to some one department or line of business, and by attending to it exclusively they acquire a more intimate knowledge of its various details, and of the credit of those engaged in it, than could be looked for on the part of a general merchant, and are consequently able, for the most part, to buy on cheaper and to sell on dearer terms than those less familiar with the business. It is to these circumstances—to a sense of the advantages to be derived from using their intervention in the transaction of business—that the extensive employment of brokers in all large commercial cities is wholly to be ascribed.

Bronze (Ger. *Stükgut*, *Stükmetall;* Du. *Stükgoed;* It. *Bronzo;* Sp. *Metal de Canones;* Lat. *Metallum tormentorum*), "a mixed metal, consisting chiefly of copper, with a small proportion of tin, and sometimes other metals. It is used for casting statues, cannon, bells, and other articles, in all of which the proportions of the ingredients vary."—URE. Bronze was known to the ancients, some of whose statues, vessels, and various other articles, made of bronze are in the British Museum. The equestrian statue of Louis XIV., 1699, in the Place Vendôme at Paris (demolished August 10, 1792), was the most colossal ever made; it contained 60,000 pounds' weight of bronze. Bronze is two parts brass and one copper, and the Greeks added one fifteenth of lead and silver.

Brooms (Ger. *Besen;* Fr. *Balais;* It. *Scope*, *Granate;* Sp. *Escobas;* Russ. *Metlii*) are principally made of birch or heath. Vast quantities are manufactured in Southwark for the supply of the London market.

Bruges (Flem. *Brugge*), a fortified city of Belgium, capital of the province of West Flanders, on the Brussels, Ghent, and Ostend railroad, 75 miles from Brussels and 14 from Ostend, and at the junction of the canals from Ghent to Ostend, and to Sluis. Lat. (of the halle spire) 51° 12′ 30″ N., long. 3° 13′ 44″ E. Population, 50,272. Bruges is surrounded by walls, and defended by an old citadel; it is one of the most flourishing commercial cities in the kingdom. It owes its name to the number of its bridges (upward of fifty), which cross its canals, and is remarkable for the many fine Gothic buildings which it contains. Chief industry, the manufacture of lace, which is celebrated, and occupies more than a sixth part of the female population; manufactures of linen, woolen and cotton fabrics, cordage, tobacco, and soap. Bruges has numerous distilleries, breweries, tanneries, dye-works, sugar and salt refineries, and ship-building yards. Its docks are capable of containing one hundred barges, and are surrounded with spacious warehouses. Principal exports, lace and other manufactured goods, grain, and cattle. Imports, wool, cotton, dye-woods, wine, and colonial products. Bruges was formerly the capital and residence of the Counts of Flanders; in the thirteenth century it was one of the most commercial cities in the world, and the richest *entrepôt* of the Hanseatic League; it was long renowned for the excellence of its woolen cloths and tapestries; it began to decline at the end of the fifteenth century, when the religious persecutions of Philip II. obliged its inhabitants to seek refuge in England. In 1430 Philip the Good, duke of Burgundy, here instituted the order of the Golden Fleece. Charles II. lived at Bruges during his exile from England.

Brush, a well-known implement used for various purposes, such as clearing away dust, smoothing or polishing surfaces, etc. Ordinary brushes are made of small bundles of bristles or hairs, secured at one end by a ligature; and this knotted end is set with glue or cement into a wooden stock, which is shaped and pierced with holes for the purpose. A patent was obtained in 1830 for several improvements in the construction of brushes. Of these the chief feature consists in pressing the knotted ends of the bundles into wedge-shaped grooves in the stock; after which they may be further secured by being covered with a ferule of metal, or a wooden pallet. Small brushes are generally made by doubling the hair or bristle, and bringing it through the holes in the stock by means of a thread or wire which is engaged in the fold, and serves to secure it; after which the bristles are cut even. Brushes vary in their size, form, and materials of construction, according to the several uses to which they are applied. Silver-smiths and other artificers use a *wire brush* for scrubbing silver, copper, or brass, previous to gilding. In some countries the bamboo or other fibrous plant is converted into a kind of brush, for painting and similar purposes, by fretting the extremity by beating and then binding it firmly above the part so treated.

Brussels (Fr. *Bruxelles*), a city of Central Europe, capital of the kingdom of Belgium and of the province of Brabant, on the Senne, and on the Belgian railroad, 88 miles from Ostend, 27 from Antwerp, 48 from Ghent, 71 from Liege, 92 from Lille, 149 from Cologne, 150 from Paris, and 272 from London. Lat. (of observatory) 50° 51′ 11″ N., long. 4° 21′ 10″ E. Population in 1845, 117,462; in 1853, 145,000. Altitude of observatory, 190 feet. Climate temperate, humid, and very variable, but healthy. Mean temperature of year, 49°·6; winter, 38°; summer, 64° Fahrenheit. It is the most important city in the kingdom, and the chief seat of public instruction and industry, the residence of the courts, the seat of the legislative assemblies, courts of appeal, and chamber of commerce. Brussels is remarkable for the number and richness of its ancient buildings; and, from the elegance of its new quarters, it ranks among the finest cities of Europe. It is the seat of the principal banks, and of the only mint of the kingdom, and has a savings bank and many wealthy and charitable institutions; it is one of the great centres of Belgian industry, and it is still celebrated for its lace, considered the finest in the world; its other chief manufactures are of fine linens, damask, silk and cotton ribbons, gold and silver embroidery, hats, paper, machinery, jewelry, and mathematical and musical instruments. It has also establishments for coach-building and cabinet-making, manufactories of chemical products, soap, porcelain, and crystal, and extensive sugar refineries and breweries. It has many extensive typographical and lithographic establishments, which are chiefly employed in reprints of works published in France. The commerce of Brussels is facilitated by a canal which connects it with Antwerp, and admits vessels of 300 tons burden, by excellent roads and by railways, which radiate from it in every direction. Brussels is a very ancient city; it is believed to have been founded in the seventh century; it was fortified in the eleventh century, and was the residence of the Dukes of Brabant, and afterward of the Spanish and Austrian governors general of the Netherlands: its fortifications were dismantled by Joseph II. It was, under the French empire, capital of the dependencies of the Dyle; previous to 1830, it was one of the capitals of the kingdom of the Netherlands, and alternately with the Hague, the seat of the court and of the States-General: it is the birth-place of the physicians Vesalius and Van Helmont, and one of the two painters Champaigne.

Bubbles, a familiar name applied generally to fraudulent or unsubstantial commercial projects, which hold out hopes of rapid gain, for the purpose of enriching the projectors at the expense of sanguine and ignorant adventurers: and particularly used to designate those projects the funds for which are raised by the sale of shares or subscription to a transferable stock.

In consequence of the mischief produced by the gambling in transferable shares of bubble companies at the time of the South Sea project, 1719 and 1720, the stat. 6 Geo. I. c. 18, reciting that several undertakings or projects had been contrived and practiced, which "manifestly tended to the common grievance, prejudice, and inconvenience of great numbers of his majesty's subjects in their trade and commerce," and describing, among other practices of the time, the ordinary mode of raising money by shares and subscriptions to a pretended transferable stock, enacted that the undertakings and attempts so described, and public subscriptions, assignments, and transfers for furthering them, and particularly the raising or pretending to raise transferable stocks without authority of charter or act of Parliament, should be deemed illegal and void, and prohibited them under severe penalties. Some decisions limited the operation of, and finally the stat. 6 Geo. IV. c. 91, altogether repealed these enactments and prohibitions. The projectors of bubbles, therefore, are now punishable only when they can be deemed guilty of frauds or conspiracies at common law; and there is no other check on the adventurers than the loss and troublesome liabilities under the law of partnership, in which participation in these projects often involves them.

Buccaneer (from the French *boucaner*), in its primary sense, denotes one who dries and smokes flesh or fish after the manner of the Indians. The name was particularly given to the first French settlers in the island of St. Domingo or Hayti, whose principal employment consisted in hunting bulls or wild boars, in order to sell their hides and flesh. The name has also been applied to those famous piratical adventurers, chiefly English and French, who joined together to commit depredations on the Spaniards of America.

The Buccaneers of St. Domingo.—The Spaniards had not long been in possession of the West Indies and of the continent of America, when other nations, especially the English and the French, began to seek establishments there. But though the Spaniards were unable to people such extensive countries themselves, they were resolved that no others should do it for them, and therefore waged a cruel war on all those of any other nation who attempted to settle in any of the Antilles or Caribbee Islands. The French, however, were at last lucky enough to acquire some footing in the island of St. Christopher's; but by the time they began to subside into a regular form of government, the Spaniards found means to dislodge them. Upon this the wretched fugitives, considering at how great a distance they were from their mother country, and how near to the island of Hispaniola or St. Domingo, the northern parts of which were then uninhabited, and full of swine and black cattle, immediately resolved to take possession of that country, in conjunction with several other adventurers of their own and the English nation; especially as the Dutch, who now began to appear in these seas, promised to supply them plentifully with all kinds of necessaries they might require, in exchange for the hides and tallow they should procure by hunting.

These new settlers obtained the name of *buccaneers*, from their custom of bucanning their beef and pork in order to keep it for sale or for their own consumption. But some of them soon grew tired of this new way of life, and took to planting; while many more chose to turn pirates, trusting to find among those who remained on shore a quick sale for all the plunder they could make at sea. This new body of adventurers were called *freebooters*, from their making free prey or booty of whatever came in their way.

The colony now began to thrive at a great rate, by the cheap and easy manner in which the freebooters acquired the greatest riches, and the profusion with which they distributed them among their old companions, the buccaneers and planters, for the merest trifles. This brought numbers of settlers from France in quality of indentured servants, though they toiled rather like slaves than servants during the three years for which they generally bound themselves. One of these men presuming to represent to his master, who always fixed upon Sunday for sending him with skins to the port, that God had forbidden such a practice when he had declared that "six days shalt thou labor, and on the seventh day shalt thou rest," the brutish buccaneer replied, "And I say to thee, six days shalt thou kill bulls, and strip them of their skins, and on the seventh day shalt thou carry their hides to the sea-shores;" and this command was followed by blows. Thus the colony consisted of four classes—buccaneers, freebooters, planters, and indentured servants, who generally remained with the buccaneers or planters. And these four orders composed what they now began to call the *body of adventurers*, who lived together in perfect harmony, under a kind of democracy; every freeman having a despotic authority over his own family, and every captain being sovereign in his ship, though liable to be discarded at the discretion of the crew.

The planters had settled chiefly in the little island of Tortuga, on the northern coast of Hispaniola; but soon afterward some of them having gone to the great island to hunt with the buccaneers, the rest were surprised by the Spaniards; and all, even those who had surrendered at discretion in hopes of mercy, were put to the sword or hanged. The next care of the Spaniards was to rid the great island of the buccaneers; and for this purpose they assembled a body of five hundred lance-men, who, by their seldom going fewer than fifty in a company, obtained from their enemies the name of the *Fifties*. But before detailing the particulars of this attack we shall endeavor to give some account of the manners and customs of the people whom it was proposed to extirpate.

The buccaneers lived in little huts built on some spots of cleared ground, just large enough to dry their skins on, and contain their bucanning houses. These spots they called *boucans*, and the huts they dwelt in *ajoupas*, a word which they borrowed from the Spaniards, and the Spaniards from the natives. Though these ajoupas lay open on all sides, they were very agreeable to the hardy inhabitants in a climate where a free circulation of air is so desirable. As the buccaneers had neither wives nor children, they associated by pairs, and mutually rendered each other all the services a master could reasonably expect from a servant, living together in so perfect a community that the survivor always succeeded his deceased partner. This kind of union or fellowship they called *s'emateloter* (insailoring), and each other *matelot* (sailor), whence is derived the custom of giving, at least in some parts of the French Antilles, the name *matelotage* (sailorage) to any kind of society formed by private persons for their mutual advantage. They behaved to each other with the greatest justice and openness of heart; it was considered as a crime to keep any thing under lock and key; but, on the other hand, the least pilfering was unpardonable, and punished with expulsion from the community. And, indeed, there could be no great temptation to steal, seeing it was reckoned a point of honor never to refuse a neighbor what he wanted; and where there was so little property, it was impossible there should be many disputes. If any such happened, the common friends of the parties at variance interposed, and soon put an end to the difference.

As to laws, the buccaneers acknowledged none but an odd jumble of conventions made between themselves, which, however, they regarded as the sovereign rule. They silenced all objections by coolly answering that it was not the custom of the coast; and grounded their right of acting in this manner on their baptism under the tropic, which freed them, in their opinion, from all obligations antecedent to that marine ceremony. The governor of Tortuga, when that island was again settled, though appointed by the French court, had very little authority over them; and they contented themselves with rendering him from time to time some slight homage. They had in a manner entirely shaken off the yoke of religion, and thought they did a great deal in not wholly forgetting the God of their fathers. We are surprised to meet with nations among whom it is a difficult matter to discover any trace of a religious worship; and yet it is certain that, had the buccaneers of St. Domingo been perpetuated on the same footing on which they subsisted at the time we are speaking of, the third or fourth generation of them would have possessed as little religion as the Caffres and Hottentots of Africa, or the Cannibals of the South Sea islands.

Such were the buccaneers of St. Domingo, and such was their situation when the Spaniards undertook to extirpate them. And at first the assailants met with great success; for as the buccaneers hunted separately, every one attended by his servants, they were easily surprised. Hence the Spaniards killed numbers, and took many more, whom they condemned to a most cruel slavery. But whenever the buccaneers had time to put themselves into a state of defense, they fought like lions, to avoid falling into the hands of a nation from whom they were sure to receive no quarter; and by this means they often escaped; nay, there are many instances of single men fighting their way through numbers. These dangers, however, and the success of the Spaniards in discovering their boucans, where they used to surprise and cut the throats of the buccaneers and their servants in their sleep, engaged them to cohabit in greater numbers, and even to act offensively, in hopes that by so doing they might at last induce the Spaniards to let them live in peace. But the fury with which they behaved whenever they met any Spaniards served only to make their enemies more intent on their destruction; and assistance coming to both parties, the whole island was turned into a slaughter-house, and so much blood spilled on both sides, that many places, on account of the carnage of which they had been the scenes, were described as the hill of the massacre, the plain of the massacre, the valley of the massacre, and so forth.

At length the Spaniards grew tired of this mode of proceeding, and had recourse to their old method of surprise, which, against enemies of more courage than vigilance, was likely to succeed better. This placed the buccaneers under the necessity of never hunting except in large parties, and fixing their boucans in the little islands on the coast, where they retired every evening; an expedient which succeeded very well, and the boucans, by being more fixed, soon acquired the air and consistency of little towns. When the buccaneers had once established themselves, as here related, each boucan sent out scouts every morning to the highest part of the island, in order to reconnoitre the coast, and see if any Spanish parties were abroad. If no enemy appeared, they appointed a place and hour of rendezvous in the evening, and were never absent if not killed or made prisoners. When, therefore, any one of the company was missing, it was not lawful for the rest to hunt again till they had got intelligence of him if taken, or avenged his death if killed. Things continued in this situation for a long time, till the Spaniards made a general hunt over the whole island, and, by destroying the game, forced the buccaneers to betake themselves to another course of life. Some of them turned planters, and thus increased the French settlements on the coast, or formed others; while the rest, not relishing so confined and regular a life, entered among the freebooters, who thereby became a very powerful body. France, which had hitherto disclaimed for her subjects these ruffians, whose successes were only temporary, acknowledged them, however, as soon as they formed themselves into settlements, and took proper measures for their government and defense.

Buccaneers, the Pirates.—Before the English had effected any settlement in Jamaica, and the French in St. Domingo, some pirates of both nations, who were afterward so much distinguished by the name of *Buccaneers*, had driven the Spaniards out of the small island of Tortuga; and, fortifying themselves there, had with an amazing intrepidity made excursions against the common enemy. They formed themselves into small companies consisting of fifty, a hundred, or a hundred and fifty men each. A boat, of greater or smaller size, was their only armament. Here they were exposed night and day to all the inclemencies of the weather, having scarce room enough to lie down. A love of absolute independence rendered them averse from those mutual restraints which the members of society impose upon themselves for the common good; and as the authority they had conferred on their captain was confined to his giving orders in battle, they lived in the greatest confusion. Like the savages, having no apprehension of want, nor any care to preserve the necessaries of life, they were constantly exposed to the severest extremities of hunger and thirst; but deriving from their very distresses a courage superior to every danger, the sight of a ship transported them to a degree bordering on frenzy. They never deliberated on the attack, but it was their custom to board the ship as soon as possible. The smallness of their vessels, and the skill they showed in the management of them, screened them from the fire of the larger class of ships; and they presented only the fore part of their little vessels filled with fusileers, who fired at the port-holes with so much exactness that it entirely confounded the most experienced gunners. As soon as they threw out the grappling, the largest vessels seldom escaped them.

In cases of extreme necessity they attacked the people of every nation, but fell upon the Spaniards at all times. They thought that the cruelties which the latter had exercised on the inhabitants of the New World justified the implacable aversion they had sworn against them. But this was heightened by the mortification they felt in seeing themselves debarred from the privileges of hunting and fishing, which they considered as natural rights. Their principles of justice and religion in no degree interfered with their predatory habits; for whenever they embarked on any expedition, they used to pray to Heaven for the success of it; and they never came back from plundering without returning thanks to God for their victory.

The ships which sailed from Europe to America seldom tempted their avidity, since the merchandise which these contained could not have been easily sold, nor indeed very profitable to those barbarians. They always waited for them on their return, when they were certain they were laden with gold, silver, jewels, and all the valuable productions of the New World. If they met with a single ship, they never failed to attack her. As to the fleets, they followed them till they sailed out of the Gulf of Bahama; and as soon as any one of the vessels was separated by accident from the rest, it was taken. The Spaniards, who trembled at the approach of the buccaneers, whom they called devils, immediately surrendered. Quarter was granted if the cargo proved to be a rich one; if not, all the prisoners were thrown into the sea.

The buccaneers, when they had got a considerable booty, at first held their rendezvous at the island of Tortuga, in order to divide the spoil; but afterward the French went to St. Domingo, and the English to Jamaica. Each person, holding up his hand, solemnly protested that he had secreted nothing of what he had taken. If any one among them was convicted of perjury, a case which seldom happened, he was left, as soon as an opportunity offered, upon some desert island, as a traitor unworthy to live in society. Such of their number as had been maimed in any of their expeditions were first provided for. If they had lost a hand, an arm, a leg, or a foot, they received twenty-six pounds; while an eye, a finger, or a toe, lost in fight, was valued only at half this sum. The wounded were allowed half a crown per day for two months, to enable them to have their wounds taken care of; and if they had not money enough to answer these several demands, the whole company were obliged to engage in some fresh expedition, and to continue it till they had acquired a sufficient stock to enable them to satisfy these honorable contracts. The remainder of the booty was then divided into as many shares as there were buccaneers. The commander could only lay claim to a single share; but they complimented him with two or three, in proportion as he had acquitted himself to their satisfaction. Favor never had any influence in the division of the booty, for every share was determined by lot. The most rigid justice was extended even to the dead. His share was given to the man who was known to be his companion when alive, and therefore accounted his heir. If the person who had been killed had no intimate, his portion was sent to his relations when they were known; and if there were no friends or relations, it was distributed in charity to the poor, and to the churches, which consented to offer up prayers for the person in whose name these benefactions were given.

Among the buccaneers who signalized themselves in this new species of freebooting, Montbar, a gentleman of Languedoc, particularly distinguished himself. Having by chance, in his infancy, met with a circumstantial account of the cruelties practiced in the conquest of the New World, he conceived an aversion, which he carried to a degree of frenzy, against that nation which had committed such enormities. The enthusiasm which this spirit of humanity worked him up to merged in a ferocity still more cruel than that of the religious fanaticism to which so many victims had been sacrificed. The manes of these unhappy sufferers seemed to rouse him, and call for vengeance. He had heard some account of the buccaneers, who were said to be the most inveterate enemies to the Spanish name; and he therefore embarked, with some others, on board a ship in order to join them.

His savage disposition, as well as that of the other buccaneers who attended him, having obliged the Spaniards to confine themselves within their settlements, the freebooters resolved to attack them there. This new method of carrying on the war required superior forces; and their associations in consequence became more numerous. The first considerable one was that formed by L'Olonois, who derived his name from the sands of Olones, the place of his birth. From the abject state of a bondsman, he had gradually raised himself to the command of two canoes, with twenty-two men; and with these he was so successful as to take a Spanish frigate on the coast of Cuba. He then repaired to Port-au-Prince, in which were four ships, fitted out purposely to sail in pursuit of him; but he took them, and threw all the crews into the sea except one man, whom he saved in order to send him with a letter to the governor of the Havana, acquainting him with what he had done, and assuring him that he would treat in the same manner all the Spaniards who should fall into his hands, not excepting the governor himself, if he were fortunate enough to take him. After this expedition he ran his canoes and prize ships aground, and sailed with his frigate only to the island of Tortuga.

But while they were idly dissipating the spoils which they had made on the coast of Venezuela, Morgan, the most renowned of the English buccaneers, sailed from Jamaica to attack Porto Bello. His plan of operations was so well contrived that he surprised and took the city without opposition. The conquest of Panama was an object of much greater importance. To secure this, Morgan thought it necessary to sail in the latitudes of Costa Rica, in order to procure some guides in the island of St. Catharines, where the Spaniards confined their malefactors. This place was so strongly fortified that it might have held out for ten years against a considerable army. But notwithstanding this, the governor, on the first appearance of the pirates, sent privately to concert measures how he might surrender himself without incurring the imputation of cowardice; and the result of this consultation was, that Morgan in the night-time was to attack a fort at some distance, while the governor was to sally out of the citadel to defend a post of so much consequence, and that the assailants should then attack him in the rear and take him prisoner, which would occasion an immediate surrender of the place. It was agreed that a smart firing should be kept up on both sides, without doing mischief to either. This farce was admirably carried on. The Spaniards, without being exposed to any danger, appeared to have done their duty; and the buccaneers, after having totally demolished the fortifications, and put on board their vessels a prodigious quantity of warlike ammunition, which they found at St. Catharines, steered their course toward the River Chagres, the only channel whereby they could arrive at the place which was the object of their wishes.

Morgan left his vessels at anchor, with a sufficient number of men to guard them, and sailed up the river in his sloops for thirty-three miles, till he came to Cruces, where it ceases to be navigable; and he then proceeded by land to Panama, which was only five leagues distant. Upon a large and extensive plain which stretched out before the city, he met with a considerable body of troops, whom he put to flight with the greatest ease, and entered the city, which was now abandoned. Here were found prodigious treasures concealed in the wells and caves; some valuable commodities were also taken in the boats which were left aground at low water; and in the neighboring forests were likewise found several rich deposits. Having burned the city, they set sail with a great number of prisoners, who were ransomed a few days afterward, and arrived at the mouth of the Chagres with a prodigious booty.

In 1603 an expedition of the greatest consequence was formed by Van Horn, a native of Ostend, but who had served all his life among the French. His own intrepidity prevented his tolerating the least sign of cowardice among those who associated with him. In the heat of an engagement he went about his ship, observed his men in succession, and immediately killed those who shrunk at the sudden report of a pistol, gun, or cannon. This extraordinary discipline rendered him the terror of the coward and the idol of the brave. In other respects he readily shared with the men of spirit and bravery the immense riches which were acquired in the course of his marauding expeditions. When he went upon such expeditions, he generally sailed in his frigate, which was his own property. But his designs requiring greater numbers to carry them into execution, he called to his assistance Grammont, Godfrey, and Jonqué, three Frenchmen distinguished by their exploits, and Lawrence de Graff, a Dutchman, who had signalized himself still more than they. Twelve hundred buccaneers joined themselves to these commanders, and sailed in six vessels for Vera Cruz.

The darkness of the night favored their landing, which was effected about three leagues from the place, where they arrived without being discovered. The governor, the fort, the barracks, and the posts of the greatest consequence, every thing, in short, which could occasion any resistance, were taken by the break of day. All the citizens, men, women, and children, were shut up in the churches, whither they had fled for shelter. At the door of each church were placed barrels of gunpowder to blow up the building; and a buccaneer, with a lighted match, was to set fire to it upon the least appearance of an insurrection.

While the city was kept in this state of terror, it was easily pillaged; and after the buccaneers had carried off whatever was most valuable, they made a proposal to the citizens who were kept prisoners in the churches to ransom their lives and liberties by a contribution of £437,500. This unfortunate people, who had neither eaten nor drunken for three days, cheerfully accepted the terms which were offered them. Half of the money was paid the same day, and the other part was expected from the interior of the country, when there appeared on an eminence a considerable body of troops advancing, and near the port a fleet of seventeen ships from Europe. At the sight of this armament, the buccaneers, without any marks of surprise, retired quietly, with fifteen hundred slaves they had seized, as a trifling indemnification for the rest of the money they expected, the settling of which they referred to a more favorable opportunity. Their retreat was equally daring. They boldly sailed through the midst of the Spanish fleet, which let them pass without firing a single gun, and, in fact, seemed afraid of being attacked and beaten. The Spaniards would not probably have escaped so easily if the vessels of the pirates had not been laden with silver, or if the Spanish fleet had been freighted with any other effects but such merchandise as was little valued by these daring freebooters.

A year had scarcely elapsed since their return from Mexico, when, on a sudden, they were all seized with a passion for going to plunder Peru. It is probable that the hopes of finding greater treasures upon a sea little frequented than on one long exposed to piracies of this kind, was the cause of this expedition; but it is somewhat remarkable that both the English and French, and the associations of these two nations, had projected this plan at the same time, without any communication, intercourse, or design of acting in concert with each other. About four thousand men were employed in this expedition. Some of them proceeded by Terra Firma, others by the Straits of Magellan, to the place which formed the object of their wishes; and if the intrepidity of these barbarians had been directed, under the influence of a skillful commander, to a single end, it is certain that they would have deprived the Spaniards of this important colony. But their natural character presented an invincible obstacle to so rare a union; for they always formed themselves into several distinct bodies, sometimes even so few in number as ten or twelve, who acted together, or separated, as whim or caprice dictated. Grognier, Lecuyer, Picard, and Le Sage, were the most distinguished officers among the French; David Samms, Peter Wilner, and Towley, among the English.

Such of these adventurers as had got into the South

Sea by the Straits of Darien seized upon the first vessel which they found upon the coast; and their associates, who had sailed in their own vessels, were not much better provided. Weak, however, as they were, they several times beat the squadrons which were fitted out against them. But these victories were prejudicial to them, by interrupting their navigation; and when there were no more ships to be taken, they were continually obliged to make descents upon the coasts to get provisions, or to go by land in order to plunder those cities where the booty had been secured. They successively attacked Seppa, Puebla-Nuevo, Leon, Realejo, Puebla-Viejo, Chiriquita, Lesparso, Granada, Villia, Nicoy, Tecoanteca, Mucmeluna, Chiloteca, New Segovia, and Guayaquil, the most considerable of all these places.

Many of these places were taken by surprise, and most of them deserted by their inhabitants, who fled at the sight of the enemy. As soon as the buccaneers took a town, it was directly set on fire, unless a sum proportioned to its value was paid to save it. The prisoners taken in battle were massacred without mercy if they were not ransomed by the governor or some of the inhabitants; while gold, pearls, or precious stones, were the only things accepted of for the payment of their ransom. Silver being too common, and too weighty for its current value, would have been troublesome to them. The chances of fortune, which seldom leave guilt unpunished, or adversity without a compensation for its suffering, atoned for the crimes committed in the conquest of the New World; and the Indians were amply avenged on the Spaniards.

While such piracies were being committed on the Southern Ocean, the Northern was threatened with the same by Grammont. He was a native of Paris, by birth a gentleman, and had distinguished himself in a military capacity in Europe; but his passion for wine, gaming, and women, had obliged him to join the pirates. Nevertheless, he was affable, polite, generous, and eloquent; endued with a sound judgment, and a person of approved valor; qualities which soon made him be considered as the chief of the French buccaneers. As soon as it was known that he had taken up arms, he was immediately joined by a number of brave men. The governor of St. Domingo, who had at length prevailed upon his master to approve of the project, equally wise and just, of fixing the pirates in some place, and inducing them to become cultivators, was desirous of preventing the concerted expedition, and forbade it in the king's name. But Grammont, who had a greater share of sense than his associates, was not on that account inclined to comply, and sternly replied, "How can Louis disapprove of a design he is unacquainted with, and which has been planned only a few days ago?" This answer highly pleased all the buccaneers, who directly embarked in 1685 to attack Campeachy.

They landed without opposition. But at some distance from the coast they were attacked by eight hundred Spaniards, who were beaten and pursued to the town, which both parties entered pell-mell together. The cannon they found there were immediately leveled against the citadel; but as these had very little effect, they were contriving some stratagem to enable them to become masters of the place, when intelligence was brought that it had been abandoned. There remained in it only a gunner, an Englishman, and an officer of signal courage, who chose rather to expose himself to the greatest extremities than basely to fly from the place with the rest. The commander of the buccaneers received him with marks of distinction, generously released him, gave him up all his effects, and, besides, complimented him with some valuable presents: such influence have courage and fidelity even on the minds of those who systematically violate all the rights of society.

In 1697, twelve hundred buccaneers were induced to join a squadron of seven ships which sailed from Europe under the command of one Pointis, to attack the famous city of Carthagena. This was the most difficult enterprise which could be attempted in the New World. The situation of the port, the strength of the place, and the badness of the climate, were so many obstacles which would have seemed insurmountable to any but such men as the buccaneers. But every obstacle yielded to their valor and good fortune; the city was taken, and booty gained to the amount of £1,750,000. Their rapacious commander, however, deprived them of the advantages resulting from their success. He scrupled not, as soon as they set sail, to offer £5250 for the share of those who had been the chief instruments in procuring him so considerable a spoil.

The buccaneers, exasperated at this treatment, resolved immediately to board the vessel called the *Sceptre*, where Pointis himself was, and were with great difficulty prevented from assassinating him. They then set sail for Carthagena, where they amply repaid themselves for the losses they had sustained through the avarice of their late commander.

At length, after amassing all they could, these adventurers set sail, when unfortunately they met with a fleet of Dutch and English ships, then in alliance with Spain. Several of the pirates were either taken or sunk, with the cargoes they had on board; and the rest escaped to St. Domingo.

Such was the last memorable event in the history of the buccaneers. The separation of the English and French, when the war on account of the Prince of Orange divided the two nations; the success of the means employed to promote the cultivation of land among their colonies, by the assistance of these enterprising men; the prudence evinced in selecting the most distinguished among them, and intrusting them with civil and military employments; and the protection afforded to the Spanish settlements, which till then had been a general object of plunder; all these circumstances, and various others, besides the impossibility of supplying the place of these remarkable men, who were continually dropping off, concurred to put an end to a society as extraordinary as any that ever existed. Without any regular system, without laws, without subordination, and even without any fixed revenue, they became the astonishment of the age in which they lived, as they will be also of posterity.—E. B.

Buckles. The wearing of buckles commenced in the reign of Charles II., but people of inferior rank, and such as affected plainness in their garb, wore strings in their shoes some years after that period: these last were, however, ridiculed for their singularity in using them. Buckles continue to be used in court dress, and by persons of rank in most countries of Europe.

Buckwheat (Fr. *Blé Sarrasin*, *Blé noir*; Germ. *Buchweizen*, *Heidekorn*; It. *Grano Saraceno*, *Faggina*, *Fraina*; Sp. *Trigo Saraceno*, *Trigo negro*; Pol. *Tatarca*, *Gryka*, *Pohanca*; Russ. *Gretscha*; Lat. *Fagopyrum*) is principally cultivated in order that it may be cut when young and green, and employed as fodder for cattle; when allowed to ripen, the grain is usually employed to feed pigeons and poultry. When ripe, it is of a deep yellow color, the seeds bearing a great resemblance to beech-mast: it will grow on the poorest soils. It is cultivated in almost every part of the temperate and arctic climates of the civilized world for the farinaceous albumen of its seeds, which, when properly cooked, affords a delicious article of food to a large portion of the human race. It also serves as excellent fodder to milch cows, and the straw, when cut green and converted into hay, as well as the ripened seeds, are fed to cattle, poultry, and swine. It is believed to be a native of Central Asia, as it is supposed to have been first brought to Europe in the early part of the twelfth century, at the time of the Crusades for the recovery of Syria from the dominion of the Saracens; while others contend that it was introduced into Spain by the Moors, four hundred years before. This grain appears not to have been much cultivated in this country prior to the last century, as it is not often mentioned by writers on America previous to that period. Holm, in his History of Pennsylvania (Nieu Swedeland), published at Stockholm in 1702, mentions it among the productions of that province; and Kalm, the Swedish naturalist, who visited this country in 1748–'49, speaks of it as growing in Pennsylvania, New Jersey, and New York; and several American writers on agricultural subjects have treated of it since. The cultivation of buckwheat, in one or other of its species, is principally confined to Great Britain, France, Switzerland, Italy, Netherlands, Germany, Sweden, Russia, China, Tartary, Japan, Algeria, Canada, and the middle and northern portions of the United States. In this country, from thirty to forty-five bushels per acre may be considered as an average yield in favorable seasons and situations, but sixty or more bushels are not unfrequently produced. This grain heretofore has never entered into our foreign commerce. According to the census returns of 1840, the annual quantity raised in the United States was 7,291,743 bushels; and of 1850, 8,956,916 bushels.—*Census Report. See* BREADSTUFFS.

The following table shows the product of barley in the year 1840, and of buckwheat in 1840 and 1850, in each State, according to the census returns:

States and Territories.	Barley.	Buckwheat.	
	1840.	1840.	1850.
	Bushels.	Bushels.	Bushels.
Alabama	7,692	58	348
Arkansas	760	88	175
California	....	....	....
Columbia, District of	294	272	378
Connecticut	33,759	303,043	229,297
Delaware	5,260	11,299	8,615
Florida	30	....	55
Georgia	12,979	141	250
Illinois	82,251	57,884	184,504
Indiana	28,015	49,019	149,740
Iowa	728	6,212	52,516
Kentucky	17,491	8,169	16,097
Louisiana	....	....	3
Maine	355,161	51,543	104,523
Maryland	3,594	73,606	103,671
Massachusetts	165,319	87,000	105,895
Michigan	127,802	113,592	472,917
Mississippi	1,654	61	1,121
Missouri	9,801	15,318	23,641
New Hampshire	121,899	105,103	65,265
New Jersey	12,501	856,117	878,934
New York	2,520,068	2,287,885	3,183,955
North Carolina	3,574	15,391	16,704
Ohio	212,440	633,139	638,060
Pennsylvania	209,893	2,113,742	2,193,692
Rhode Island	66,490	2,979	1,245
South Carolina	3,967	72	283
Tennessee	4,809	17,118	19,427
Texas	....	....	59
Vermont	54,781	228,416	209,819
Virginia	87,430	243,822	214,898
Wisconsin	11,062	10,654	79,878
Minnesota Territory	....	....	515
New Mexico Territory	....	....	100
Oregon Territory	....	....	....
Utah Territory	....	....	332
Total	4,161,504	7,291,743	8,956,916

Buenos Ayres, the largest and most important province of the Argentine Confederation, is bounded on the north by the Parana, which separates it from the province of Entre Rios; and by the provinces of Santa Fé, San Luis, and Mendoza; on the east by the Atlantic; on the south by the Rio Negro, which separates it from Patagonia; and on the west by the country of the Indians, which extends westward to the Andes. The area of the province is estimated by Sir Woodbine Parish at about 200,000 square miles, being little less than that of France. Its sea-board along the Rio de la Plata and the ocean is upward of 600 miles in length. Since 1825 no census of the population has been taken. At that date it was found to amount to 183,000. Parish estimates the present population at 320,000, of which number 120,000 belong to the city of Buenos Ayres. By M'Cann, another authority, the entire population of the province is computed at 200,000. This small increase over the results of the census of 1825 is attributed by him to the civil wars, to the prohibition of the slave-trade, and other causes.

The general aspect of the country, as viewed from the sea, is eminently uninteresting. From the mouth of the Plata to the Bahia Blanca the sea-line presents an unbroken series of sand-dunes, varied here and there with low ridges of rock. From this latter point to the Patagonian frontier the aspect of the coast is less monotonous, though equally destitute of life or interest. Though Buenos Ayres is the only province of the Argentine Confederation that borders upon the sea, and though all the exports and imports of the country pass through it, it possesses only two harbors, one of which (that of the city of Buenos Ayres) is extremely bad: the other (that of Belgrano, near the southern extremity of the province), though possessing great natural advantages, is by no means adequately appreciated. It might be turned to good account as a starting-point for vessels engaged in trade with the South American states that border upon the Pacific, but the difficult and sometimes dangerous navigation of the adjoining seas counterbalances in the mean time the other advantages which it offers. The interior of the country, except where it is intersected by the low mountain ranges of the Ventana and Vaulcan in its southern portions, and the spurs of the Andes in the west, is one vast plain, of which by far the larger part is laid out in *estancias*, or cattle farms, though the soil is in itself well adapted for producing all the European cerealia. Agricultural pursuits, however, are by no means in favor with the natives, who can not bring themselves to engage in any pursuit that can not be prosecuted on horseback. "Every man, woman, and child in the country rides," says Parish. "One might fancy one's self in the land of centaurs, amid a population half-men half-horses. Even beggars ride on horseback." Some of the cattle-farms are of immense extent; one in particular is mentioned by travelers as comprising more than 300 square miles of land, and yielding an enormous revenue to the proprietor. Some of the largest of them belong to British setttlers, and are worked by British servants. The cattle were formerly hunted down and killed merely for the sake of their hides and tongues, while the carcasses were abandoned to beasts and birds of prey. They are now slaughtered in abattoirs, where every part of the animal is made available. The beef is salted for exportation; the tallow is boiled down, and now forms an important item in the farmer's revenue; and the trade in hides is steadily increasing. Beef and an infusion of the native tea are the staple food of the natives. By the care of a few British colonists, sheep have of late years been extensively reared, and their wool is annually increasing in value. Till recently they were reputed so valueless that their carcasses were used as fuel for kilns, etc. A decree of government ordained that no live sheep should be employed for this purpose. The number of cattle in the province is estimated at 12,000,000; of sheep, about the half of that number. The total value of exports from Buenos Ayres in 1849, was £2,537,821: in 1850, £1,983,513; and in 1851, £2,126,705. In this latter year the value of the jerked beef exported was £172,749; of hides, £1,300,570; of tallow, £217,690; of wool, £190,060. The other exports consisted chiefly of hair, horns, bones, skins, and feathers. The value of imports into Buenos Ayres may be stated approximately, for the year 1851, at £2,110,000; of which Great Britain contributes £900,000; France, £500,000; northern Europe, £170,000; Gibraltar, Spain, and the Mediterranean, £120,000; the United States, £200,000; Brazil and other countries, £220,000. Of the cereals grown in Buenos Ayres, the most important is maize, which is indigenous to the country. Wheat thrives well in the southern parts of the province, but the inhabitants rarely grow more than enough to supply their own necessities. In the event of a surplus, it is commonly exported to Brazil. Flax and hemp are cultivated with success. The vine, fig, orange, and olive, have been introduced from the Old World, and are found to suit the climate admirably; but the most valuable of European fruits is the peach. A considerable fruit trade is carried on in coasting vessels, by merchants for the most part Italian or French. The geographical position of Buenos Ayres is such as to enable it completely to control the foreign commercial relations of the entire confederation of which it forms a part. The exclusive policy which it has always pursued on this point has often involved it in serious quarrels, not only with many of the South American states and the other provinces of the Argentine Confederation, but with England and France. Since the expulsion of General Rosas, the navigation of the Parana and Uruguay has been thrown open, and other measures have been taken to place both the province and city of Buenos Ayres on a level with the other provinces of the confederation. Buenos Ayres has published a protest against any such measure, and the dispute is still unsettled. The only other towns in the province of any importance, besides the capital, are San Nicolas, which is situated on the Parana, about 200 miles northwest of Buenos Ayres, and contains a population of about 10,000; San Pedro, also on the Parana, about 150 miles from the capital in the same direction, with a population of 1000; Chascamas, on the shores of a cognominal lake, once a place of considerable importance, but seriously injured by the long continuance of the civil wars; and Belgrano, which, from its position, bids fair to become the rival of the capital itself.

Buenos Ayres, the capital of the Argentine Confederation and of the province of Buenos Ayres, is situated on the right bank of the estuary of the Plata, in lat. 34° 39′ S., long. 58° 18′ W. The river is at this point so wide, that it is quite impossible with the naked eye to distinguish the opposite bank; and at the same time so shallow, that ships drawing 15 or 16 feet of water must anchor seven or eight miles from the city. Small craft generally anchor in what are called the inner roads, abreast of the city. As the depth of water is never sufficient to admit of their coming to shore, passengers and goods are landed by means of large-wheeled carts, which are either drawn or pushed by the requisite number of horses. The town of Buenos Ayres is situated in a vast plain extending westward to the Andes. The level uniformity of its outline is only broken by the spires of the various churches. The stranger, on landing, is struck with the regularity of the streets, which are quite straight, and intersect each other at distances of150 yards, forming squares like those of a chess-board, with the cleanly appearance of the houses, and the general air of independence that distinguishes the inhabitants. The only public buildings that have any pretensions to architectural beauty are the churches, which were built for the most part by the Jesuits. The houses have never more than two stories, and commonly only one, the rooms of which open into each other, and till lately were chiefly supplied with furniture of a very inferior description from the United States. A chimney was a thing unknown, as the old Spanish brazero alone was employed in heating the damp and white-washed rooms. A great change has, however, taken place in these respects within the last few years. The furniture is now supplied from Europe, the walls are papered, grates and chimneys have come into fashion, and English coal is burned at a lower price than it brings in the London market. These comforts are all the more valuable, as the climate of Buenos Ayres is one of the most humid and changeable in the world. As the system of police is still somewhat of the rudest, the inhabitants are obliged to guard themselves and their property by means of the iron railings with which they protect the windows of the houses. Even this, however, is not always found to be an efficient guard against the dexterity of thieves. Though the city is built within 50 yards of the largest river in the world, the supplies of fresh water are both scanty and expensive. There are no public reservoirs or fountains, and the wells of the city yield only a brackish and disagreeable water. By the wealthier classes tanks are constructed, in which a sufficiency of rain-water for domestic purposes is collected from the roof of the house. The common people are obliged to purchase water from the water-carriers. As it is derived from the river, it is commonly muddy, and must stand for twenty-four hours till the sediment sinks to the bottom. It is then found to be excellent. The streets of the city are now tolerably paved with granite. Many of them, however, are still unpaved; and these in wet weather can hardly be traversed by a mounted horseman, and are utterly impassable by a person on foot. Floriculture is a favorite pursuit; and many English and Scotch gardeners have nurseries in the neighborhood of the town.—E. B.

The Plata is one of the largest rivers of the world, traversing a vast extent of country, of which it is the great outlet. Unluckily, however, its estuary, though broad, is in most parts shallow, being also encumbered with sand banks, and infested with sudden gusts of wind called *pamperos*. Its navigation is consequently attended with a good deal of difficulty, and ships bound for Buenos Ayres generally take pilots on board. There is no harbor, and vessels drawing 16 or 17 feet of water anchor in the outer roads, called the *Amarradero*, 7 or 8 miles from shore, loading and unloading by means of lighters. This, too, is an operation by no means free from danger, boats being sometimes swamped in crossing the bar between the outer and inner roads. From the want of a pier, and the shallowness of the water on the beach, even the boats are not able to come close to the shore, but are met at a little distance from it by a rude sort of ox-carts, into which they deposit their goods at no little risk, and sometimes much loss. These unfavorable circumstances, which might, however, be materially improved by a little exertion and outlay on the part of the government, operate as a heavy drawback on the trade of the city, and tend proportionally to augment that of Montevideo, which is more easily accessible. But notwithstanding the competition of the latter, Buenos Ayres is still the principal outlet for the produce of the vast countries traversed by the Plata, and especially for the provinces situated on its right bank. The principal articles of export are specified in the subjoined table.—*See* Plata River.

Previously to 1828 no wool was exported from Buenos Ayres. But in that year merino and Saxon sheep were introduced; and notwithstanding the constant recurrence of disturbances, they have succeeded remarkably well, as is obvious from the following

Account of the Exports of Wool from Buenos Ayres for five Years, ending with 1852.

Years.	England.	France.	United States.	Genoa.	Belgium.	Sundries.	Total.
	Pounds	Pounds.	Pounds.	Pounds.	Pounds.	Pounds	Pounds.
1852	2,599,500	2,907,750	5,589,000	516,000	1,814,147	81,103	13,507,500
1851	663,312	354,614	11,827,530	305,942	380,276	105,300	13,636,974
1850	1,869,100	2,058.752	8,611,320	267,462	765,420	271,332	13,843,386
1849	3,139,442	1,696,798	10,934,228	890,415	665,840	168,936	17,495,659
1848	3,784,242	2,012,018	7,686,406	170,120	98,389	69,146	13,820,321

Corn, which for a considerable period was not produced in sufficient quantity for home consumption, has latterly become an occasional article of export. Most part of the jerked beef, and numbers of mules, are exported to the Havana and Brazil. Hides, tallow, skins, bones, and horns, especially the first, are leading articles of export. Sir Woodbine Parish estimates the total amount of the imports into the Plata at about £2,110,000, of which about one half may be for Buenos Ayres. The value of British exports to the latter, in 1851, amounted to £458,329, cottons being by much the most important article, and next to it silks, linens, and woolens, with cutlery, hardware, etc. France supplies silks, wines (of which the imports have largely increased), jewelry, perfumery, etc. The imports from the United States consist chiefly of unbleached cloths, spirits, soap, sperm candles, dried and salted provisions, tobacco, furniture, and deals. Germany sends woolen and linen cloths, and Rhenish cottons; the Netherlands, fire-arms, swords, etc.; Holland, butter, cheese, Westphalia hams, etc. The Baltic furnishes iron, cordage, canvas, pitch, deals, etc. The Mediterranean trade is principally in Sicilian and Spanish produce, particularly cheap wines, brandies, olive oil, macaroni, dried fruits, and pepper. Spanish goods are in little demand, though some serges, handkerchiefs, and ribbons, sewing silk, and salt, are imported. The annual importation of Spanish and Sicilian wines is from 10,000 to 12,000 pipes, besides about 1000 pipes of brandy. The *yerba mate*, or Paraguay tea, formerly an import article of some consequence, has been nearly superseded, even in Buenos Ayres, by genuine tea. The trade with Chili and Peru is insignificant. The markets are well supplied with butcher's meat and fish. Poultry, vegetables, and fruit are generally dear. All the butter used is imported. (We have derived these details principally from the excellent work of Sir Woodbine Parish on Buenos Ayres, 2d edition, p. 349–369.)

Port Charges.—The Argentine government has notified that, 1. From the 1st of January, 1847, national vessels sailing for ports beyond sea shall pay 3 dollars per ton; 2. Foreign vessels shall pay 4 dollars per ton, except those which, in virtue of existing treaties, are assimilated to national vessels; 3. Foreign vessels shall pay, for the visit of the health officer 25 dollars, and the same amount for the bill of health; 4. Foreign vessels belonging to nations having no consul, and whose roll is made out by the captain of the port, shall pay 40 dollars for it; 5. The duties fixed by the preceding articles shall be paid one half on the entrance of the vessel, and the other half on her departure; 6. National and foreign vessels, which do not leave nor receive cargoes, shall pay one half of the duties here established; 7. Let this decree be communicated and published in the official registers.

Buff (Ger. *Büffel*, *Büffelhäute;* Fr. *Buffle*, *Peau de buffles*, *et Peaux passées en buffles;* It. *Bufalo*, *Cuojo di bufalo*), a sort of leather prepared from the skin of the buffalo, dressed with oil, after the manner of chamois. The skin of elks, oxen, and other like animals, when prepared after the same manner as that of the buffalo, is likewise called *buff*. It is used in making sword-belts and other articles, where great thickness and firmness are required.

Buffalo, city, port of entry, and capital of Erie county, New York, is situated at the entrance of Buffalo Creek into Lake Erie; it is at the northeastern extremity of the lake, and near the commencement of its outlet, Niagara River. Lat. 42° 53′ N., and 78° 56′ W. long. from Greenwich, England; 298 miles west from Albany, 391 northwest from New York, 183 east from Cleveland, Ohio, 327 from Detroit, and 310 from Washington. Population in 1810, 1508; 1820, 2095; 1830, 8653; 1840, 18,213; 1845, 29,773; 1850, 42,261; and in 1854, with the addition of Black Rock, annexed to it in 1853, 75,000.

The city of Buffalo occupies a very important and commanding position at the western terminus of the Erie Canal and the central line of railroad from Albany and Boston, and also the northern termination of the Erie and other railroads, and has communication with the principal cities of the Western States, and also with Western Canada. It is the eastern port of transhipment of the great lakes Erie, Huron, Michigan, and Superior. Its commerce is immense, employing a vast number of steamers, brigs, and sloops, which convey from the several lake ports a large amount of produce, which from hence is transported to eastern markets by canal and railroad. The ground on which the city is built rises gradually from Buffalo Creek on the south, and within a short distance from the lake on the west it becomes an extended plain 50 feet above the surface of Lake Erie. From this elevation is obtained a picturesque view of the Canadian shore, Niagara River, and the lake. The streets are broad and straight, crossing each other mostly at right angles. Main Street is 100 feet in breadth, and extends for a distance of four miles, and is built very compactly with stores, hotels, and expensive private dwellings. The houses generally are constructed with neatness and taste.

The manufactures of Buffalo are very extensive, consisting of engine and boiler factories, furnaces, car-work, founderies, etc. The capital employed in 1850 was $1,946,348; value of manufactured articles, $3,674,988; and since that time both the capital employed and value of products have been largely increased. In 1853 there were six steam flouring mills, manufacturing during the year 216,296 barrels of flour.

The commerce of Buffalo is immensely large, far surpassing all other ports on the great lakes. The number of arrivals and clearances in 1853 were 8298 vessels, with an aggregate tonnage of 3,252,978. There are owned in Buffalo 30 steamers, with an aggregate tonnage of 26,593; 46 propellers, aggregate tonnage 18,004; 39 brigs and barks, aggregate tonnage 10,376; 115 schooners, aggregate tonnage 17,999; total tonnage of steam and sail vessels, 72,917. Value of the leading articles landed at Buffalo during the year 1853, $368,898,360. Value of the real and personal estate, $27,455,752. Buffalo was originally laid out by the Holland Land Company in 1801. Its progress was slow for many years. In 1812 it contained 100 houses; in December of the next year (1813) it was entirely burned by the British and Indians, with the exception of two houses, and at the close of the war the inhabitants received from the United States government $80,000 as a compensation for their losses. The rapid growth and its commercial importance commenced at the completion of the Erie Canal in 1825. It was incorporated as a city in 1832. It is divided into thirteen wards, and is governed by a mayor and common council, elected by the people.—*See* LAKE TRADE.

Bugle-horn, a small brass instrument used in the hunting-field, and in cavalry regiments. The compass of the bugle is now extended by finger-keys.

Bugles, small glass beads of different colors. They are in considerable demand in Africa, to which they are mostly exported.

Buhl, ornamental wood-work, inlaid with mother-of-pearl, brass, etc. The name is derived from the inventor.

Builder, in the general sense of the term, and undertaker of works of building. With reference to the operations of civil architecture particularly, the builder stands between the proprietor and architect on the one hand, and the artisan, merchant, and manufacturer on the other: he engages to the first to carry a certain proposed work into execution, as he may be directed by the second, and saves to both of them the trouble and responsibility of procuring materials and employing workmen.

The builder's emolument arises from an improved price, or charges bearing an advance on the prime cost, to remunerate him for the use of his capital in materials, work-shops, plans, and labor, and his own personal application and risk. A builder has the power also of deriving an advantage from the division of labor by employing artisans in those operations only which habit enables them to execute with the greatest facility.

The builder contracts to do certain specified works for a certain total sum of money, the amount of which he determines by a previous estimate, or to do prescribed operations at so much for a certain fixed quantity of every sort involved, per yard, per rod, per foot, and so on, the amount to be ascertained, when they are completed, by measurement; or he executes works according to instructions or specifications, leaving the charges to be determined according to the usual and accustomed rates, on the quantities ascertained by admeasurement. In the two former cases he is said to work by contract, and in the last by measure and value. For jobbing, in repairs and alterations, a day account is kept; that is, a record of the time workmen are employed, and of the materials used, in performing certain operations. This is made out with an advance of so much per cent. on the prime cost, or wages of the workmen and selling prices of the unwrought materials, for the builder's profit or remuneration, as before stated.

A builder should be theoretically acquainted with the principles of construction, and practically conversant with the details of all the mechanic arts used in building; as well to be enabled to carry on his business with advantage to his own interest as to the proper execution of the works he may undertake. He should be qualified to ascertain with the utmost minuteness, from the drawings of a design, and the specification of the manner in which, and matter of which, it is to be carried into execution, the quantity of labor and materials of every kind and description, and the exact value of them all. In this is involved the necessity of being well acquainted with the market prices of raw and manufactured articles to a very great extent, and a matured judgment of the quantity of labor required, or how much time a workman will take to produce a certain result. These things, however, which involve the making of estimates on which to make contracts, in the practice of this country are generally referred to a surveyer or measurer, because of the general ignorance and incompetence of builders, or because of the greater aptitude of the latter, in consequence of their attention being solely occupied by such things.—E. B.

Building. The first structures were of wood and clay, then of rough stone, and, in the end, the art advanced to polished marble. Building with stone was practiced early among the Tyrians; and as ornaments and taste arose, every nation pursued a different system. The art of building with stone may be referred in England to Benedict or Benet, a monk, about A.D. 670. The first bridge of this material in England was at Bow, in 1087. Building with brick was introduced by the Romans into their provinces. Alfred encouraged it in England in 886. Brick-building was generally introduced by the Earl of Arundel, about 1598, London being then almost built of wood. The increase of building in London was prohibited within three miles of the city gates by Elizabeth, who ordered that one family only should dwell in one house, 1580.

Bulk-heads are partitions made athwart a ship with boards, by which one part is divided from the other; as the great cabin, gun-room, bread-room, etc.—E. B.

Bulk of a Ship, the whole space in the hold for the stowage of goods.

Bullets. Those of stone were in use, A.D. 1514; and iron ones are first mentioned in the *Fœdera*, 1550. Leaden bullets were made before the close of the sixteenth century, and continue to be those in use in all nations for musketry. The cannon-ball in some Eastern countries is still of stone instead of iron.—Ashe.

Bullion, uncoined gold or silver in the mass. The precious metals are so called either when smelted and not perfectly refined, or when refined and melted down in bars or ingots, or in any form uncoined, as in plate.—E. B.

Bum-boat, a small boat used to sell vegetables, etc., to ships lying at a distance from shore.

Bunk is a word used, in the United States, to signify a case or cabin of boards for a bed. Thus, in the army, the soldier's berth is called his bunk.

Bunt, the middle part or cavity of the principal square sails, as the mainsail, foresail, etc.: if one of them be supposed to be divided into four equal parts from one side to the other, the two middle divisions, which comprehend half of the sail, form the limits of the bunt.—E. A.

Bunting, a thin woolen stuff, of which the colors and signals of a ship are usually formed.

Buoy, a close empty cask, or a block of wood or cork fastened by a rope to an anchor, and floating on the water to show where the anchor is situated. Buoys are of various kinds; as *can-buoys*, in the form of a cone; *nun-buoys*, which swell in the middle, and taper to a point at each end; *cable-buoys*, empty casks employed to buoy up the cable in rocky anchorage. Buoys are also used to indicate the position of rocks and shoals, or to mark a channel.

The *life-buoy*, of which there are various kinds, is used to throw overboard to preserve a person from drowning. The kind now commonly used in the navy consists of two hollow copper vessels connected together, between which there is fixed a hollow pole, with a port-fire fixed to its top. This apparatus, which is properly ballasted, is suspended so as to be ready for use at a moment's notice; and it is so contrived that by the act of letting it off the port-fire is ignited; thus enabling the person in the water to discern the buoy in the darkest night.

Burden or **Burthen** (Saxon *byrden* or *byrthen*), a fixed quantity of any commodity for transit.

Burden of a Ship, its contents, or the number of tons it will carry.—*See* Tonnage.

Burgundy. *See* Wine.

Burgundy Pitch, a resin, the produce of the *Pinus Abies*, or spruce fir. It is obtained by making incisions in the bark down to the wood, whence it flows thickly and languidly, immediately concreting into flakes that adhere firmly to the tree. These, being taken off, are melted in boiling water, and strained through coarse cloths. It is of a close consistence, rather soft, has a reddish-brown color, and a not unpleasant smell: it is very adhesive. The greatest quantity is collected in the neighborhood of Neufchatel, from whence it is brought packed in casks. A fictitious sort is made in England, and found in the shops under the title of *common* Burgundy pitch: it may be distinguished by its friability, want of viscidity, and of the odor which characterizes the genuine sort.

A species of Burgundy pitch exudes spontaneously from the Norway spruce fir. This, which undergoes no preparation, is the *resin* or *thus* of the old London Pharmacopœias. It is imported in the form of tears or small masses, packed in casks, each containing from 1 to 2 cwt. It fetches about half the price as that which is strained.—Gray's *Supplement to the Pharmacopœias*, Thomson's *Dispensatory*.

Burmah, or **Birmah**, the Burmese empire, or kingdom of Ava, a state of Farther India, and formerly the most extensive and powerful in that peninsula; but since the war of the Burmese with the British, in 1824–'26, its territories have been comprised within lat. 16° and 27° N., and long. 93° and 99° E., having on the west Aracan and Munipoor, on the north the Nagas territory and Upper Assam, on the east the Chinese province of Yun-nan, the independent Laos country, and the British province of Martaban (from which last it is separated by the Sa-luen or Than-lweng River), and on the south the Gulf of Martaban, a portion of the Bay of Bengal. Estimated area, 200,000 square miles; population from two to three millions. It is composed of the kingdoms of Burmah, Pegu, and Pong, with portions of the countries inhabited by the Khyen, and the Shang countries, and the Kubo valley (*Munipoor*), reannexed to it by treaty with the British in 1834; it is inclosed on most sides by mountain ranges, in elevation from 2000 to 5000 feet above the sea, its central part consisting of the basin of the Irrawaddi. Lagoons are numerous in low beds of the south, and in the centre, a little north of Ava, is a lake thirty miles in length by ten miles across. The country is reckoned salubrious. From May till the middle of September is the rainy season. From September till March the weather is delightful, the temperature seldom exceeding 75°; in April and May the heat becomes very great, but is soon mitigated by the commencement of rain. Annual fall of rain 150 to 200 inches. The soil is of very high fertility; but except near the towns most of it lies waste, or is only irregularly tilled; and agriculture is generally in the most backward condition. Rice is the chief crop, especially in the south; pulses, Indian millet, and maize are raised in the north, and sesamum is universally cultivated for cattle. Other products are, cotton of short staple, indigo (though this product is so badly managed as to be unfit for export), yams, sweet potatoes, tobacco, capsicums in great quantities, gourds, oil-plants, bananas, and other fruits, betel nut and leaf, sugar-cane, onions, garlic, and in the north a kind of tea. Teak, of a quality inferior to that of both Malabar and Java, oak, and other valuable woods, abound on the mountain ranges, and palm and bamboo are also plentiful. Oxen, buffaloes, and goats are the principal domestic animals used for draft, and the elephant is domesticated for the same purpose; a good breed of horses is also reared. Mineral products are numerous and valuable. The gold and silver obtained in the empire has been estimated in value at upward of £200,000, and the produce of petroleum in pits, along the Irrawaddi, to 8,000,000 lbs. annually. Fine marble, serpentine, amber, sapphires, and other gems, iron, copper, tin, lead, antimony, sulphur, nitre, and coal, are also found. In physical form the Burmese are more allied to the Mongolians of Eastern Asia than to the Hindoos. Their figure is short, squat, robust, and fleshy, face lozenge-shaped, cheek-bones large, and eyes obliquely placed. They excel in boat-building, and they cast bells, work in gold and silver, and dye silk and other fabrics, weave silk and cotton goods, and manufacture lacquered wares, paper, coarse earthenwares, and some other articles in a respectable manner; but most of their manufactured goods in ordinary use are imported from foreign countries. China sends silks, porcelain, copper, carpets, metals, drugs, tea, etc., in return for raw cotton, feathers, ivory, birds' nests, horns, gums, and some British manufactures; this intercourse being chiefly conducted at a large annual fair at Bhamo. From the Shan tribes the Burmese obtain their best sword-blades, with lac, wax, varnish, in return for salt and dried fish; other articles are mostly imported by sea from British India and the Asiatic Archipelago, and consist of British cotton goods, areca and cocoa-nuts, tobacco, iron, hardwares, copper, lead, and other minerals, opium, sugar, spirits, English glass, earthen-wares, fire-arms, and gunpowder, the manufactures of the Burmese in the two last articles being of the most wretched description. Public revenue is derived from a tithe of the profit of cultivation, duties of 10 per cent. on imports, and 5 per cent. on exports, and on petroleum collected, a royal monopoly of marble, amber, and the precious metals, and gems above a certain size, a poll tax on the unsettled tribes, etc.; and the whole fiscal system is "replete with uncertainty, rapacity, and violence." The Burmese empire is divided into seven provinces. Ava and Monchobo have alternately been constituted the capital of the empire. The other principal towns are, Amarapure, Sakaing, Rangoon, Bassain, Martaban, Setang, Taungo, Prome, Patango, Yandabo, and Bhamo. In 1823 the Burmese, by encroaching on the East India Company's territories, brought on a war with the British, which lasted during the years 1824–'25, and terminated in their defeat and the cession of several territories to the English.

Burning-glass and **Concave Mirrors**. Their power was not unknown to Archimedes, but the powers of these instruments are rendered wonderful by the modern improvements of Settalla: of Tchirnhausen, 1680; of Buffon, 1747: and of Parker and others more recently. The following are experiments of the fusion of substances made with Mr. Parker's lens, or burning mirror:

Substances fused.	*Weight.*	*Time.*
Pure gold	20 grains	4 seconds.
Silver	20 grains	3 seconds.
Copper	33 grains	20 seconds.
Platina	10 grains	3 seconds.
Cast iron	10 grains	3 seconds.
Steel	10 grains	12 seconds.
A topaz	3 grains	45 seconds.
An emerald	2 grains	25 seconds.
A crystal pebble	7 grains	6 seconds.
Flint	10 grains	30 seconds.
Cornelian	10 grains	75 seconds.
Pumice-stone	10 grains	24 seconds.

Green wood takes fire instantaneously; water boils immediately; bones are calcined; and things not capable of melting at once become red hot like iron.

Bushire or **Abushire**, a sea-port town of Persia, in the province of Fars, on the northeast coast of the Persian Gulf, lat. 29° N., long. 50° 50′ E. Population uncertain, but estimated by Major Wilson at from 15,000 to 20,000. Bushire is situated at the northern extremity of a sandy peninsula, to the north and east of which is the bay. There is a convenient anchorage for large ships due west from the town, three or four miles distant, in from 25 to 28 feet of water; but ships of 300 tons burden or thereby lie in the inner roads, to the north, about six miles from shore; the anchorage is pretty good; but during violent northwesterly gales they are sometimes obliged to cut their cables, and bear up for Karak, a small island about 15 leagues west-northwest of Bushire. The water immediately to the east of the town is deep, but the passage to it is obstructed by a bar, which can not be passed by vessels drawing more than eight or nine feet of water, except at spring-tides, when there is a rise of from eight to ten feet. The variation in 1811 was 4° 43′ W.—*Chart of the Persian Gulf, by* CAPTAIN RITCHIE, *etc.* The climate here, as in all the other ports of the Persian Gulf, is extremely hot, particularly June, July, and August. The unhealthy season is in the fall of the year.

Buss, a small sea-vessel, used by the English and the Dutch in the herring fishery, commonly from 50 to 60 tons burden, and sometimes more. A buss has two small sheds or cabins; one at the prow, and the other at the stern: that at the prow serves for a kitchen.

Bussorah, or **Basrah**, a city of Arabia, on the western bank of the Shat-el-Arab (the name given to the river formed by the junction of the Tigris and the Euphrates), above 70 miles from its mouth, lat. 30° 30′ N., long. 47° 32′ E. Population about 60,000, consisting of Arabs, Turks, Persians, Armenians, Jews, etc. The houses and streets are mean and filthy. There is a vast area within the walls, occupied principally by gardens and plantations of date-trees, and intersected by canals, on which are numerous small craft.

The bar at the mouth of the Shat-el-Arab has only about twelve feet of water, but the channel within is deep, so that ships of 500 tons burden, provided they cross the bar at the springs, may without difficulty ascend the river as far as the city; and both its grand branches may be navigated to a great distance by smaller vessels. Bussorah is the principal inlet on the east, through which Indian and other Eastern products find their way into the Turkish empire. Its commerce is, therefore, even at present, pretty considerable; and were the rich and extensive countries traversed by the Tigris and the Euphrates occupied by a civilized and industrious people, it would be very great. Its imports from India and Europe are similar to those at Bushire. From Persia it imports shawls, pearls from Bahrein, etc., and coffee from Mocha. At an average, six or eight British ships arrive in the course of the year from India; but the principal part of the trade is carried on in Arabian bottoms, the merchants of Muscat being the owners of some of the finest ships that are to be met with in the Indian seas. Its exports are principally bullion, pearls, dates, copper, raw silk, horses, gall-nuts, and drugs. Captain Hamilton mentions that in the early part of last century the exports of dates from Bussorah exceeded 10,000 tons a year.—*New Account of the East Indies*, vol. i. p. 78. The commerce with the interior is conducted by means of caravans to Aleppo and Bagdad; but it might be carried on to much more advantage by means of steamboats. It was at one time proposed to forward mails from India by steam by the Shat-el-Arab and the Euphrates to Bir, thence by land to Scanderoon, and again by steam to the Gibraltar and England; but this project was very wisely given up in favor of the route by the Red Sea.

Money.—All sorts of coins circulate here, but their values are constantly fluctuating. Accounts are kept in mamoodis of 10 danims, or 100 floose; 100 mamoodis make a toman, which may be valued at about 15 sicca rupees, or 36*s.* sterling.

Weights and Measures.—Gold and silver are weighed by the cheki of 100 miscals, or 7200 English grains.

The commercial weights are the maund atteree, the maund sofy or sesse, and the oke of Bagdad. 1 vakia =19 oz. avoirdupois; 2½ vakias=1 oke of Bagdad= 47½ oz. avoirdupois; 1 maund atteree=28 lbs. 8 oz. avoirdupois; 1 maund sofy=20 lbs. 4 oz. avoirdupois; 1 cutra of indigo=138 lbs. 15 oz. avoirdupois.

These are the weights used by the Europeans settled at Bussorah; those used by the Arabians differ a little from the above, and frequently also among themselves —a circumstance to which the merchant must pay particular attention.

The long measures are the Aleppo yard for silks and woolens=2 feet 2·4 inches; the Hadded ditto for cotton and linens=2 feet 1·2 inches; the Bagdad ditto for all purposes=2 feet 7·6 inches.

For further details as to the commerce of Bussorah, *see* KINNEY'S *Memoir on the Persian Empire*, p. 283; KELLY'S *Oriental Metrology*; THORNTON'S *East Indian Calculator*, p. 424. Niebuhr has given a plan of Bussorah, *Voyage en Arabie*, tome ii. p. 170.

Butchers. Among the Romans there were three classes: the *Suarii* provided hogs; the *Boarii* oxen; and the *Lanii*, whose office was to kill. The butchers' trade is very ancient in England; so is their company in London, although it was not incorporated until the second year of James I., 1604.—*Annals of London.*

Butlerage. *See* PRISAGE.

Butt, a vessel or measure for wine, containing two hogsheads, or 126 wine gallons.

Butter and **Cheese** (Da. *Smör;* Du. *Boter;* Fr. *Beurre;* Germ. *Butter;* It. *Burro*, *Butiro;* Lat. *Butyrum;* Pol. *Maslo;* Port. *Manteiga;* Russ. *Masslo Korowe;* Sp. *Manteca;* Sw. *Smör*). Butter is known as a fat, unctuous, and, in temperate climates, a pretty firm substance, obtained from milk, or rather from cream, by the process of churning. According to some writers, it was late before the Greeks had any notion of butter, and by the early Romans it was used only as a medicine—never as food. The Christians of Egypt burned butter in their lamps, instead of oil, in the third century. In 1675, there fell in Ireland, during the winter time, a thick yellow dew, which had all the medicinal properties of butter. In Africa, vegetable butter is made from the fruit of the shea-tree, and is of richer taste, at Kebba, than any butter made from cows' milk.—MUNGO PARK. The various circumstances attending the introduction and use of butter in antiquity have been investigated by Beckmann with great learning and industry. The conclusion at which he arrives is, "that butter was not used either by the Greeks or Romans in cooking or the preparation of food, nor was it brought upon their tables by way of dessert, as is every where customary at present. We never find it mentioned by Galen and others as a food, though they have spoken of it as applicable to other purposes. No notice is taken of it by Apicus; nor is there any thing said of it in that respect by the authors who treat of agriculture, though they have given us very particular information with respect to milk, cheese, and oil. This, as has been remarked by others, may be easily accounted for by the ancients having accustomed themselves to the use of good oil; and in the like manner, butter is very little employed at present in Italy, Spain, Portugal, and the southern parts of France."—*History of Inventions*, vol. ii. p. 413, English edition.

Beckmann has further shown that the little butter that was used by the ancients was in an oily or liquid state; and such is its usual state in all hot countries. It is rather singular that Beckmann does not allude to the consumption of butter by the Arabs, by whom it has been very extensively used from a remote period.

"Arab cookery is extremely *friant*, more so than even the Italian; but no oil is used for culinary purposes, except in frying fish. Butter is their universal sauce, and of it the consumption is immense; their vegetable dishes float in butter; with it they work their *adjoue* (paste made of dates) into a proper consistency; dried corn, or bread crumbs, boiled in butter, is a common breakfast with all classes; and in the dessert, the *kemmayes* are prepared for use in the same manner. In short, butter forms an indispensable part of the diet of the Arab; and, besides the various forms in which it is taken with other articles, it is a common practice with both Bedouins and townspeople to swallow a coffee-cupful of butter every morning; the former, and the lower orders of the latter, adding another half cup, which—to the disgust of strangers—they snuff up their nostrils! Arab butter is made from the milk of sheep and goats, that of camels not being used for that purpose. The home supply is not nearly sufficient for the consumption, and butter consequently forms an important article of importation." — *Geographical Dictionary, article Arabia.*

Considerable quantities of butter are made in Ireland, and it forms a prominent article in the exports of that country: generally it is very inferior to that of Britain; but this is a consequence rather of the want of cleanliness and attention than of any inferiority in the milk. Some of the best Irish butter brought to London, after being washed and repacked, is sold as Dorsetshire and Cambridge butter. The salt butter of Holland is superior to that of every other country; large quantities of it are annually exported. It forms about two-thirds of all the foreign butter imported by England, the rest being brought from Germany, Denmark, etc. The production and consumption of butter in Great Britain is very great. The consumption in the English metropolis may, it is believed, be averaged at about eight pounds a year for each individual; and supposing this estimate to be nearly accurate, and the population to amount to 2,300,000, the total annual consumption would, on this hypothesis, be 18,400,000 lbs., or 8214 tons; but to this may be added 3000 tons for the butter required for the victualing of ships and other purposes; making the total consumption, in round numbers, 11,200 tons, or 25,088,000 lbs., which at 10*d.* per pound would be worth £1,045,333.

The census of 1840 furnishes us no statistics from which we can accurately determine the quantity of butter and cheese then produced. The value of both is given under the heading of "value of the products of the dairy" at the sum of $33,787,008. It is presumed that the marshals made their returns in accordance with the prices governing in their respective districts, which would differ so widely as to render any assumed average a mere conjecture. New York is far in advance of any other State in the productiveness of its dairies. They yield one-fourth of all the butter, and nearly one-half the cheese produced in the Union. Pennsylvania, which makes 40,000,000 pounds of butter, is less prolific in cheese than several smaller States. In this latter article Ohio is before all other competitors, except New York.

Census Report, 1850.—The following table shows the amount of dairy products exported from the United States for several years:

Years.	Butter.	Cheese.	Value.
	Pounds.	Pounds.	$
1820–'21.......	1,069,024	766,431	190,287
1830–'31.......	1,728,212	1,131,817	264,796
1840–'41.......	3,785,993	1,748,471	504,815
1841–'42.......	2,055,133	2,456,607	585,185
1842–'43.......	3,408,247	3,440,144	508,968
1843–'44.......	3,251,952	7,343,145	758,829
1844–'45.......	3,587,489	7,941,187	878,865
1845–'46.......	3,436,660	8,675,390	1,063,087
1846–'47.......	4,214,433	15,673,600	1,741,770
1847–'48.......	2,751,086	12,913,305	1,361,668
1848–'49.......	3,406,242	17,433,682	1,654,157
1849–'50.......	3,876,175	13,020,817	1,215,463
1850–'51.......	3,994,542	10,361,189	1,124,652

PRODUCT OF BUTTER AND CHEESE IN THE SEVERAL STATES IN 1850, AND VALUE OF DAIRY PRODUCTS IN 1840.

States and Territories.	Butter.	Cheese.	Total, 1850.	Dairy Products.
	Pounds.	Pounds.	Pounds.	$
Alabama	4,008,811	31,412	4,040,223	265,200
Arkansas	1,854,239	30,088	1,884,327	59,205
California	705	150	855	
Columbia, District of	14,872	1,500	16,372	5,566
Connecticut..............................	6,498,119	5,363,277	11,861,396	1,376,534
Delaware	1,055,308	3,187	1,058,495	113,828
Florida	371,498	18,015	389,513	23,094
Georgia	4,640,559	46,976	4,687,535	605,172
Illinois	12,526,543	1,278,225	13,804,768	428,175
Indiana..............................	12,881,535	624,564	13,506,099	742,269
Iowa	2,171,188	209,840	2,381,028	23,609
Kentucky	9,947,523	213,954	10,161,477	931,363
Louisiana	683,069	1,957	685,026	153,069
Maine	9,243,811	2,434,454	11,678,265	1,496,902
Maryland..............................	3,806,160	3,975	3,810,135	457,466
Massachusetts..............................	8,071,370	7,088,142	15,159,512	2,373,299
Michigan	7,065,878	1,011,492	8,077,370	301,052
Mississippi..............................	4,346,234	21,191	4,367,425	359,585
Missouri..............................	7,834,359	203,572	8,037,931	100,432
New Hampshire	6,977,056	3,196,563	10,173,619	1,638,543
New Jersey..............................	9,487,210	365,756	9,852,966	1,328,032
New York	79,766,094	49,741,413	129,507,507	10,496,021
North Carolina..............................	4,146,290	95,921	4,242,211	674,349
Ohio	34,449,379	20,819,542	55,268,921	1,848,869
Pennsylvania	39,878,418	2,505,034	42,383,452	3,187,292
Rhode Island	995,670	316,508	1,312,178	223,229
South Carolina..............................	2,981,850	4,970	2,986,820	577,810
Tennessee	8,139,585	177,681	8,317,266	472,141
Texas	2,344,900	95,299	2,440,199	....
Vermont	12,137,980	8,720,834	20,858,814	2,008,737
Virginia	11,089,359	436,292	11,525,651	1,480,488
Wisconsin	3,633,750	400,283	4,034,033	35,677
Minnesota Territory	1,100	....	1,100	....
New Mexico Territory..............................	111	5,848	5,959	....
Oregon Territory..............................	211,464	36,980	248,444	....
Utah Territory..............................	83,309	30,998	114,307	....
Total..............................	313,345,306	105,535,894	418,881,200	$33,776,808

Milch Cows.—Under the general term of "neat cattle" were embraced in the sixth census of the United States the three descriptions of animals designated in that of 1850 as milch cows, working oxen, and other cattle. The aggregate of the three classes, in 1840, was 14,971,586; in 1850, 18,355,287. The increase, therefore, between the two periods was 3,383,701, or about 20 per cent. They appear to be distributed quite equally over the Union. The amount of butter produced gives an average of something over 49 pounds to each milch cow. The average production of cheese to each cow is 16¾ pounds. As with horses, the same allowance must be made, on account of the omission of cows, except in connection with agriculture. The only schedules in which the live stock of the country could be enumerated were those used for obtaining the agricultural products of farms. From the fact that the schedules for enumerating agricultural productions and live stock were not used in cities, their live stock was necessarily omitted. The value of the butter produced in the United States in 1850 was estimated at $50,135,000; and cheese, $5,276,000.—*Census Report*, 1850.

Butternut-tree (*Juglans cathartica*). This species of walnut is known in the United States under different denominations. In Massachusetts, New Hampshire, and Vermont, it bears the name of *oil-nut;* in Pennsylvania and Maryland, and on the banks of the Ohio, it is generally known by that of *white walnut;* in Connecticut, New York, New Jersey, Virginia, and the mountainous districts of the upper parts of the Carolinas, it is called *butternut.* The last of these names we have adopted, because it is most generally used. This tree is found in the Canadas, in all of the New England States, New York, New Jersey, Kentucky, Tennessee, and on the banks of the Missouri, and in the bottoms which border on the Ohio. It flourishes most abundantly in a cold, unproductive soil, interspersed with large rocks, and on the steep, elevated banks of rivers. From its want of solidity, and from the difficulty of procuring pieces of considerable length, the timber of the butternut is seldom used in the construction of houses. As it long resists the effects of heat and of moisture, it is esteemed for the posts and rails of rural fence. For corn shovels and wooden dishes, it is preferred to the red flowering maple, because it is lighter and less liable to split. In Vermont it is used for the panels of coaches and chaises; the workmen find it excellently adapted to this object, not only from its lightness, but because it is not liable to split, and receives paint in a superior manner.—BROWN'S *Sylva Americana.*

Button-wood, or **Sycamore-tree**. In the Atlantic States this tree is commonly known by the name of *button-wood*, and sometimes in Virginia by that of *water-beech.* On the banks of the Ohio, and in the States of Kentucky and Tennessee, it is most frequently known by the name of *sycamore*, and by some persons *plane-tree.* The French of Canada and of Upper Louisiana, give it the name of *cotton-tree.* The wood, in seasoning, becomes of a dull red; its grain is fine and close, and it is susceptible of a brighter polish than the wood of the beech, to which it bears some resemblance. Its concentric circles are divided into numerous sections, by fine medullary rays extending from the centre to the circumference. When a trunk is sawn in a direction parallel to these rays, they appear larger than when it is cut parallel to the concentric circles. It would seem, then, that the division should be made in the intermediate direction, so that the spots may be of a proper size and at equal distances, which gives an elegant surface to the wood. Cabinetmakers seldom make use of this wood, on account of its liability to warp, except for bedsteads, which retain the color of the wood, and are coated with varnish. This wood speedily decays when exposed to the atmosphere, hence it is only proper for work that is sheltered from the weather; when thoroughly seasoned, it may be usefully employed in the interior of houses for joists, and for sheathing the frame. It never is used in naval architecture.—Brown's *Sylva Americana.*

Buttons (Du. *Knoopen;* Fr. *Bouton;* Ger. *Knöpfe;* It. *Bottoni;* Russ. *Pogowizü;* Sp. *Botones*) are well-known articles, serving to fasten clothes, etc. They are manufactured of an endless variety of materials and forms. Buttons were of early manufacture in England; those covered with cloth were prohibited by a statute, thereby to encourage the manufacture of metal buttons, 8 Geo. I., 1721. The manufacture owes nothing to encouragement from any quarter of late years.

Buttress, a kind of abutment built archwise, or a mass of stone or brick, serving to support the side of a building or wall externally, when very high or loaded with a heavy superstructure. Buttresses are chiefly used against the angles of steeples and on the outside of such buildings as have heavy roofs, which would be apt to thrust out the walls if unsupported in this manner. They are sometimes placed for a support and abutment against the feet of arches that are turned across great halls in old palaces, abbeys, etc. *Flying buttresses* are such as are carried across by an arch from one wall to another.

Byron, John, was the second son of William, lord Byron; born November 8, 1723. He went out with Lord Anson, in the *Wager*, about 1740, and was wrecked on the coast of South America. An Indian chieftain conveyed him and his companions, after thirteen months of dreadful sufferings and privations, to the island of Chiloe, from whence they made their way northward, and were kindly treated by the Spaniards (though they were at war with England), in consequence of the chivalrous conduct of Lord Anson toward some Spanish ladies whom he had taken prisoners. This wreck, and the sufferings through which they passed, form the subject of "*Byron's Narrative,*" which was published in 1745. He was constantly employed by the British government, both in war and peace, and, among other public services, he destroyed the French squadron, then lying in Chaleur Bay. In command of two ships, he made a voyage to the South Sea in 1764; was appointed superior of the West India fleet in 1778, and soon after created vice-admiral of the white. He died in London, April 10, 1786, enjoying to the last a well-earned reputation. The poet, Lord George Gordon Byron, was his grandson.

C.

Cabbage, a biennial plant (*Brassica*, Linn.), of which there are many varieties. It is too well known to require any particular description; it is extensively cultivated in the United States. Sour-crout, or more properly *sauer-kraut*, is a very favorite dish in Germany; it consists of a fermented mess of salted cabbage.

Cabin, an apartment in a ship for officers and passengers. In large ships there are several cabins, the principal of which is occupied by the commander. In small vessels there is only one cabin, which is in the stern. The bed-places in ships are also called *cabins;* or, more commonly, *berths. Berth* is used, likewise, for the room where a number of men mess and reside. —E. A.

Cables are strong ropes or chains, principally used in the anchoring or mooring of ships. *Rope cables* are principally manufactured of hemp; but in the East they are more frequently made of *coir*, or the fibrous part of the cocoa-nut, and in some places, particularly on the Red Sea, of the coating of the branches of the date-tree. *Hemp cables* are formed of three principal strands, every strand of three ropes, and each rope of three twists. The twists have more or fewer threads, according to the greater or less thickness of the cable. All vessels have ready for service three cables, which are usually designated the *sheet* cable, the *best bower* cable, and the *small bower* cable; but besides these, most ships have some spare cables. The ordinary length of a cable is from 100 to 120 fathoms.

Iron Cables.—The application of strong iron chains or cables to the purposes of navigation is a late and an important discovery by Captain Samuel Brown, British navy. It is singular, indeed, that this application should not have been made at a much earlier period. On rocky bottoms, or where coral is abundant, a hempen cable speedily chafes, and is often quite destroyed in a few months, or perhaps days. M. Bougainville, the French navigator, in his voyage of discovery, lost *six* anchors in the space of nine days, and narrowly escaped shipwreck—a result, says that able seaman, which would not have happened, "*si nous eussions été munis des quelques chaînes de fer. C'est une précaution que ne doivent jamais oublier tous les navigateurs destinés à de pareils voyages.*"—*Voyage autour du Monde*, p. 207, 4to ed. The work from which this extract is taken was published in 1771; and yet it was not till nearly *forty* years after that any attempt was made practically to profit by so judicious a suggestion. The difficulties in the way of importing hemp from 1808 to 1814, and its consequent high price, gave the first great stimulus to the manufacture of iron cables. Iron cables are constructed in different ways (see *Encyclopedia Metropolitana*); but they are uniformly tested by a machine, which strains them by a force greater than the absolute strength of the hempen cable they are intended to replace. By this means the risk of accident from defective links is effectually obviated; and there are exceedingly few instances in which an iron cable has broken at sea. Their great weight also contributes to their strength, inasmuch as the impulse of the ship is checked before the cable is brought nearly to a straight line, or that the strain approaches to a maximum. Bolts and shackles are provided at every fathom or two fathoms, by striking out which the ship may, if necessary, be detached from her anchors with less difficulty than a hempen cable can be cut. Even in their most defective form, iron cables are a great deal stronger than those of hemp; and as to durability, no sort of comparison can be made. No wonder, therefore, that they should be rapidly superseding the latter; which are now almost wholly laid aside in the navy, and to a great extent also in the merchant service. The *sheet anchor cable* is the greatest cable belonging to a ship. The *stream cable* is a hawser or rope used to moor the ship in a river or haven sheltered from the wind and sea.

Cabot, Sebastian, the celebrated navigator and re-discoverer of the American continent (the continent of North America had been seen, and even repeatedly visited about five centuries before by the Icelanders), was the son of John Cabot, a Venetian merchant resident in England, and was born about the year 1477. Although long the subject of much dispute, it is now certain that England was the place of his nativity. In an ancient collection of voyages and travels by Richard Eden, a learned writer and contemporary of Sebastian, the author, in a marginal note, says, "Sebastian Cabote tould me, that he was borne in Brystowe (Bristol), and that at iiii yeare ould he was carried with his father to Venice, and so returned agayne into England with his father after certayne years, whereby he was thought to have been born in Venice."—*Decades of the New World*, fol. 255. It also appears that he returned, while still young (*pæne infans*), to England, and remained there till he grew up to manhood. The brilliant discoveries of Columbus having awakened a spirit of enterprise throughout the enlightened nations of Europe, Henry VII. of England was not slow in perceiving the advantages to be gained by promoting adventure in the new career opened up to human ambition. The all-important and engrossing object was to discover a route to India; and an expedition in a northwesterly direction, ostensibly to reach what was called Cathay, or the Land of Spice, was projected by Sebastian Cabot, and fitted out under the auspices of the English government. The first patent, which bears date March 5, 1496 (RYMER, *Fœdera*, vol. xii. p. 595), was given to John Cabot and his three sons, Lewis, Sebastian, and Saucius. The patentees were empowered to set up the royal banner, and occupy and possess all the "newly-found" lands in the name of the king, who reserved a fifth of the profits. It was also stipulated that the vessels should return to Bristol, and that the privilege of exclusive resort and traffic should belong to the patentees. Although the patent was conferred on John Cabot and his three sons, there can be no doubt, even if the father did accompany the expedition, that its success was entirely owing to the genius of Sebastian.

It is now undoubted that to Sebastian alone belongs the glory of the re-discovery of the *terra firma* of the Western World. The expedition, consisting of the ship commanded by Sebastian, and three or four smaller vessels, sailed from Bristol in the beginning of May, 1497; and an ancient Bristol manuscript records the fact that "in the year 1497, the 24th June, on St. John's day, was Newfoundland found, by Bristol men, in a ship called the *Mathew*." On the authority of Peter Martyr, we learn that, after quitting the north, where he reached latitude sixty-seven and a half, Cabot proceeded along the coast of the continent, to a latitude corresponding probably with that of the Straits of Gibraltar. Indeed, he is said to have gone so far southward, "ut Cubam Insulam a læva longitudine graduum pene parem habuerit." A failure of provisions at this point compelled him to desist from further pursuit, and the expedition returned to England. The second patent is dated 3d February, 1498, and gives authority to "John Kabotto, or his deputies," to take at pleasure six English ships, and "them convey and lede to the londe and isles of late found." Shortly after the date of this patent, John Cabot died; and it is said that his sons, Lewis and Saucius, went to settle in Italy. Sebastian, however, did not abandon the enterprise in which he had embarked; and a second voyage was zealously undertaken under his superintendence. A ship equipped at the king's expense, along with four small vessels, sailed from Bristol in the spring of the year 1498. The result of the expedition is unfortunately wrapt in much obscurity. Gomara alone furnishes us with what may be a correct account. According to this author, Cabot "directed his course by the tracte of islande, uppon the Cape of Labrador, at lviii. degrees; affirmynge that, in the monethe of July, there was such could, and heapes of ise, that he durst passe no further; also, that the dayes were very longe, and in maner without nyght, and the nyghtes very clear. Certayne it is, that at the lx. degrees, the longest day is of xviii. houres. But consyderynge the coulde, and the straungeness of the unknowen lande, he turned his course from thense to the west, folowynge the coast of the lande of Baccalaos unto the xxxviii. degrees, from whense he returned to Englande."—EDEN'S *Decades*, fol. 318. The results of this second voyage were not sufficiently important to induce Henry to equip another expedition. We have good authority for believing, however, that Cabot, in 1499, "with no extraordinary preparations sett forth from Bristoll, and made greate discoveries."—SEYER'S *Memoirs of Bristol*. But the narrative of Cabot's life for the fifteen years subsequent to the departure of his second expedition is meagre and unsatisfactory. One circumstance deserves notice, that during that period Amerigo Vespucci, in company with Hojeda, crossed the Atlantic for the *first time*, while Sebastian was prosecuting his third voyage.

After the death of Henry VII., upon the invitation of Ferdinand, Sebastian Cabot went to Spain; and Vespucci, who held the office of pilot-major, having died, he was appointed his successor. He was soon employed in a general revision of maps and charts; and his public and private character endeared him to most of the learned and good men in Spain. The death of Ferdinand put an end to an expedition then in contemplation. The ignoble commencement of the reign of Charles V. frustrated all further hopes of its prosecution; and Cabot returned to England, where, under Henry VIII., he got honorable employment, and performed another westwardly voyage in 1517, which, however, proved unsuccessful. In 1518 we find Cabot in Spain, and again reinstated in the appointment of pilot-major. The dispute between Spain and Portugal in regard to their respective rights to the Moluccas having been decided at the Congress of Badajos, in 1524 in favor of Spain, a company was formed at Seville to open a commercial intercourse with those islands; and Cabot, with the title of captain general, after many delays, set sail with a fleet in April, 1526. The squadron was ill assorted, and a mutiny broke out; in consequence of which he diverted his course from the Moluccas to the mouth of the Rio de la Plata, up which he penetrated about three hundred and fifty leagues. He erected a fort at St. Salvador, and afterward sailing up the Parana, he built other two forts. He subsequently entered the Paraguay, where he was drawn into a sanguinary contest with the natives. From the report then made by him to Charles V., it is probable, had he been supplied with means and ammunition, he would have made the conquest of Peru, which Pizarro afterward accomplished with his own private resources. After tarrying in the hopes of receiving supplies, Cabot was forced to return to Spain, where he resumed his functions of pilot-major.

He finally settled in England, where he appears to have exercised a general supervision over the maritime concerns of the country, and enjoyed a pension of two hundred and fifty merks. It was then that he disclosed to Edward VI. his discovery of the phenomenon of the variation of the needle; a discovery for which alone his name deserves to be immortalized. It was also at his instigation that the important expedition was undertaken which resulted in the opening of the trade with Russia; and in the charter of the company of merchant adventurers he was nominated governor for life, as "the chiefest setter forth" of the enterprise. Cabot lived to a very advanced age, and died about 1557, probably in London; but neither the date of his death nor the place of his interment is properly authenticated. Sebastian Cabot may be justly regarded as one of the most illustrious navigators the world has ever seen, and the world owes him a debt of imperishable gratitude. "He ended," says the author of the memoir which has rescued so much of his life from obscurity, "he ended, as he had begun, his career in the service of his native country; infusing into her marine a spirit of lofty enterprise, a high moral tone, and a system of mild but inflexible discipline, of which the results were not long after so conspicuously displayed. Finally, he is seen to open new sources of commerce, of which the influence may be distinctly traced on her present greatness and prosperity."—E. B. *See Memoir of Sebastian Cabot, with a Review of the History of Maritime Discovery, illustrated by documents from the Rolls, now first published.* 8vo. London, 1831.

Cacao, or **Cocoa,** the substance prepared from the seeds of the *Theobronia cacao.* When the bruised seeds are flavored with the *Epidendrum vanilla,* mixed with a little sugar, they form the agreeable confection well known under the name of *chocolate.*

Cadiz, the principal commercial city and sea-port of Spain, on its southwestern coast, on the rocky and elevated extremity of a narrow, low peninsula, or tongue of land, projecting from the Isla de Leon, north-northwest about 4½ nautical miles. It is surrounded on all sides, except the south, where it joins the land, by the sea, and is very strongly fortified. Population in 1837, 58,525. It is well built, and has, at a distance, a very striking appearance. The tower or light-house of St. Sebastian stands on the western side of the city, being, according to Tofiño, in lat. 36° 31′ 7″ N., long. 6° 18′ 52″ W. It is a most conspicuous object to vessels approaching from the Atlantic. The light, which is 172 feet high, is of great brilliancy, revolves once a minute, and in fair weather may be seen more than six leagues off.

Bay of Cadiz.—The entrance to this noble basin lies between the city and the town and promontory of Rota, bearing northwest by north, distant about 1¾ league. The bay is of very great extent, affording, in most places, good anchorage. The port is on the eastern side of the city, where a mole of considerable dimensions has been constructed; but the water is not sufficiently deep to allow large vessels to approach nearer than within about three-quarters of a mile, where they anchor in from 5 to 7 fathoms. The rocks called the Cochinos, the Puercas, and the Diamante, lie to the north of the city, in the entrance to the bay; the first two at about three-fifths of a mile distant, and the Diamante at rather more than 1½ mile from the city. Vessels may enter between the Puercas and the Diamante; but none, except those not drawing more than 15 feet water, and well acquainted with the channel, ought to attempt entering between the Cochinos and Puercas and the city. The town of St. Mary's, on the opposite side of the bay, is famous for being the dépôt of the wines of Xeres. The outer bay, or that of Cadiz properly so called, is separated from the inner bay by the promontory having at its extremity the castle of Matagorda, which approaches within about three-quarters of a mile of the Puntales castle, on the Isla de Leon. Within the inner bay is the famous arsenal of the Carcacas, the town of San Carlos, the canal of Trocadero, etc. At spring-tides the water in the bay rises 10 or 11 feet, but at neaps the rise does not exceed 6 feet.—For further particulars see the excellent *Chart of the Bay of Cadiz, by* TOFINO; MALHAM'S *Naval Gazetteer;* and PURDY'S *Sailing Directions for the Bay of Biscay, etc.*

History, Trade, etc.—Cadiz is a very ancient city, having been founded by the Phœnicians about 1200 years before the Christian era. The temple which they erected in it in honor of Hercules was one of the most celebrated in antiquity.—*Sainte Croix, des Anciennes Colonies,* p. 14; *Pomp. Mela,* lib. iii. cap. 6. Its excellent port, and its situation, favorable alike for commerce and security, have made it, whether possessed by Carthaginians, Romans, Moors, or Christians, and under every vicissitude, a place of considerable commercial and political importance. It has long been one of the principal stations of the Spanish naval force. In 1720 the commerce with Spanish America, which had previously been exclusively carried on from Seville, was transferred to Cadiz. It enjoyed this valuable monopoly till 1765, when it was partially relaxed by the trade to Cuba, St. Domingo, Porto Rico, and the other islands, being opened to all the greater ports of Spain. The benefits resulting from this relaxation were so very great, that in 1778 the trade to all parts of America was opened to ships from every considerable Spanish port, except those of Biscay, which, not being subject to the general laws of the kingdom, were not allowed to participate in this privilege. In consequence, however, of her situation, the great capital of her merchants, and their established connections, Cadiz continued, notwithstanding the abolition of the monopoly, to preserve by far the largest share of the American trade. But since the colonies achieved their independence, her commerce has been contracted within comparatively narrow limits; nor is there much prospect of its being materially improved, without a total change of policy on the part of the Spanish government. Barcelona is at present the principal seat of Spanish commerce.—ROBERTSON'S *America,* b. viii. passim; TOWNSEND'S *Travels in Spain,* vol. ii. p. 395–401, 2d edition.

The white wines of Xeres in its vicinity form by far the principal article of export from Cadiz. The quantity exported may amount to about 30,000 pipes a year. The prices vary from £12 to £65 per pipe; but, as the lower qualities predominate, the price may be taken, at a medium, at about £25, making the total value of the exports £750,000. More than three-fourths of the whole goes to England. The other articles of export are quicksilver, brandy, oranges, and other fruits, oil, provisions, flour, salt, wool, etc. The imports consist principally of sugar and coffee from the Havana and Porto Rico, cocoa, hemp, flax, linens, dried fish, hides, cotton wool and cotton manufactures, rice, spices, indigo, staves and timber, etc.

STATEMENT OF THE NUMBER, TONNAGE, CREWS, AND VALUES OF THE CARGOES OF VESSELS, BELONGING TO VARIOUS NATIONS, WHICH ENTERED AND CLEARED AT THE PORT OF CADIZ IN 1845 AND 1846.

	Nations.	Entered.				Cleared.			
		Vessels.	Tons.	Crews.	Value of Cargoes.	Vessels.	Tons.	Crews.	Value of Cargoes.
1845.	British	297	49,576	2,857	£30,616	307	51,122	2,955	£847,247
	French	40	6,217	635	20,554	37	5,684	578	14,937
	American (U. S.)	53	7,541	631	12,071	56	8,213	657	15,676
	Swedish and Norwegian	64	13,090	668	7,634	68	14,370	721	13,620
	Prussian	46	15,231	683	20,280	52	17,121	774	6,910
	Spanish	234	42,708	3,416	471,631	161	36,125	2,890	223,217
	Total	734	134,763	8,390	£562,786	681	132,635	8,575	£1,121,807
1846.	British	257	39,833	2,334	£30,808	250	38,633	2,270	£707,840
	French	42	7,334	677	8,610	45	7,908	729	12,882
	American (U. S.)	53	20,688	729	35,719	48	19,236	678	14,397
	Swedish and Norwegian	55	11,280	581	11,485	46	9,194	479	7,117
	Prussian	54	15,479	747	44,104	49	13,271	650	5,500
	Spanish	217	45,881	3,146	506,670	152	36,524	2,214	225,680
	Total	678	140,495	8,214	£637,396	590	124,766	7,020	£975,416

The commercial greatness of Cadiz has long been on the wane. At one time it was the great focus of commercial intercourse between Spain and the Spanish colonies, and from 1720 to 1765 it enjoyed a monopoly of the traffic with Spanish America. Its prosperity began to decline when the trade of St. Domingo, Cuba, Porto Rico, and the other islands was opened up to the greater ports of Spain, and decayed almost entirely in the beginning of the present century, when the colonies achieved their independence. An attempt was made by the Spanish government in 1828 to restore its former greatness, by making it a free warehousing port; but this valuable privilege was withdrawn in 1832, and commerce relapsed into its former depressed condition. By far the greatest obstacle in the way of its future prosperity is the oppressive commercial restrictions imposed by government on all imports—a policy which throws three-fourths of the trade of Spain into the hands of contrabandistas. The principal manufactures of Cadiz are, soap, glass, coarse woolen, cotton, and silk stuffs, and hats. There are also some sugar refineries and tanneries. A considerable stimulus to industry is given by the *Sociedad economica de Amigos del pais*, which introduced the cochineal plant, and grants medals for improvements in manufactures. —E. B.

Caen, the capital of the arrondissement of the same name, in the department of Calvados, in France. It stands in an extensive valley, on the left bank of the Orne, at the influx of the Odon, 9 miles from the English Channel, and 122 west of Paris. Lat. 49° 11′ 12″ N., long. 0° 21′ 38″ W. The town is handsome and well built; the streets are generally wide, straight, and clean; and the houses, being built of freestone, have a very good appearance. Population (1851), 40,569; while that of the arrondissement amounted to 139,922. The commerce and manufactures of Caen are considerable. It exports corn, wine, brandy, fruit, cattle, stones, hardware, etc. Its manufactures consist chiefly of laces, caps, table-linen, cotton fabrics, earthen-ware, cutlery, etc.; it has also breweries, dye-works, and ship-building yards. Several large fairs are annually held here. At high water, vessels of 150 or 160 tons can come up to the town, and a canal to connect it with the sea is in course of construction, which will render it accessible to large vessels.—E. B.

Caffila, a kind of caravan or company of merchants. It differs, however, from a caravan, at least in Persia; for the caffila properly belongs to some sovereign, or to some powerful company in Europe; whereas a caravan is a company of particular merchants, each trading upon his own account. Caffilas also cross some parts of the deserts of Africa, particularly that of Sahara.—E. B.

Cagliari, the capital of Sardinia, on the northeast shore of a spacious bay on the south coast of the island, lat. 39° 12′ 13″ N., long. 9° 7′ 44″ E. Population in 1850, 30,000? The city stands on a rising ground, and has an imposing effect from the sea. The public buildings and churches are numerous, and some of them splendid; but the streets are, for the most part, narrow, steep, and filthy. The Gulf of Cagliari extends from Pula on the west, to Cape Carbonara on the east, a distance of about 24 miles across, and about 12 in depth, with good anchorage every where after getting into soundings. A mole projects from the Pratique office, and ships usually lie about 1 mile southwest by south from it, in 6 or 8 fathoms water, on an excellent bottom of mud. There is a very convenient pier harbor at the south angle of the tower wall, capable of containing 14 or 16 vessels of a tolerable size, besides small craft. Altogether, Cagliari is one of the best and safest ports in the Mediterranean.—*See* SARDINIA.

Cairo, the modern capital of Egypt, occupies the natural centre of the country, situate on the east bank of the Nile, 12 miles above the apex of its delta, 112 miles southeast of Alexandria, and 75 miles west from Suez. N. lat. 30° 2′ 4″; E. long. 31° 15′ 36″. It is built partly on the plain and partly on the lower slopes of the rocky range of Mokattem, on a spur of which stands the citadel, in a most advantageous position to command the town. Cairo occupies a site of about 7 miles in circumference, and is surrounded by a wall strongly built and fortified with lofty towers. The prospect from the ramparts of the citadel is one of great magnificence and beauty. The commerce of Cairo, although still depressed, is considerable. Being the rendezvous of one of the great caravans to Mecca, it is the central mart in which the slaves, gum, and gold dust of the interior, and the oils and flannels of the north of Africa, with the European merchandise from Alexandria, are exchanged for the coffee, perfumes, spices, and shawls of Arabia and India. As the residence of the learned and wealthy of Egypt, it affords a market for the agricultural produce of the surrounding districts; and in addition to the making of arms, already extensive, it contains manufactories of sal-ammoniac, saltpetre, coarse gunpowder, glass lamps, and linen cloths. From the central situation of Cairo, and its proximity to the hot sandy deserts, its temperature is much higher than near the coast; but the diseases which infest it, such as the plague, ophthalmia, and malignant fevers, seem to originate in its "stifled filth," and other local causes which advancing civilization will greatly remove, rather than in the unhealthiness of its situation. Population estimated at about 200,000, comprising about 121,000 Mohammedans, 60,000 Copts, 4000 Jews, and the rest Franks, Greeks, and Armenians.—E. B.

Cajeput Oil, the volatile oil obtained from the leaves of the cajeput-tree (*Melaleuca Leucadendron*, Linn.). The name is a corruption of the native term *cayu-puti*, that is, white-wood oil; because the bark of the tree which yields it has a whitish appearance, like our birch. This tree is common in Amboyna and other Eastern islands. The oil is obtained by distillation from the dried leaves of the smaller of two varieties. It is prepared in great quantities in Banda, and sent to Holland in copper flasks. It is of a green color, very limpid, lighter than water, of a strong smell resembling camphor, and a strong pungent taste. It burns entirely away without leaving any residuum. It is often adulterated with other essential oils, colored with resin of milfoil. In the genuine oil, the green color depends on the presence of copper; for, when rectified, it is colorless.—THOMSON'S *Dispensatory*.

Calabar Skin (Fr. *Petit-gris*; Ger. *Grauwerk*; It. *Vaor*, *Vajo*; Russ. *Bjelka*; Sp. *Gris pequeno*), the Siberian squirrel skin, of various colors, used in making muffs, tippets, and trimmings for clothes.

Calabash (Spanish *calabaza*), in *Commerce*, a kind of vessel formed of the dried shell of the *cucurbita*, or gourd plant. It is used for containing liquors or gums, as pitch, rosin, and the like.

Calamander Wood, a beautiful species of timber brought from Ceylon. It is so hard that common edge-tools can not work it, so that it must be rasped and almost ground into shape. It is singularly remarkable for the variety and admixture of colors. The most prevailing is a fine chocolate, now deepening almost into absolute black, now fading into a medium between fawn and cream colors. It arrests the eye from the rich beauty of the intermingled tints, not from any undue showiness. It takes a very high polish; and is wrought into chairs, and particularly into tables. Sir Robert Brownrigg, late governor of Ceylon, had the doors of the dining-room of his seat in Monmouthshire made of calamander. It is scarce in Ceylon, and is not regularly imported. In a few instances, it has been imported by private gentlemen, returning from the colony, for their own use. It is by far the most beautiful of all the fancy woods. The nearer it is taken from the root of the tree, the finer it is.—MILBURN'S *Orient. Com.*; *Library of Entertaining Knowledge*, Vegetable Substances, p. 179.

Calcedony. The distinction between this substance and agate rests upon very arbitrary grounds.

Agate frequently presents a variety of colors, and a multiplicity of beautiful delineations. Calcedony is generally of one uniform color, of a light brown, and sometimes nearly white. It occurs in irregular masses, forming grotesque cavities in the trap rocks, particularly in Iceland and the Faroe Isles, from the former of which there are specimens in the Museum of Edinburgh of a very large size. These stalactites appear always to have proceeded from the upper part of the cavity, which is sometimes filled to the very summit with solid matter. Calcedony is used for the construction of cups and plates, and other articles of taste, of which the most splendid specimens are imported from India. The labor which has been bestowed in the manufacture of these articles, and the perfection with which it has been accomplished, is a matter of surprise to all who examine them. There are some of them as thin and as delicate as china. The finest stones are of course selected for this purpose. They are generally clear and almost transparent, still maintaining the warm brown color which characterizes the stone. They often have the appearance of having been hammered, so shaded and undulated is the aspect of the mass; and to add to their beauty, the fine dendritic Mocha stones are often selected. We are in ignorance even of the locality where these beautiful objects are manufactured, whether in Japan or China; but they generally come from India, where, we believe, they are found among the most precious treasures in the repositories of the nabobs and princes of the East. —E. B.

Calcutta, the principal city of the province of Bengal, the capital of the British dominions in India, and, with the exception, perhaps, of Canton, the greatest emporium to the eastward of the Cape of Good Hope. Its citadel is in lat. 22° 34′ 49″ N., long. 88° 27′ 16″ E. It is about 100 miles from the sea, being situated on the eastern bank of the western branch of the Ganges, denominated by Europeans the Hooghly River, which is the only arm of the Ganges navigable to any considerable distance by large ships. At high water the river opposite to the town is about a mile in breadth; but during the ebb the side opposite to Calcutta exposes a long range of dry sand banks. Owing to the length and intricacy of the navigation from the sea, it can not be undertaken without a pilot; so that, even if it did not exceed our limits, it would be useless to attempt any description of it in this place.—See *Hooghly River.*

In 1717 Calcutta was only a petty village; but it subsequently increased very rapidly, and was supposed, toward the close of the last century, to have 600,000 or 700,000 inhabitants. This, however, was a gross exaggeration. A census of the population, taken in May, 1850, by order of the chief magistrate, gives the following results:

Europeans	6,233
Eurasians (the progeny of European fathers and native mothers)	4,615
Americans	892
Chinese	847
Armenians	15,342
Hindoos	274,335
Mohammedans	110,918
Total	413,182

The occupations of these various classes are nearly what might be expected in the luxurious capital of a great empire, and in so great an emporium of maritime commerce. Public officers, lawyers, physicians, merchants, and their families, make up the bulk of the British inhabitants. The natives and foreigners of respectability are mostly engaged in trade, or live upon their property; and the lower classes are principally composed of retail dealers, mechanics, and servants. A great part, however, of what may be fairly considered the population of Calcutta, consisting of laborers, mechanics, and persons engaged in trade, reside at night in the suburbs, or neighboring villages, coming into town early in the morning to their respective employments. These were estimated, in 1837, on tolerably good data, at 177,000. The small number of English resident in Calcutta (where, however, they are far more numerous than in any other part of India) may well excite surprise. It was supposed that the cessation of the East India Company's monopoly, and of the prohibition of European resort to India, would occasion an influx of British settlers and capital. But this anticipation has not been realized. Scarcely a single English agriculturist, with capital sufficient to cultivate 100 acres of land, has established himself in India, and there has been no immigration of artisans. And this, after all, is only what might have been expected—the country being too fully occupied, the burdens on the land too heavy, and the wages of labor far too low, to admit of any thing like an extensive immigration. The Eurasians, the progeny of white fathers and native mothers, are mostly employed as clerks in the government offices and mercantile establishments, and are said to be an industrious and useful class.—*Bengal and Agra Gazetteer.* The town, excluding suburbs, extends about 4½ miles along the bank of the river, with an average breadth inland of 1½ mile. Fort William, the citadel, lies on the same side of the river, a little lower down. It is a strong, regular fortification; but so extensive that it would require a garrison of 10,000 men for its effectual defense. Calcutta possesses great natural advantages for inland navigation, all sorts of foreign produce being transported with great facility on the Ganges and its subsidiary streams to the northwestern quarters of Hindostan, over a distance of at least 1000 miles, while the productions of the interior are received by the same easy channels.

The principal merchants and traders consist of British and other Europeans, Portuguese born in India, Armenians, Jews, Persians from the coast of the Persian Gulf, commonly called Parsees, Moguls, Mohammedans of Hindostan, and Hindoos; the latter usually either of the Brahminical or mercantile castes, and natives of Bengal. The native Portuguese and Armenian merchants have of late greatly declined in wealth and importance. On the other hand, the Persian merchants have increased in numbers and wealth, several of them being worth £250,000 sterling. The large fortunes of the Hindoo merchants have been much broken down of late years by litigation in the courts, and naturally through the law of equal coparcenary among brothers. To counterbalance this, there has been, since the opening of the free trade in 1814, a vast augmentation of the number of inferior merchants, worth from £20,000 to £50,000 sterling. There are but few Hindoo merchants at present whose wealth exceeds £200,000 sterling.

The British merchants form a most respectable class, and contribute essentially to the prosperity of the settlement. Many of them are possessed of large fortunes, and live in a style of suitable splendor. The Armenians are the most numerous body of foreign merchants in Calcutta. They trade extensively to all parts of the East, are uncommonly diligent and attentive to business, and are considered to have a more minute intelligence from foreign ports than any other body of merchants. The native bankers, agents, and money-dealers, are numerous. Though formerly timorous, the Hindoo now adventures in almost every species of mercantile speculations; and goods belonging to native merchants, to the amount of several millions sterling, are generally lying for sale in the warehouses of Calcutta. The native merchants of an inferior class engross nearly the whole of the retail trade of Calcutta, under the titles of Banians, Sircars, and other appellations. In the transactions of usury, these men are watchful and acute beyond even those engaged in similar pursuits in the West.

The English society in Calcutta is of the best description, and numerous fêtes are given during the cold season, which lasts from September to April, on a splendid scale, by the governor general and other public functionaries, as well as by private individuals. There is a theatre, chiefly supported by amateur performers; and public concerts are given, also supported by amateur talent. The usual mode of visiting is in palanquins, but many of the British have carriages adapted to the climate; and the breed of horses having been greatly improved, it is the universal practice to drive out between sunset and dinner. It is only during the cold season that it is possible to venture abroad in the heat of the day, which, in the rest of the year, is devoted to repose. The hot season begins in April. Every day the heat increases until the middle of June, when the periodical rains begin, which last till August. The weather then being extremely close, is more oppressive and more unhealthy than before. The mean temperature is about 66° in January, 69° in February, 80° in March, 85° in April and May, 83° in June, 81° in July, 82° in August and September, 79° in October, 74° in November, and 66° in December. The annual fall of rain during six years, commencing with 1830, averaged sixty-four inches.—E. B.

COMMERCIAL WEIGHTS AND MEASURES OF INDIA, WITH THEIR EQUIVALENTS IN ENGLISH AVOIRDUPOIS, BENGAL FACTORY, MADRAS, AND BOMBAY WEIGHTS.

Commercial Measures, etc.	Avoirdupois.			Bengal Factory.			Madras.			Bombay.		
	Lbs.	oz.	dr.	Mds.	S.	Ch.	Mds.	Vis.	Pol.	Mds.	S.	Pice.
Acheen bahar of 200 catties	423	6	13	5	26	13	16	7	19	15	4	27
Acheen guncha of 10 nelly	220	0	0	2	37	13·7	8	6	16	7	34	8·6
Anjengo candy of 20 maunds	560	0	0	7	20	0	22	3	8	20	0	0
Batavia pecul of 100 catties	135	10	0	1	32	10	5	3	16	4	33	22·4
Bencoolen bahar	560	0	0	7	20	0	22	3	8	20	0	0
Bengal factory maund	74	10	10·7	1	0	0	2	7	35·7	2	26	20
Bengal bazar maund	82	2	2·1	1	4	0	3	2	11·3	2	37	10
Bombay candy of 20 maunds	560	0	0	7	20	0	22	3	8	20	0	0
Bussorah maund of 76 vakias	90	4	0	1	8	5·6	3	4	35·2	3	8	27·9
Bussorah maund of 24 vakias	28	8	0	0	15	4·3	1	1	4·8	1	0	21·4
Calicut maund of 100 pools	30	0	0	0	16	1·1	1	1	24	1	2	25·7
China pecul of 100 catties	133	5	5·3	1	31	6	5	2	26	4	30	14·3
Cochin candy of 20 maunds	543	8	0	7	11	2·6	21	5	36·8	19	16	12·9
Gombroon bazar candy	7	8	0	0	4	0	0	2	16	0	10	21·4
Goa candy of 20 maunds	495	0	0	6	25	2·9	19	6	16	17	27	4·3
Jonkceylon bahar of 8 capins	485	5	5·3	6	20	0	19	3	12	17	13	10
Madras candy of 20 maunds	500	0	0	6	28	0	20	0	0	17	34	8·6
Malacca bahar of 3 peculs	405	0	0	5	16	15	16	1	24	14	18	17·1
Mocha bahar of 15 frazils	450	0	0	6	0	1	18	0	0	16	2	25·7
Muscat Custom-house maund	8	12	0	0	4	11	0	2	32	0	12	15
Mysore candy of 7 morahs	560	0	0	7	20	0	22	3	8	20	0	0
Pegu candy of 150 vis	500	0	0	6	28	0	20	0	0	17	34	8·6
Penang pecul of 100 catties	133	5	5·3	1	31	6	5	3	26	4	30	14·3
Surat maund of 40 seers	37	5	5·3	0	20	0	1	3	37·9	1	13	10
Surat Pucca maund	74	10	10·7	1	0	0	2	7	35·7	2	26	20
Tellicherry candy of 20 maunds	600	0	0	8	0	2	24	0	0	21	17	4·3

Calcutta is the great emporium of India. By means of the Ganges and its tributary streams, it has an uninterrupted water communication with the whole of the lower provinces of Bengal, and also with the fertile territory subject to the jurisdiction of the lieutenant governor of Agra. Being thus advantageously situated for commerce, it trades extensively with almost every country in the world, and numbers of vessels of every form and description are constantly arriving in or departing from the river, which, in the vicinity of the town, presents the busiest scene imaginable. Numerous dock-yards have also been established, in which are built vessels of great burden and of admirable construction. Indigo, sugar, cotton, rice, opium, silk, and saltpetre, are the staple commodities of export. Those of import are, British cotton goods, salt, copper, iron, and hardware.

The commerce of Calcutta has for a long period of years enjoyed the advantage of a bank, called the Bank of Bengal, established by government authority and carried on under government inspection. Various acts have at different periods been passed by the government of India for its regulation; the last bears date the 18th of March, 1839, and took effect from the 1st of May following. By this all previous charters and acts, except so far as continued by the new act, were canceled and repealed; the capital stock, previously fixed at 75 lacs of rupees, was increased by one half, the nature of the transactions in which the bank might engage was prescribed, and the conditions and limitations under which its business was to be conducted were laid down. The stock is divided into shares of 4000 rupees, or quarter shares of 1000 rupees each; and a portion is, and always has been, held by government.

Pilotage.—The navigation of the River Hooghly, from the Sand Heads to Calcutta, a distance of about 130 miles, is naturally dangerous and intricate; but rendered comparatively safe by a skillful and excellent, though costly, pilot establishment.

All foreign vessels pay the same pilotage as those under British colors. By broken pilotage is meant the proportion of full pilotage between the different stages or places of anchorage. All ships the property of foreigners, as well Asiatic as European, are subject to the charge termed "lead money;" it being indispensably necessary that the pilot should have with him a leadsman in whom he can confide.

Detention money, at the rate of 4*s.* per diem, from British and foreign vessels, is charged by persons of the pilot service kept on board ships at anchor by desire of the commander or owner.

In the river before Calcutta, and in other parts, there are chain moorings, of which the charges are as follow:

Burden of Ships.	April to October, 7 Months.	November to March, 5 Months.
500 tons and upward.	16*s.* per diem	12*s.* per diem
Under 500 tons......	14*s.* per diem	10*s.* per diem

Hire of the chain-moorings at Diamond Harbor, £1 per diem. The lowest charge to a ship requiring the accommodation of the chain moorings at either of the places above mentioned is for ten days; and using them longer, a further charge is made at the established rate per diem for every day exceeding ten. The charge for transporting a ship from her moorings into any of the docks at Kidderpore, Howrah, or Sulkea, or from any of the docks to her moorings, is fixed at 50 rupees; and no higher charge for such service is authorized. Besides pilotage, every ship is chargeable with the hire of a row-boat to accompany her; viz.: for a boat of the first class, 24*s.*; of the second class, 18*s.*; and of the third class, 14*s.* Of late years a light-house has been erected at Kedgeree, for which the charge on British or American flags is at the rate of 3*d.* per ton per annum. Ships proceeding to Calcutta must land their gunpowder at the powder magazine at Moyapore: the charge is at the rate of 1½*d.* per ton for each voyage. The whole pilot establishment, and the care of the navigation of the Hooghly, is under the management of government, and is directed by a marine board, with a master attendant and harbor-master.

The Marine Board at Calcutta have issued the following resolutions with respect to pilotage, etc.:

1. Commanders are requested, prior to quitting their vessels, on arrival off Calcutta, to fill up and certify, or cause to be filled up and certified, a form of certificate showing the actual registered tonnage, the draught of water, and whether the vessel has or has not been tugged by a steamer any part of the way, or has or has not had the use of a row-boat; which form will be furnished to the pilot, in order to the bills of the vessels being correctly made out. 2. Commanders are further requested, as early after their arrival as possible, to notify in writing to the master attendant the name and residence of the reference for the payment of his vessel's bills. On the receipt by the master attendant of the above certificate, and written reference for payment, a single bill will be prepared, including inward pilotage, light-house duty, Moyapore magazine duty, and row-boat hire (if any), which, together with the certificate, will be forwarded to the marine paymaster, for collection within fifteen days of the arrival of the vessel, and having on it the name and residence of the party referred to for payment, which commanders are requested to furnish to the master attendant, in writing, as early after their arrival as practicable, that officer will more readily be enabled to present it. By this arrangement, all the charges connected with the vessel, up to her arrival off Calcutta, will be embodied in one bill, instead of, as hitherto, being made up in separate bills. 4. In the event of vessels docking, or being transported at the desire of the commander, it is requested that a certificate may be given by the commanding officer of the operation having been performed, in order to its accompanying the bill when presented for payment to the referee. 5. The practice of charging for hauling to the chain-moorings, for their monthly hire, and for hauling from the moorings, in separate bills, is discontinued, and henceforward one bill will be prepared, including the charge for hauling to the moorings, that for occupying them, and that for hauling from them; and commanders are requested to give, or cause their commanding officers to give, to the master attendant, or the harbor-master, certificate of the date of hauling to and from the moorings, which certificate, as before, will accompany the bill when presented for payment. The hire of the moorings will be charged for the day on which the vessel is hauled thereto, without reference to the period of the day; and in like manner, no charge will be made for the day on which she hauls from her moorings, however late in the day she may quit them. The charges connected with the chain-moorings will thus be embodied in one bill, and be discharged in one payment, instead of three or more, according to the number of months the vessel occupied the moorings. 6. The system of charging outward pilotage on an estimated draught of water, with an addition of 10 per cent., subject to adjustment after the vessel has sailed, and of charging a certain number of days for a row-boat, subject to a like adjustment, is abolished; and in future the outward pilotage and charge for row-boat hire on outward-bound vessels will be as follows: When the vessel is finally laden, the commander is to give notice thereof to the master attendant, when the draught of water is to be ascertained and certified by the commander or commanding officer on the part of the vessel, and by the harbor-master on the part of the government; subject, in case of dispute, to the decision of the master attendant. On receipt of the certificate, the master attendant will cause a bill to be made out for the regular amount of pilotage, and for the row-boat hire, according to an average rate, with reference to the size of the vessels and the season of the year, fixed by a marine committee which lately sat at the Bankshall, the majority of which was composed of members of houses of agency and commanders of ships. The bill and certificate will be presented in due course for payment. 7. As, however, it frequently happens that vessels are taking in cargo or filling their water up to the last day of their departure, or that from other causes the bills for the chain-moorings and outward pilotage can not be made out till the eve of departure, owners, agents, and commanders are in such cases particularly requested, with a view to dispatch, to cause an individual to attend at the Bankshall, and expedite the transmission of the bill and certificate to the board for registry, and to the pay-office for collection; at each of which offices they may in such cases depend upon the most ready and special attention. 8. In the event of a vessel being tugged any part of the way down by steam, or not having the use of a row-boat, commanders are to obtain from the pilot of Kedgeree a certificate to that effect, which they should forward by the Dâk to their agents. On receipt thereof, agents are requested to make out a bill against the honorable company for the quarter deduction from the pilotage allowed if tugged by steam, or for the row-boat hire paid, as the case may be; and to forward it, together with the certificate, to the marine board for audit and payment. 9. In cases where a vessel leaves Calcutta avowedly intended to fill up cargo at some place below, the pilotage will be charged at the draught at which she leaves Calcutta, in like manner, though at the reduced amount, as if she had proceeded to sea; and, with respect to the subsequent pilotage charge, from the place at which the vessel takes in the additional cargo to sea, owners or agents of vessels will be required to furnish a special guarantee to pay the amount chargeable according to a certificate of the draught of water, to be signed by the commander, or commanding officer and pilot. 10. Six sets of moorings at Diamond Harbor having been fitted especially to enable vessels arriving in distress from loss of anchors and cables to be readily moored, the charge will be Co.'s Rs. 50 for mooring and unmooring, and the daily hire the same as for the moorings at Calcutta. The moorings will, of course, be available to vessels not in distress from loss of anchors and cables; but the harbor-master will be instructed at all times to keep two sets vacant during the southwest monsoon, to meet casualties.

There are several dry docks at Calcutta, in which vessels of any size may be built or repaired. Ships built at Calcutta are of inferior durability to those constructed at Bombay, in consequence of the frame-work being always of the inferior woods of the country; and the planks, sheathing, upper works, and decks, alone of teak; which last is furnished almost entirely from Pegu. In 1848, the number of registered ships belonging to the port of Calcutta was 134, of the burden of 43,569 tons; being at an average of about 330 tons for each. The largest class of vessels carry nearly 750 tons; but ships drawing so much water are unfit for the navigation of the Hooghly. Not being able to load at Calcutta, they are obliged to receive part of their cargo at Diamond Harbor, about thirty-four miles farther down the river. The most convenient-sized ship for trade between Calcutta, and Europe, and America, is from 400 to 500 tons.

Duties, etc.—The export and import duties and drawbacks are regulated by an ordinance of the year 1836, revised in 1845, and are the same for every port under the government of Bengal; or, as it is technically called, the Presidency of Fort William and British India generally.

The following is an act of the Indian government, which took effect from the 25th March, 1848, and which abolished all duties on goods carried coastwise in the company's territories.

I. It is hereby enacted, that from and after the 25th day of March, 1848, all goods imported on foreign bottoms by sea into any port of the Presidencies of Fort William, in Bengal, Fort St. George, or Bombay, shall be charged only with the same rates of duty as such goods would now by law be charged with if such goods were imported into any of the said ports on British bottoms, any thing in any act of the Council of India contained to the contrary notwithstanding.

II. And it is hereby enacted, that from and after the said day, all goods exported on foreign bottoms by sea, from any port of the said presidencies, shall be charged only with the same rates of duty as such goods would now by law be charged with if such goods were exported from any of the said ports on British bottoms, any thing in any act of the Council of India contained to the contrary notwithstanding.

III. And it is hereby enacted, that from and after the said day, no duty shall be charged on any goods lawfully carried from any port in the territories subject to the government of the East India Company, to any other port in the said territories, any thing in any act of the Council of India contained to the contrary notwithstanding.

IV. Provided always, that nothing in this Act contained shall apply to the articles of salt or opium.

Schedule A.—Rates of duty to be charged on goods imported by sea into any port of the Presidencies of Fort William, in Bengal, Bombay, or Fort St. George.

Bullion and coin	Free.
Precious stones and pearls	Free.
Grain and pulse	Free.
Horses and other living animals	Free.
Ice	Free.
Coal, coke, bricks, chalk, and stones	Free.
Books printed in the United Kingdom, or in any British possession	Free.

Foreign books	3 per cent.
Marine stores, the produce or manufacture of the United Kingdom, or of any British possession	5 per cent.
Marine stores, the produce or manufacture of any other place or country	10 per cent.
Metals, wrought or unwrought, the produce or manufacture of the United Kingdom, or any British possession	5 per cent.
Metals, wrought or unwrought, the production or manufacture of any other place	10 per cent.
Woolens, the produce or manufacture of the United Kingdom, or any British possession	5 per cent.
Woolens, the produce of any other place or country	10 per cent.
Cotton and silk piece goods, and all manufactures of cotton or silk, except thread, twist, and yarn, or of cotton, or silk mixed with any other material, the produce of the United Kingdom, or of any British possession	5 per cent.
Ditto, the produce of other places	10 per cent.
Opium	24 rss. per seer of 80 tolas.
Porter, ale, beer, cider, and other fermented liquors	5 per cent.
Salt	Rs. 3-4 per md. of 80 tolas per seer.
Alum	10 per cent.
Camphor	10 per cent.
Cassia	10 per cent.
Cloves	10 per cent.
Coffee	7½ per cent.
Coral	10 per cent.
Nutmegs and mace	10 per cent.
Pepper	10 per cent.
Ratans	7½ per cent.
Tea	10 per cent.
Vermilion	10 per cent.
Wines and liquors	1 rup. per imp. gal.
Spirits	1 rup. 8 annas, per imp. gal.

And the duty on spirits shall be ratably increased as the strength exceeds London proof, and when imported in bottles, five quart bottles shall be deemed equal to the imperial gallon.

All manufactured articles not included in the above enumeration	5 per cent.
All other articles not included in the above enumeration	3½ per cent.

And when the duty is declared to be *ad valorem*, it shall be levied on the market value without deduction; and if the collector of customs shall see reason to doubt whether the goods come from the country from which they are declared to come by the importer, it shall be lawful for the collector of customs to call on the importer to furnish evidence as to the place of manufacture or production, and if such evidence shall not satisfy the said collector of the truth of the declaration, the goods shall be charged with the highest rates of duty, subject always to an appeal to the Board of Customs, salt and opium.

And upon the re-export by sea of goods imported, excepting opium and salt, provided the re-export be made within two years of the date of import as per custom-house register, and the goods be identified to the satisfaction of the collector of customs, there shall be retained one-eighth of the amount of duty levied, and the remainder shall be repaid as drawback. And if goods be re-exported in the same ship without being landed (always excepting opium and salt, in regard to which the special rules in force shall continue to apply), there shall be no import duty levied thereon.

Schedule B.—Rates of duty to be charged upon goods exported by sea from any port or place in the Presidency of Fort William, in Bengal.

Bullion and coin	Free.
Precious stones and pearls	Free.
Books printed in India	Free.
Horses and living animals	Free.
Opium purchased at government sales in Calcutta	Free.
Cotton wool exported to Europe, the United States of America, or any British possession in America	Free.
Cotton wool exported to places other than the above	As. 8 per md. of 80 tolas to the seer.
Sugar and rum exported to the United Kingdom, or to any British possession.	Free.
Sugar and rum exported to any other place	3 per cent.
Grain and pulse of all sorts	1 anna per bag.
Indigo	Rs. 3 per md. of 80 tolas to the seer.
Lac-dye and shellac	4 per cent.
Silk raw, filature	3½ as. per seer of 80 tolas.
Silk, Bengal, wound	3 as. per seer of 80 tolas.
Tobacco	4 as. per maund.
All country articles not enumerated or named above	3 per cent.

When the duty is declared to be *ad valorem*, the same shall be levied on the market value of the article at the place of export, without deduction. Since the 1st of April, 1837, credit has not been given, nor drawback allowed, of any inland customs or land-frontier duty paid at any custom-house or chokee of the Jumna frontier line, or of Benares, except only upon the article of cotton wool, covered by rowanas taken out at the custom-house of the western provinces, and proved to have been destined for export by sea when passed out of those provinces.

The policy of charging duties on exported articles seems very questionable. The great difficulty under which India labors, in a commercial point of view, consists principally in her inability to furnish equivalents for foreign imported goods, and to make the necessary payments abroad; and, when such is the case, it is certainly not a little contradictory to lay duties on exports. The most obvious considerations of expediency and common sense would suggest that they should be allowed to be exported duty free. There can be no doubt that the stimulus this would give to their production would, by increasing the public wealth, infinitely more than compensate the government for the loss of the inconsiderable sum produced by the duties with which they are charged.

Trade of Calcutta. Exports.—During the last forty years the trade of Calcutta has experienced some very striking vicissitudes. Previously to the opening of the trade in 1814–'15, cotton piece goods formed the principal article of export from India; the value of those exported from Calcutta, at an average of the five years from 1814–'15 to 1818–'19, being (at 2*s.* per sicca rupee) £1,260,736 a year. The extreme cheapness of labor in India, and the excellence to which the natives had long attained in several departments of the manufacture, would, it might have been supposed, have sufficed to place this important department beyond the reach of foreign competition. But the wonderful genius and the admirable skill of the European machinists, and their immense capital, have far more than countervailed the apparently insuperable drawback of high wages, and the expense of bringing the raw material of the manufacture from America, and even India itself; and have enabled English manufacturers to bear down all opposition, and to triumph over the cheaper labor, contiguous material, and traditional art of the Hindoos. The imports of British cottons and twist into India have increased since 1814–'15 with a rapidity unexampled in the annals of commerce, and the native manufacture has sustained a shock from which it is not very likely it will ever recover. The influence of these circumstances on the trade in piece goods has been very striking. During the year 1851–'52, the value of those exported from Bengal was no more than £62,352, being only about one-twentieth part of what it amounted to twenty-six or twenty-eight years previously.

It does not, however, appear to be very difficult to account for these variations. Formerly the export of bullion to India, though influenced by other causes, was mainly occasioned by the difficulty under which merchants were placed of providing articles of merchandise suitable for the Indian markets sufficient to balance the imports. The astonishing increase of British exports of cotton goods and yarn to India has, however, gone far to obviate this difficulty; in truth, the fair presumption seems to be, that in future the circumstances of the case will be reversed, and that the difficulty of procuring return cargoes of produce suitable for a market will, in ordinary years, be found to be the principal obstacle to the extension of the trade with Hindostan as well as with China. There seems to be no limit other than the necessity of furnishing equivalents in their stead, to the indefinite sale of our products in the East; and in so far, at least, as India is concerned, the facilities for furnishing such equivalents will, most likely, be gradually increased. The soil and climate of Bengal seem to be peculiarly well suited to the production of grain, sugar, indigo, opium, silk, cotton, saltpetre, and a host of other articles. And as the inhabitants are not deficient in industry, nor in the desire to improve their condition, it would seem that there wants only a reduction of the land-tax, which is so heavy as to paralyze all their energies, to enable them to increase their articles of export to an indefinite extent, and to render their country comparatively flourishing and prosperous.

In the year 1853, the great articles of export from Calcutta were opium, indigo, sugar, raw silk and silk piece goods, saltpetre, rice, hides, cotton and cotton piece goods, gunny bags and gunny cloth, rum, etc. We subjoin

An Account of the Quantities and Values of the Native Produce and Treasure exported from Calcutta during the Official Year 1851–'52.

Merchandise.		1851–'52.	
		Quantity.	Value.
			Rupees.
Opium	Chests.	32,906	3,13,77,814
Indigo	Indian mds.	1,77,004¾	1,82,16,536
Sugar	"	16,16,826	1,51,38,513
Saltpetre	"	7,09,500¼	41,09,903
Rice	"	30,91,562	35,38,136
Paddy	"	1,494	879
Wheat	"	2,87,253	3,23,516
Gram	"	1,01,540	1,05,594
Dholl and peas	"	86,630	93,272
Oats	"	40,614¾	44,158
Barley	"	250	250
Bran	"	1,170	877
Raw cotton	"	4,95,890	49,58,758
Raw silk	"	20,858½	77,85,384
Cotton piece goods (country)	Pieces.	46,962	62,352
Silk piece goods	"	5,60,127	27,47,653
Mixed piece goods	"	1,26,819	2,73,486
Country woolens	"	8,603	76,720
Arrow-root	Indian mds.	79¾	2,118
Borax and tincal	"	12,767¾	1,32,794
Castor oil	"	50,085¼	5,00,853
Canvas	Bolts.	1,520	9,707
Cigars	Indian mds.	....	40,057
Elephants' teeth	"	3¾	494
Ghee	"	1,008¾	14,123
Ginger	"	32,678	1,15,690
Gunny bags	Nos.	1,44,56,498	16,53,845
Gunny cloth	Pieces.	4,34,349	17,36,424
Hemp twine	Indian mds.	11,854¼	1,04,779
Hemp	"	8,316½	10,632
Hides of sorts	Nos.	38,62,554	27,62,171
Horn tips	Indian mds.	4,397¼	29,567
Jute	"	7,28,707	18,10,303
Lac Dye	"	32,881½	6,60,707
Lac { Shell	"	43,140	3,87,084
Seed	"	634¼	2,537
Stick	"	539¾	2,289
Linseed	"	14,26,821¼	82,53,661
Molasses	"	9,060½	6,513
Munjeet	"	594¼	1,786
Mustard seed	"	5,48,391	10,96,776
Mustard oil	"	8,327	62,969
Putchuck	"	8,405¾	59,135
Provisions and lard	"	....	1,62,093
Rum (Bengal)	Gallons.	3,83,766½	1,19,927
Safflower	Indian mds.	23,123¼	6,90,203
Sal ammoniac	"	236½	3,243
Soap	"	2,421	14,610
Tallow	"	9,364	91,489
Teel seed	"	60,095½	1,20,191
Teel-seed oil	"	256	1,792
Tobacco leaf	"	13,802	47,720
Turmeric	"	59,583½	1,53,371
All other exports	"	....	6,44,727
Total exports—Company's rupees			10,49,66,541
Goods re-exported			34,97,356
Treasure exported			19,45,809
Total private exports			11,04,09,706
Specie exported by E. I. Company			6,82,000

The export trade of Calcutta would be much increased if facilities were created for internal commerce, especially in building railroads and improving the water communications with the interior. Something has been done in the way of building good turnpike roads and in locating railroads, and farther improvements may be anticipated. The present mode of communication between Howra, on the opposite bank of the river, and the metropolis, is by ferry; but Howra has been selected as the locality for the terminus of the East India railway; and upon the opening of the first section, which is now complete, greater facilities will be required, as well of access from Howra, as of egress from the city in the same direction.

Opium.—The trade in opium has rapidly grown in magnitude and importance. At an average of the years 1830–'31 and 1831–'32, the exports from Calcutta were 7273 chests, worth £1,121,560; whereas during the year 1851–'52 the exports had increased to 32,306 chests, worth £3,137,781. China is not the principal merely, but almost the only market for opium, so that the trade between Calcutta and her is now second only to that between the former and England. It is true that large quantities of opium are shipped for Singapore and other intermediate ports, but China is its ultimate destination. Subjoined is a statement of the quantity and value of the opium shipped from Calcutta in 1840–'41 and 1851–'52.

Chests, to	1840–'41.		1851–'52.	
	Quantity.	Value.	Quantity.	Value.
		Rupees.		Rupees.
China	5,852	39,47,745	27,921	2,71,34,689
Singapore	10,822	70,05,633	3,916	37,95,980
Penang	546	3,54,340	398	3,77,040
Batavia	55	32,075	50	50.350
Pegu	79	49,130	21	19,755
Elsewhere	2	1,390	..	....
Total	17,356	1,13,90,313	32,306	3,13,77,814

Previously to the year 1815, the exports of indigo from Calcutta were comparatively trifling. But about that period Europeans began to engage in the business; and the culture of the plant was, in consequence, so much extended, and the preparation of the drug so much improved, that it has been for a lengthened period an article of primary commercial importance. Of late years, however, the growth of indigo appears to have been nearly stationary, the shipments in 1830–'31 and 1831–'32 being about equal to those in 1840–'41 and 1851–'52. This stationary state of the trade has been ascribed partly to the influence of the importations from Java, where indigo is now very extensively raised, and partly to the alleged decrease in the use of blue cloth. France is, next to England, the great market for indigo.

Statement of the Quantity and Value of the Indigo shipped from Calcutta in 1840–'41, and 1851–'52.

Countries.	1840–'41.		1851–'52.	
	Quantity.	Value.	Quantity.	Value.
	Fact'y Mds.	Rupees.	Indian Mds.	Rupees.
Great Britain	84,205	1,65,31,074	80,679¼	1,27,18,127
France	20,260¼	40,86,266	24,791¾	39.68,162
North America	4,822¾	9,45,368	3,751½	5,97,297
Arabia, etc.	5,053¾	9,64,414	5,887⅛	6,31,194
Bombay	637	1,27,499	207¼	22,795
Bremen	206¼	41,256		
Elsewhere	78¾	15,775	1,687½	2,78,961
Total	1,15,263¾	2,27,11,602	1,17,004¾	1,82,16,536
Being in lbs.	8,601,557⅛		9,633,371	

In 1835, the British duty on East India sugar, which had previously been comparatively high, was reduced to the same amount as that on West India sugar; and that circumstance, and the continued high price of sugar, did not fail to give a powerful stimulus to its culture in and exportation from India. On the whole, however, great as was the increase in the exports of sugar between 1830 and 1840, it has since receded. And now that the sugar trade is placed on a proper footing by the abolition in Great Britain of the discriminating duties on foreign sugars, the importations from India will, perhaps, be still farther reduced. Subjoined is a statement of the quantity and value of the sugar shipped from Calcutta in 1840–'41 and 1851–'52.

Countries.	1840–'41. Quantity.	1840–'41. Value.	1851–'52. Quantity.	1851–'52. Value.
	Indian Maunds.	Rupees.	Indian Maunds.	Rupees.
Great Britain	17,17,290	1,59,90,863	15,06,447¾	1,42,50,593
Bombay	48,131	3,40,565	80,513¾	6,17,866
Arabian and Persian Gulfs	6,671¼	57,170	2,999¼	24,957
Madras	251	2,063	200½	1,600
Ceylon	1,234½	9,558	6,434¾	53,714
Pegu	240½	1,864	954¾	7,417
Maldives	....	....	671¼	6,256
New Holland	8,936½	55,978	10,413	99,221
Cape of Good Hope	2,036¼	10,837	575¼	5,758
Elsewhere	....	....	7,616	71,131
Total	17,81,791¾	1,64,68,898	16,16,824	1,51,38,515
Being in pounds	146,575,981$\frac{13}{32}$	....	133,118,674	

The exports of cotton from Calcutta continue stationary; the expectations that it would be improved in its quality by greater attention being given to its culture and preparation have not been realized. The exports of saltpetre from India have not, as many anticipated, been affected by the competition of nitrate of soda from South America. In 1830–'31, the exports from Calcutta were 424,729 factory maunds, whereas in 1851–'52 they amounted to 709,500 Indian maunds. The exports of rice from Bengal fluctuate very greatly. This is not caused so much by variations in the crops of the country as by variations in those of other countries; for when a scarcity occurs in most parts of continental Asia, or in any of its islands, recourse is almost invariably had to Bengal to supply the deficiency; and the demands thence arising have been sometimes enormous. In 1831–'32, for example, the exports of rice from Calcutta to the coast of Coromandel amounted to only 16,545 maunds, whereas in 1833–'34 they amounted to 1,252,056 maunds.—Bell's *Comparative View of* 1832–'33 and 1833–'34, p. 41. It is worthy of remark, that while Bengal is shipping immense supplies of rice and other grain to distant parts, a large part of her own population is frequently in a state of great want and suffering. Ireland is not, therefore, the only country in which the most abject poverty and wretchedness on the part of the inhabitants are found combined with great fertility of soil and a large exportation of food. Besides the articles of native Indian produce exported from Calcutta, she re-exports pretty considerable quantities of various articles brought from other parts. The value of the British cotton goods re-exported amounts to about £200,000 a year. They are principally bartered with the Burmese for silver. The conveyance of the latter out of the Burmese dominions is strictly prohibited; but in Burma, as in England and elsewhere, the ingenuity of the smuggler is too much for the vigilance of the government, and the trade is carried on without much difficulty. The great articles of import into Calcutta are, cotton manufactures and cotton twist; bullion; copper, with spelter, tin, lead, iron, and other metals; woolens; wines and spirits; ale and beer; haberdashery, millinery, etc.; coffee; hardware and cutlery; spices; coal; coral, glass, and bottles; plate, jewelry, watches, etc.; books and stationery; tea, etc.

Statement of the Quantity and Value of the principal Articles of Merchandise imported into Calcutta during the Years 1851–'52.

Merchandise.		1851–'52. Quantity.	1851–'52. Value.
			Rupees.
Alum	Indian maunds.	14,266	28,532
Beads and false pearls	—	....	2,28,938
Books and pamphlets	—	....	2,85,148
Cloves	—	3,238	78,052
Coffee	—	10,591¼	1,33,760
Coals	—	7,57,794	3,82,242
Coral	Sa. wt.	3,06,293¼	1,82,164
Cocoanut shells, etc.	—	....	3,78,441
Glass-ware, etc.	—	....	2,83,774
Haberdashery, millinery, and apparel	—	....	13,94,440
Hardware and cutlery	—	....	5,08,077
Metals. Copper, Slab and tile	Indian maunds.	62,820¾	21,49,482
Metals. Copper, Sheet and nail	—	25,444¾	8,77,368
Metals. Copper, Old	—	2,315	78,190
Metals. Spelter	—	56,671¼	4,05,595
Metals. Tin-block	—	24,480¼	5,87,600
Metals. Iron	—	4,42,383¾	13,78,646
Metals. Steel	—	4,837	37,977
Metals. Ironmongery, machinery, and anchors	—	....	14,18,984
Pepper, black	—	62,347¾	4,08,149
Piece goods. White cotton	Pieces. Yards. Dozens.	86,89,755 30,35,451¼ 7,364¾	2,54,96,167
Piece goods. Colored cotton	Pieces. Yards. Dozens.	11,58,792 35,123 80,395½	55,43,032
Piece goods. Silk and mixed	Pieces. Metres. Yards.	13,306 3,60,622½ 305¼	5,79,198
Salt (duty paid)	Indian maunds.	31,74,370	31,74,370
Sugars and cheroots	—	....	1,62,718
Stationery and cards	—	....	4,50,477
Ale and porter	—	....	6,72,904
Twist and yarn	Lbs.	1,76,85,355	97,08,846
Wines	—	....	11,34,082
Woolens	—	....	13,27,383
All other articles	—	....	80,45,314
Total merchandise by private traders		....	6,75,14,750
Treasure by private traders		....	*2,49,63,184
Private trade, grand total		....	9,24,77,934

* In addition to this, the registered amount of specie imported by the Honorable Company is as follows:
1850–'51 = Company's vessels = 37,47,130 | 1851–'52 = Company's vessels = 1,24,653.

ABSTRACT VIEW OF THE EXTERNAL COMMERCE OF BENGAL.

Countries or States.	Imports.			Exports.		
	1851–'52.			1851–'52.		
	Merchandise.	Treasure.	Total.	Merchandise.	Treasure.	Total.
Great Britain	5,59,79,282	91,74,544	6,51,53,826	4,78,20,145	78,053	4,78,98,188
France	9,38,031	4,25,850	13,63,881	48,07,431	....	48,07,431
North America	9,99,653	2,22,090	12,21,743	76,84,224	....	76,84,224
Madras Coast	9,24,338	18,08,553	27,32,891	12,52,690	1,47,924	14,00,614
Ceylon	30,681	1,30,225	1,60,906	1,50,240	57,100	2,07,340
Maldives and Laccadives	1,36,292	....	1,36,292	60,632	....	60,632
Malabar coast	17,75,800	3,47,380	21,23,180	29,71,501	....	29,71,501
Arabian and Persian Gulfs	7,29,205	1,80,722	9,09,927	12,51,597	....	12,51,597
Singapore	14,69,431	16,25,031	30,94,462	44,04,137	540	44,04,677
Penang and Malacca	6,12,629	1,34,631	7,47,260	5,44,759	7,148	5,51,907
China	16,00,846	89,12,398	1,05,13,244	3,22,17,277	....	3,22,17,277
New Holland	12,66,255	16,452	12,82,707	3,16,544	....	3,16,544
Java and Sumatra	37.152	2,497	39,649	68,971	....	68,971
Pegu	5,34,963	3,51,063	8,86,026	14,43,883	15,96,174	30,40,057
Mauritius	22,323	8,61,993	8,84,316	15,95,297	56,370	16,51,667
Bourbon	20,058	7,33,905	7,53,963	6,06,865	....	6,06,865
Cape and St. Helena	35,675	35,850	71,525	2,68,585	2,500	2,71,085
Hamburg	1,49,014	....	1,49,014	2,27,950	....	2,27,950
Cadiz	1,18,996	....	1,18,996	....	....	....
Amsterdam	1,568	....	1,568	....	....	....
Trieste	....	....	....	83,063	...	83,063
Genoa	35,956	....	35,956	4,21,838	....	4,21,838
Other places	96,602	....	96,602	2,66,278	....	2,66,278
Total, Company's rupees	6,75,14,750	2,49,63,184	9,24,77,934	10,84,63,897	19,45,809	11,04,09,706

STATEMENT EXHIBITING THE PROPORTION OF THE EXTERNAL COMMERCE OF BENGAL ENJOYED BY EACH COUNTRY AND STATE DURING THE YEARS 1850–'51 AND 1851–'52.

Countries.	Import Trade.				Export Trade.			
	1850–'51.		1851–'52.		1850–'51.		1851–'52.	
	Value.	Per Cent.	Value.	Per Cent.	Value.	Per Cent.	Value.	Per Cent.
Europe.	Rupees.		Rupees.		Rupees.		Rupees.	
United Kingdom	4,91,12,788	69·6	6,51,53,826	70·5	4,93,74,209	46·0	4,78,98,188	43.4
France	16,80,031	2·4	13,63,881	1·5	46 88,252	4·4	48,07,431	4·3
Hamburg	5,53,938	0·8	1,49,014	0·2	1,85,413	0·2	2,27,950	0·2
Altona	....	..	....	..	13,005	..	....	..
Cadiz	1,36,760	0·2	1,18,996	0·1	....	..	....	..
Guam	....	..	....	..	20,450	..	....	..
Trieste	....	..	....	..	1,59,200	0·2	83,063	0·1
Gibraltar	....	..	....	..	20,732	..	....	..
Lisbon	....	..	37,436	..	....	..	....	..
Amsterdam	55,856	0·1	1,568	..	....	..	....	..
Rotterdam	....	..	....	..	66,362	0·1	76,573	0·1
Antwerp	....	..	....	..	....		84,559	0·1
Genoa	1,17,891	0·2	35,956	..	56,031	0·1	4,21,838	0·4
	5,16,57,264	73·3	6,68,60,677	72·3	5,45,83,654	51·0	5,35,99,602	48·6
Asia.								
Coromandel Coast	17,72,347	2·5	27,32,891	2·9	15,18,022	1·4	14,00,614	1·3
Ceylon	57,404	0·1	1,60,906	0·2	10,77,085	1·0	2,07,340	0·2
Malabar Coast	18,90,015	2·7	21,23,180	2·3	39,23,987	3·7	29,71,501	2·6
Maldives and Laccadives	1,57,479	0·2	1,36,292	0·2	79,450	0·1	60,632	0·1
Arabian and Persian Gulfs	11,65,759	1·7	9,09,927	1·0	13,77,938	1·3	12,51,597	1·1
China	60,82,351	8·6	1,05,13,244	11·4	3,04,52,909	28·4	3,22,17,277	29·2
Singapore	34,77,786	4·9	30,94,462	3·3	38,47,231	3·6	44,04,677	4·0
Penang and Malacca	6,46,024	0·9	7,47,260	0·8	4,88,250	0·4	5,51,907	0·5
Java and Sumatra	43,748	0·1	39,649	..	1,60,784	0·2	68,971	0·1
New Holland	8,35,164	1·1	12,82,707	1·4	1,42,403	0·1	3,16,544	0·3
Pegu	6,72,341	1·0	8,86,026	1·0	22,66,211	2·1	30,40,057	2·7
New Zealand	....	..	1,021	..	....	..	....	..
Sandwich Islands	1,856	..	....	..	....	..	....	..
Manilla	20,644	..	23,150	..	....	..	....	..
	1,68,22,918	23·8	2,26,50,721	24·5	4,53,34,270	42·3	4,64,91,117	42·1
Africa.								
Mauritius	6,70,563	1·0	8,84,316	1·0	12,83,791	1·2	16,51,667	1·5
Bourbon	4,50,455	0·6	7,53,963	0·8	4,67,994	0·4	6,06,865	0·6
Cape and St. Helena	70,441	0·1	71,525	0·1	1,45,217	0·1	2,74,085	0·2
Cape Verd Islands	29,098	..	32,200	..	....	..	....	..
	12,20,557	1·7	17,42,004	1·9	18,97,032	1·7	25,29,617	2·3
America.								
North America	8,32,171	1·2	12,21,743	1·3	53,98,552	5·0	76,84,224	6·9
South America	....	..	2,789	..	43,280	..	71,643	0·1
Trinidad	....	..	....	..	24,107	..	33,503	..
	8,32,171	1·2	12,24,532	1·3	54,65,939	5·0	77,89,370	7·0
	7,05,32,910	100	9,24,77,934	100	10,72,80,895	100	11,04,09,706	100

EXPORTS OF WHEAT FROM CALCUTTA. IN INDIAN MAUNDS.

Places.	1852–'53.	1853–'54.	1854–'55.	May 1, 1855, to January 31, 1856.
Mauritius	75,866	64,620	116,060	78,940
Bourbon	45,300	56,600	60,800	65,800
Ceylon	440	1,400	2,310	100
Madras Coast	23,050	35,950	113,196	8,568
Singapore	37,828	47,149	38,976	33,491
Penang	16,212	15,026	15,824	9,248
Batavia	....	6,900	8,430	16,274
Pegu	10,064	8,702	62,122	4,262
The Cape	2,046	2,000	8,764	3,730
New Holland and Australian ports	48,683	4,667	9,184	56.228
Great Britain	....	9,060	26,012	473,321
North America	....	....	....	2,930
Other ports	....	420	400	81,286
Total	259,489	252,314	426.078	934,178

ACCOUNT OF THE NUMBER OF SHIPS AND THEIR TONNAGE WHICH ENTERED CALCUTTA IN 1851–'52, DISTINGUISHING THOSE WHICH BROUGHT BRITISH IMPORTS FROM THOSE WHICH BROUGHT FOREIGN IMPORTS, AND THE PLACES WHENCE THEY CAME.

Countries.	British Imports.	
	Vessels.	Tonnage.
United Kingdom	270	164,795
Foreign Europe	1	659
Bombay and Malabar Coast	34	20,221
Madras and Coromandel Coast	69	10,697
Madras and Suez	13	13,629
Rangoon, Akyab, and Moulmein	56	20,048
China and Singapore	62	24,574
Singapore, Malacca, and Penang	30	9,462
Mauritius	35	18,754
Muscat, Judda, and Aleppee	20	10,445
Cape	8	2,125
Ceylon, Maldives, and Laccadives	20	1,915
Australia	22	11,146
Sumatra	4	1,241
British vessels from North America	1	535
British vessels from West Indies	4	2,350
Total British imports	649	312,596

Countries.	Foreign Imports.	
	Vessels.	Tonnage.
Foreign Europe	33	11.620
North America (United States)	120	69,415
Madras and Coromandel Coast	3	997
China and Singapore	3	950
Bourbon	38	11,156
Cape	1	256
Muscat, Judda, and Aleppee	11	5,215
Penang, Malacca, and Singapore	1	302
Mauritius	6	1,969
Bombay and Malabar Coast	1	385
United Kingdom	18	9,557
Australia	1	398
Aden	1	737
Total foreign imports	237	112.957
Add total British imports	649	312.596
Total British and foreign imports	886	425,553

Total customs duty collected at Calcutta in 1851–'52, £1,169,685. We are indebted for these details to Wilkinson's excellent *Account of the Commerce of Bengal* in 1850–'51 and 1851–'52.

The number of vessels which arrived at Calcutta during the year 1854, and their aggregate tonnage, were as follows:

British ships	441
French ships	103
American ships	96
Arabian ships	17
Dutch ships	8
Hamburg ships	6
Swedish ships	6
Sardinian ships	3
Belgian ships	2
Danish ships	2
Prussian ships	1
	685
Aggregate tonnage about	430,000 tons.

This gives an increase of vessels over that of the previous year of 49, and of tonnage of 49,281 tons.—*Bengal Harkaru*, March 21, 1855.

Failures at Calcutta.—During the three years ending with 1833 some of the principal mercantile establishments in this city failed for immense sums. To examine minutely into the origin of these disasters would lead us into inquiries foreign to the object of this work, and with respect to which it would be difficult to get accurate information. We believe, however, that the main source of the evil was the combination, by most of the principal houses, of the business of merchants with that of bankers. Their credit being high, at the end of the war large sums were deposited in their hands, for which they engaged to pay a high rate of interest. But instead of employing these deposits, as bankers in England would have done, in the discount of bills at short dates, or in the purchase of government securities readily convertible into money, they employed them, probably because they could with difficulty dispose of them otherwise, in all manner of mercantile speculations; advancing very large sums to the indigo planters, exporting goods to Europe, either directly on their own account, or indirectly by lending to those who did, becoming owners of Indian shipping, etc. Most of those speculations turned out exceedingly ill. The production of indigo was so much increased, partly in consequence of the large capitals turned to the business, and partly of the high prices in England, that "fine blue violet," which had brought in the London market, at an average of the three years ending with 1827, from 12*s.* 10*d.* to 13*s.* 4*d.* per lb., fell, at an average of the three years ending with 1832, to from 5*s.* 8*d.* to 6*s.* 4*d.* per lb., and other sorts in proportion. At these prices the production would not pay; and very heavy losses were sustained and much capital sunk by the planters and those who had supplied them with funds to extend their undertakings. The investments in Indian shipping turned out even worse than those in the indigo plantations, the shipping of England having nearly driven that of India out of the field. The embarrassment occasioned by this locking up of their capital, and by the ruinous nature of the adventures in which they were embarked, began to manifest itself simultaneously with the scarcity of money occasioned by the drains on account of the Burmese war. The great mercantile houses began then to find that they were entangled in difficulties from which they were wholly unable to extricate themselves. After struggling on, some for a longer and some for a shorter period, most of them subsequently failed, the greater number for very large sums.

But, however distressing in the mean time, the embarrassment and want of confidence arising from the failures alluded to were not of long continuance, and have in the end been advantageous. It is of the utmost consequence that the vicious combination of the business of a merchant with that of a banker should be put an end to. It is singular, indeed, that individuals should be found willing to intrust large sums in the hands of those who they are aware are employing them in the most hazardous adventures. The higher the interest promised by such persons, the greater ought to be the caution of the public in dealing with them.

Internal Transit Duties.—A very great improvement has been effected in the domestic economy of British India by the abolition of the duties on the transit of goods from one part of the country to another. This important measure was preceded, and, we believe, principally brought about, by the publication of an elaborate and valuable report on the inland customs of Bengal, by Mr. Trevelyan (now Sir Charles, K. C. B.), then one of the secretaries to the Indian government, and now Secretary to the Treasury. These duties had existed in India from a very remote period; and, by obstructing the intercourse between its different districts, were singularly pernicious. After the East India Company began to acquire a footing in India, they availed themselves of a favorable opportunity to procure an exemption from the transit duties in favor of their own trade; "the goods which they imported being allowed to pass into the interior, and those which they purchased for exportation in the interior being allowed to pass to the sea, without either stoppage or duties." — MILL's *India*, 8vo ed. vol. iii. p. 289. They were, however, not long permitted to monopolize this privilege. Immediately after the victories of Clive had raised the company to the situation of a great territorial power, their servants engaged largely in the inland trade, and endeavored, partly by fraud and partly by force, to extend to their own goods the exemption from transit duties established in favor of those belonging to the company. Every reader of Indian history is aware of the multiplied abuses and disturbances that grew out of this attempt of the company's servants to release themselves from duties and charges that pressed with grinding severity on the natives, and, by consequence, to engross (for such was their object) the whole internal trade of the country. The company endeavored to obviate the evil by strictly forbidding their servants from engaging in internal traffic; but its orders to this effect were long either totally disregarded, or but very imperfectly obeyed. At length, in 1788, Lord Cornwallis adopted the decisive and judicious measure of abolishing the duties. They were, however, again renewed in 1801. The exclusion of Englishmen from all participation in the interior traffic of the country having been gradually carried into complete effect for a lengthened period, they were less alive than they would otherwise have been to the injurious influence of the duties, so that their re-establishment met with comparatively little opposition. In 1810 a new tariff was introduced, by which the duties "were frightfully augmented;" and they continued from that epoch down to their recent abolition seriously to obstruct all sorts of internal traffic, and to oppose the most formidable obstacle to the improvement of the country.

Had the inland transit duties been productive of a large amount of revenue, that would have been some set-off against the enormous evils of which they have been productive. But such has not been the case. The expenses of collection, and the interruption of communication, were so very great that the net produce of the inland transit duties was quite insignificant; so much so, that, according to Trevelyan, it did not exceed, in the extensive province of Bengal, the miserable pittance of £27,500 a year.—*Report*, p. 143. We see no reason to doubt the accuracy of this statement; and, assuming it to be correct, we are warranted in affirming that there is not another instance to be found in the history of taxation of a tax so fruitful of mischievous results and so barren of revenue.

Town Duties.—These were charged on the principal articles of consumption in 23 of the chief towns of Bengal. They were in many respects similar to the *octrois* in France; and, though not nearly so injurious as the internal transit duties, were productive of much inconvenience. We are glad, however, to have to state that they, as well as the transit duties, have recently been abolished; and that the internal trade of Bengal is now as free, in so far, at least, as statutory regulations can make it, as the internal trade of England.

This article has been compiled from various authorities, including MILBURN's *Oriental Commerce;* BELL's *Comparative View of the external Commerce of Bengal*, with the Continuation by WILKINSON for the years from 1828–'29 to 1841–'42; *The Bengal and Agra Guide and Gazetteer* for 1841 and 1842; *Parliamentary Papers relating to the Finances of India, and the Trade of India and China*, 1830–1843; and private communications.

Caledonian Canal, from the North Sea to the Atlantic Ocean. By means of this magnificent canal the nautical intercourse between the western ports of Great Britain, and those also of Ireland, and the North Sea and Baltic, is shortened in some instances 800, and in others 1000 miles. A sum exceeding a million sterling was granted by Parliament from time to time; and this safe navigation for ships of nearly every tonnage was completed and opened in 1822.—HAYDN.

Calendar. The Roman calendar, which has in great part been adopted by almost all nations, was introduced by Romulus, who divided the year into ten months, comprising 304 days, A.D. 738 B.C. The year of Romulus was of fifty days less duration than the lunar year, and of sixty-one less than the solar year, and its commencement did not, of course, correspond with any fixed season. Numa Pompilius, 713 B.C., corrected this calendar by adding two months; and Julius Cæsar, desirous to make it more correct, fixed the solar year as being 365 days and six hours, 45 B.C. This almost perfect arrangement was denominated the Julian style, and prevailed generally throughout the Christian world till the time of Pope Gregory XIII. The calendar of Julius Cæsar was defective in this particular, that the solar year consisted of 365 days five hours and forty-nine minutes, and not of 365 days and six hours. This difference, at the time of Gregory XIII., had amounted to ten entire days, the vernal equinox falling on the 11th instead of the 21st of March. To obviate this error, Gregory ordained, in 1582, that *that* year should consist of 365 days only; and, to prevent further irregularity, it was determined that a year beginning a century should not be bissextile, with the exception of that beginning each fourth century; thus 1700 and 1800 have not been bissextile, nor will 1900 be so; but the year 2000 will be a leap-year. In this manner three days are retrenched in 400 years, because the lapse of eleven minutes makes three days in about that period. The year of the calendar is thus made as nearly as possible to correspond with the true solar year; and future errors in chronology are avoided.—HAYDN. *See* ALMANAC.

The Gregorian calendar was introduced into Spain, Portugal, and part of Italy, the same day as at Rome. In France it was received in the same year in the month of December, and by the Catholic states of Germany the year following. In the Protestant states of Germany the Julian calendar was adhered to till the year 1700, when it was decreed by the Diet of Ratisbon that the new style and the Gregorian correction of the intercalation should be adopted. Instead, however, of employing the golden numbers and epacts for the determination of Easter and the movable feasts, it was resolved that the equinox and the paschal moon should be found by astronomical computation from the Rudolphine tables. But this method, though at first view it may appear more accurate, was soon found to be attended with numerous inconveniences, and was at length, in 1774, abandoned at the instance of Frederick II., king of Prussia. In Denmark and Sweden the reformed calendar was received about the same time as in the Protestant states of Germany. Russia still adheres to the Julian reckoning.

In Great Britain the alteration of the style was for a long time successfully opposed by popular prejudice. The inconvenience, however, of using a different date from that employed by the greater part of Europe in matters of history and chronology began to be generally felt; and at length, in 1751, an act of Parliament was passed for the adoption of the new style in all public and legal transactions. The difference of the two styles, which then amounted to eleven days, was removed by ordering the day following the 2d of September, of the year 1752, to be accounted the 14th of that month; and in order to preserve uniformity in future, the Gregorian rule of intercalation respecting the secular years was adopted. At the same time, the commencement of the legal year was changed from the 25th of April to the first of January. In Scotland the new style was adopted from the beginning of 1600, according to an act of the Privy Council in December, 1599. This fact is of importance with reference to the date of legal deeds executed in Scotland between that period and 1751, when the change was effected in England. With respect to the movable feasts, Easter is determined by the rule laid down by the Council of Nice; but instead of employing the new moons and epacts, the golden numbers are prefixed to the days of the *full* moons. In those years in which the line of epacts is changed in the Gregorian calendar, the golden numbers are removed to different days, and of course a new table is required whenever the solar or lunar equation occurs. The golden numbers have been placed so that Easter may fall on the same day as in the Gregorian calendar. The calendar of the Church of England is therefore, from century to century, the same in form as the old Roman calendar, excepting that the golden numbers indicate the full moons instead of the new moons.—E. B.

Calender, a mechanical engine employed by clothlappers for dressing and finishing cloths and stuffs of various descriptions and fabrics, before exposure to sale, or delivery to purchasers. It is also used by calico-printers, in order to extend and smooth the surface of their cloths after they have been bleached, and before they are subjected to the operations of the printing-table or copper-plate press. British muslins are folded generally to a yard in length, with a small allowance for extra measure; and as the folding is alternately from right to left, every part can be instantly examined upon a table or counter, every fold opening as easily as the leaves of a book in its uncut state. The piece, when folded, is reduced by doubling it longitudinally to about nineteen inches, and it is then folded across to the breadth of about thirteen inches. An ordinary-sized trunk, 39 × 19 inches, thus contains three layers of pieces, in which package goods for exportation to the colonies are generally packed, the trunk there forming an article of merchandise as much in general demand as the muslins which it contains. Even the Indian ornaments of gilt silver threads which were at first woven into one end of each piece, although they did not exceed the value of twopence each, have been either greatly curtailed or totally given up upon principles of economy. Even the cost of this trivial ornament has been computed to have amounted annually in Glasgow and Paisley to about £30,000. Pullicate and other handkerchiefs are most commonly folded up in dozens. For the African and some other foreign trades, pieces containing only eight handkerchiefs are preferred. These are still imitations of Indian precedents, confined to markets where competition continues to exist, not only with the British company, but with Americans and others trading to India. A species of pale orange-colored India handkerchiefs, distinguished by the name of *Madras*, being in extensive reputation in the Caraccas and other Spanish settlements in South America at the period of the capture of Trinidad, in 1795, patterns were procured by some British traders, who ordered very large quantities to be manufactured in Scotland of the same quality and appearance. With such effect were these imitated in texture, in dye, in finishing, and even in the packages, that some hundreds of pieces sent to London for exportation were actually seized at the custom-house as India goods, either illegally imported, or stolen from some of the Company's ships in the river. A scrutiny, however, clearly ascertained that these goods were not Indian, but British, and that no trespass either against the privileges or the property of the company had been even attempted. The goods were of course released, and permitted to proceed to their destination, where, after examination and trial, it was found totally unnecessary longer to conceal their real origin; and a very extensive trade, through direct channels, has since been carried on for similar goods.—E. B.

Calico (Ger. *Kattun;* Du. *Katoen;* Dan. *Kattun;* Sw. *Cattun;* Fr. *Coton, Toile de Coton;* It. *Tela Bambagina, Tela dipinta;* Sp. *Tela de Algodon;* Port. *Pano de Algodao;* Russ. *Wüboika;* Pol. *Bawelnika*), cloth made of cotton; so called from Calicut, on the Malabar coast, whence it was first imported. In England all white or unprinted cotton cloths are denominated calicoes; but in the United States this term is applied to those only that are printed.

Calico Printing.—This art, though apparently one of the most difficult, has been practiced from a very remote era. Herodotus mentions (lib. 1, § 202) that a nation on the shores of the Caspian were in the habit of painting the figures of animals on their clothes with a color formed from the leaves of trees bruised and soaked in water; and he adds that this color was not effaceable, and was as durable as the clothes themselves. It is difficult to imagine that the colors could have been so permanent, had not those using them been acquainted with the use of mordants. There is, however, a passage in Pliny (*Hist. Nat.* lib. xxxv. § 11), which, though in some respects obscure, shows that the ancient Egyptians were fully acquainted with the principle of calico printing. "They paint," says he, "the clothes, not with colors, but with drugs (*sorbentibus medicamentis*) that have no color. This being done, they immerse them in a vatful of boiling dye, and leave them there for a little: when they take them out they are painted of various colors. It is extraordinary, seeing that there is only one color in the vat (*unus in cortina color*), that a variety of colors should be produced by the operation of the drugs." Pliny further states that the colors were so adhesive that they could not be washed out; and that clothes were the stronger for being dyed. A similar process is known to have been followed in India from the earliest times. The chemical and mechanical inventions of modern ages have been the cause of vast improvements in this ingenious and beautiful art; but the passage now quoted shows distinctly that we have, in this instance, been only perfecting and improving processes practiced in the remotest antiquity.

California. The name "*California*" is found in the history of the conquest of Mexico by Bernal Diaz, a companion of Cortez. But there it is only *applied to a bay.* Afterward it was given *to the whole country north of that bay.* Its origin is uncertain. Some learned men started the opinion that it ought to be derived from the Latin "*Calida fornax*" (a hot oven), and that it was given to the rocky peninsula because the first discoverers suffered there much from the heat. Some other derivations of the name California from the Latin may be found in Clavigero's history of Mexico, in paragraph first. Clavigero makes the remark that Cortez was very fond of such Latin words. Probably it is *a corruption of the original Indian name.* Because it was for a long time supposed that it was a large island, and that many small islands belonged to it, some called the country "*Las Californias*" (the Californias). One hundred and thirty years after Cortez, after the middle of the seventeeth century, some geographers called those supposed Californian islands "*Islas Carolinas*" (King Charles' Islands), in honor to Charles II., king of Spain, who intended to conquer the whole.

What we now call "*Upper California*" was called by the geographers of the sixteenth century "*Quirira,*" from a supposed rich kingdom of this name. The northern part of this same Upper California and of our Oregon Territory was called (1578) by Sir Francis Drake "*Nova Albion,*" and this name was pretty generally adopted by the European geographers, except the Spanish. It was extended at last over the whole of Oregon and Upper California.

The name "*Upper California* or *New California*" (California Nueva) sprung into existence when the Franciscan missionaries, since 1769, made settlements to the north of the old Californian Peninsula. They called "*California Nueva*" the whole Pacific slope, as far north as it became known to them.

Since 1819, the date of the so-called Florida treaty, the northern boundaries of New California were fixed at the 42d degree of latitude, and then soon the more northern part began to be called the "*Oregon Country.*"

Since the conquest and cession of the province to the United States (since 1847), the southern boundaries were fixed at 32° 35′ of lat.

We now generally call the country only "*California.*" By geographers it is sometimes called "*Continental California,*" in contrast to the Californian peninsula.—*From Historical Notes on the Ancient and Modern Names with which the Regions, Countries, Territories, and States along the Coasts of the North American Union have been designated, by* J. G. Kohl.

California is bounded on the north by Oregon, on the east by Utah and New Mexico, and on the west by the Pacific Ocean. The Constitution of the State thus describes its limits. Commencing at the point of intersection of the 42d degree of north latitude, with the 120th degree of longitude west from Greenwich, and running south on the line of said 120th degree of west longitude until it intersects the 39th degree of north latitude; thence running in a straight line in a southeasterly direction to the River Colorado, at a point where it intersects the 35th degree of north latitude; thence down the middle of the channel of said river to the boundary line between the United States and Mexico, as established by the treaty of May 30, 1848; thence running west and along said boundary line to the Pacific Ocean, and extending thereon three English miles; thence running in a northwesterly direction, and following the direction of the Pacific coast to the 42d degree of north latitude; thence on a line of said 42d degree of north latitude to the place of beginning. Also all the islands, harbors, and bays along and adjacent to the Pacific coast. Area, 188,982 square miles. Population in 1802 (*Humboldt*), 16,862, consisting of 15,562 converted Indians, and 1300 of other classes; in 1813 the population was estimated by Forbes to be 23,025. Emigrants from the United States began to enter the country before 1835, and so numerous had become the settlers that when the war commenced with Mexico, Colonel Fremont had little difficulty in raising a regiment of 500 men. At the close of the war, the population, exclusive of Indians, amounted to about 12,000.

The number of wild Indians scattered through the mountains is unknown, but is very considerable. The native Californians are, like the Mexicans and South Americans, chiefly of Spanish descent, but generally with a very large mixture of Indian blood, so that in complexion and features they are of all shades and degrees, from the pure Indian to the pure Castilian.

The population of the State, according to the census of the United States in 1850, was 92,569; and by the State census in 1852, 264,435.

The seat of government is at Sacramento City, on the left bank of the Sacramento, just below the entrance of the American Fork. The principal places are San Francisco, Stockton, Monterey, Santa Barbara, San Diego, Humboldt, etc.

Surface.—The greater part of the State is hilly or mountainous. The most prominent range of mountains is the Sierra Nevada, lying nearly parallel with the coast, and from 100 to 200 miles distant. On the western slope of this range are the principal gold mines, extending 400 or 500 miles in length, and 50 or 60 in width. This slope of the Sierra is broken by the numerous tributaries of the Sacramento and San Joaquin into deep gorges and ravines, and the surface of the region is extremely rugged and uneven. West of the Sierra Nevada range of mountains, the great valley of the Sacramento and San Joaquin spreads 500 miles in length, and 50 or 60 in width. This is very level, contains but little timber, and though fertile in some portions, is extensively covered with an arid unproductive soil back from the streams, and by immense tule or bulrush marshes in the vicinity of the rivers. The annual freshets in this valley occur in the winter and spring, and the streams are often at their maximum height as late as June, in consequence of the melting snows of the Sierra. This great valley is bounded on the west by the coast range of hills and mountains, which rise in some parts to the height of 3000 feet and upward, and lie from 30 to 80 miles back from the coast. These hills are interspersed with numerous valleys, some of them of great beauty and fertility.

Soil and Productions.—The best agricultural lands are found in the great basins of the Sacramento and San Joaquin, and these valleys in spring and summer are covered with a luxuriant vegetation of various grasses, wild oats, etc. The hills are generally covered with wild oats, and furnish excellent pasturage, though for the most part too dry for cultivation. Farther north, the valley of the Mendocino or Eel River is represented by recent explorers as well adapted to agriculture. The lands in the vicinity of Humboldt harbor are also said to be very fertile, and in consequence of occasional showers through the dry season, they stand in no need of irrigation, which, though not essential to the success of most crops in other parts of the country, is, nevertheless, occasionally desirable.

The grape flourishes all over the State, and wine has long been manufactured at Los Angelos and other places. The various vegetables and fruits of the temperate zone flourish finely, and in the southern counties many tropical productions may be successfully cultivated. California seems by nature peculiarly adapted for grazing; but, under a judicious cultivation, its agricultural resources are very great.

There were in this State in 1850, 62,324 acres of land improved, and 3,831,571 of unimproved land in farms; cash value of farms, $3,874,041, and the value of implements and machinery $103,483; live stock—horses, 21,719; asses and mules, 1666; milch cows, 4280; working oxen, 4780; other cattle, 253,599; sheep, 17,574; swine, 2776; value of live stock, $3,351,058.

Agricultural Products.—Wheat, 17,328 bushels; Indian corn, 12,236 bushels; barley, 9712 bushels; peas and beans, 2292 bushels; potatoes, 9292 bushels; sweet potatoes, 1000 bushels; value of products of the orchards, $17,700; produce of market gardens, $75,275; pounds of butter made, 705; of cheese, 150; pounds of wool produced, 5520; of tobacco, 1000; hay, tons of, 2038; and were made 58,055 gallons of wine; value of home-made manufactures, $7000; of slaughtered animals, $100,173. The State census of 1852 shows an increase of improved lands to 110,748 acres; of live stock — horses, 64,778; mules, 16,578; milch cows, 104,339; beef cattle, 315,392; working oxen, 29,065; agricultural products—wheat, 271,763 bushels; Indian corn, 62,532 bushels; oats, 100,497 bushels; potatoes, 1,393,170 bushels; barley, 2,973,734 bushels.

The State, as a whole, can not be described as well timbered. The plains and valleys are, in the main, destitute of forests, though in many of them is an extensive growth of scattered oaks. Among the coast range of mountains are many forests of red-wood, a species of cedar, growing to an immense size, and furnishing an extremely durable material for building. In the northern part of the State, and among the snowy mountains, are forests of gigantic pines, firs, cedars, and other valuable forest trees, ranging from 100 to 200 feet in height, and from 5 to 15 feet in diameter. In the central part of the valley of the Sacramento and San Joaquin, near the junction of these rivers with the Bay of Suisun, is an extensive tract of low, marsh land called the Tulares, or Tule lands, from the *tule* or bulrush with which they are thickly covered. These lands are estimated to cover an area of at least 600,000 acres, and are drained by a net-work of sloughs which generally afford navigable channels from two to six fathoms in depth. Should these lands be reclaimed, their fine alluvial soil will doubtless prove well adapted to the cultivation of rice. The coast range of mountains, and the valleys of the Sacramento and San Joaquin, abound in deer, elk, antelopes, and other wild game, and the plains are traversed by immense herds of wild horses. The formidable grizzly bear is found in nearly all parts of the State. The cattle of the country are fine, and are owned by the native Californians often in herds of many thousands. These were formerly killed in great numbers for their hides and tallow, which constituted the principal exports of the country, and the chief source of wealth to the inhabitants.

Mines. — Silver, lead, copper, platinum, and other mines, have been discovered in California (though not yet worked), but the great mineral wealth of the State consists in its mines of quicksilver and gold, particularly the latter. The *quicksilver* mine of New Almaden, discovered in 1845, 13 miles south of San José, is probably the richest in the world, and, if properly worked, would yield a million of dollars a year. Gold is liberally scattered over a large portion of the State. From its first discovery, in February, 1848, to the present time, new deposits have been successively opened in various directions, and the whole extent and richness of the mines still remains a matter to be developed hereafter. The first gold discovered was on the American Fork, about 50 miles east of Sutter's Fort (now Sacramento City). About three months afterward it began to be found on the Yuba and Feather rivers to the northward, and on the Cosumnes to the southward. Subsequently it was discovered on all the principal eastern tributaries of the Sacramento and San Joaquin, and, still later, extensive deposits have been opened among the coast range of mountains in the northern part of the State, particularly on the Trinity and Klamath, and their tributaries.

Total production of the mines to January 1, 1852	$140,931,103
Product of 1852	67,699,548
Product of 1853	92,000,000
	$300,630,651

There were in 1852, 108 quartz mills, with a capital of $5,871,405, and other mining operations employing capital of $8,026,042.

Position of the Gold.—The gold is found under two principal forms; interspersed in irregular veins through beds of quartz rock; in grains and irregular water-worn lumps of all sizes, mingled with the beds of *drift* or gravel, which cover the face of the country, but most abundantly in the bottoms of the mountain ravines. These grains and lumps were once parts of veins traversing quartz rock, and have been dislodged from their original matrix and reduced to the form in which we now behold them by those aqueous and elemental agencies which have every where disintegrated and broken down the surface rocks, and of their ruins formed the present sand and gravel beds that cover the face of the earth. Their origin, or rather the origin of the forms in which we see them, was the same as that of all our sand and gravels. They are, in fact, nothing more nor less than golden pebbles—metallic gravel and sand. The idea so prevalent that the gold has been thrown out from volcanoes in a melted state, is entirely unscientific and erroneous. The gold region is not volcanic, and all search for the "blowholes," or "fountains," from which the gold is supposed to have been thrown must always be, as it heretofore has been, entirely fruitless. In general, the loose gold is found in the immediate vicinity of the parent veins of which it once formed a part; or, at least, at no great distance down the slopes of the valleys and ravines which have in process of time been excavated by the elements.

The vein gold found *in place* in the quartz rocks occurs in various parts of the mines, but chiefly in the southern districts—in the neighborhood of the Cosumne, Moquelumne, Tuolumne, and Mariposa rivers, and elsewhere. The working of these veins requires machinery, and has not yet been fairly tested. Some trials have been made with flattering success.

The scale and lump gold is found most abundantly in the bottoms of ravines, and in the banks and beds of the rivers, particularly in the bars of sand and gravel thrown up in the streams by the rush of the mountain torrents. The gravel bed containing the gold lies generally not over two or three feet below the surface; but occasionally it is covered to the depth of 10, 20, and even 50 feet. Most of the gold hitherto obtained has been taken from such localities. The banks and beds of the rivers yield most abundantly at the lowest stage of water in the autumn and latter part of summer. The side "gulches," or ravines, are usually destitute of water in the dry season, and hence the explorations in them are denominated "dry diggings," and are conducted most successfully during the winter, spring, and early part of summer, particularly the two latter.

It is impossible to say which portion of the mines is the richest. All parts of them have yielded immense quantities of gold. The southern mines have turned out the greatest number of large lumps, and more of the coarse or lump gold is generally found in that region. But for this very reason, perhaps, digging in them is somewhat more precarious and lottery-like than elsewhere. In the northern mines the chances of finding large specimens may be less, but the prospect of making fair daily wages has been considered rather more certain there than in the southern mines. The recently-discovered deposits in the coast range on the Klamath and Trinity, and their affluents, are reported to be unusually rich, and many have hastened to give them a trial.

The implements needed for procuring the alluvial or loose gold are picks, shovels, and washers. The washers are either simple pans or wooden bowls, or machines, generally in the form of a cradle, and hence called *cradles* or *rockers*. These are sometimes more expensively constructed, and furnished with cells for quicksilver; by means of which the gold may be more completely and economically extracted.

It is well known that comparatively but a small portion of the products of the mines is entered at the San Francisco custom-house. Large sums are taken by passengers leaving the country among their baggage. An immense amount has also been taken out overland, by the Sonoranians and other Mexicans who have returned from the mines to their homes. It may be estimated, therefore, that not much less than three hundred and twenty millions of dollars have been dug from the gold region of California since its discovery.—H. G.

For later California statistics, see articles SAN FRANCISCO and GOLD.

California, Gulf of, an arm of the Pacific Ocean, separating the peninsula of Lower California from the main land. It lies between lat. 23° and 32° N., and long. 107° and 114° W.; and is about 700 miles in length, with a breadth varying from 40 to 150 miles. Its western shores are generally high and rocky, with few places of shelter; its eastern shores are lower and less rocky. It contains numerous islands, and at its northern extremity receives the rivers Colorado and Gila.

Calk, to drive a quantity of oakum into the seams of planks, to prevent the entrance of the water. After the oakum is driven in, it is covered with melted pitch or resin, to preserve it from the action of the water.

Callao, a fortified town of Peru, department, and six miles west of Lima, of which it is the port, on the Pacific, in lat. 12° S., long. 77° 13′ 7″ W. Population perhaps 20,000. It is generally well built; its castle, formerly very strong, has lately been dismantled, and is now used for a custom-house. Its roadstead, sheltered by the island of San Lorenzo, is the best on the Peruvian coast. It has a convenient quay, and communicates with Lima by a good carriage road, along which omnibuses now run daily. Customs revenue, about $1,000,000. Exports consist chiefly of bullion, specie, copper, cotton, bark, and hides. In 1841, 498 vessels, aggregate burden 101,084 tons, entered; and 494 vessels, burden 99,944 tons, cleared out of the port. In 1746 the old town of Callao was destroyed by an earthquake. In 1820, the Earl of Dundonald (then Lord Cochrane) gallantly cut out the Esmeralda, a large Spanish ship of war, from under the guns of the fort.—*See* LIMA.

Calms, Region of. In the Atlantic Ocean, between the Tropic of Cancer and latitude 29° north, and on the confines of the trade-winds, between 4° and 10° north latitude, calms of long duration prevail: and hence these tracts are called *the calm latitudes*, or the *region of calms*. In the latter tract, particularly, these perpetual calms are accompanied by a suffocating heat, by thunder-storms and floods of rain, so that it is sometimes called the *Rainy Sea*. The only winds that occur are sudden squalls of short duration and extent. In these calms the provisions are corrupted, the deck seams open, and the stagnant air breeds disease. When a ship is in this position, if the current sets in toward rocks, and the sea is too deep to cast anchor, her destruction is almost inevitable. In the Mediterranean, where there are no tides, *dead calms* are more common than in the open ocean; but they are often the presages of approaching storms.—E. A.

Calomel, a preparation of mercury, much used in medicine.

Caloric, the principle or matter of heat, or the simple element of heat.

Cambric, or **Cambrick** (Ger. *Kammertuch;* Du. *Kameryksdoek;* Fr. *Cambray Batiste;* It. *Cambraja;* Sp. *Cambrai;* Port. *Cambraia;* Russ. *Kamertug*), a species of very fine white linen, first made at Cambray, in French Flanders, whence it derives its appellation. Cambrics were first worn in England, and accounted a great luxury in dress, 22 Elizabeth, 1580.—STOWE. The importation of them was restricted in 1745; and was totally prohibited by statute of 32 Geo. II., 1758. Readmitted in 1786, but afterward again prohibited: the importation of cambrics is now allowed in Great Britain.—HAYDN.

Camel (Fr. *Chameau;* It. and Sp. *Camelo;* Ger. *Kameel;* Arab. *Djimel;* Lat. *Camelus;* Greek Καμηλος), is indigenous to Arabia, and we only mention it in this place on account of its extreme importance in the commerce of the East.

The camel is one of the most useful of the animals over which the inhabitants of Asia and Africa have acquired dominion. These continents are intersected by vast tracts of burning sand, the seats of desolation and drought, so as, apparently, to exclude the possibility of any intercourse taking place between the countries that they separate. "But as the ocean, which appears at first view to be placed as an insuperable barrier between different regions of the earth, has been rendered by navigation subservient to their mutual intercourse; so, by means of the camel, which the Arabians emphatically call *the Ship of the Desert*, the most dreary wastes are traversed, and the nations which they disjoin are enabled to trade with one another. Those painful journeys, impracticable by any other animal, the camel performs with astonishing dispatch. Under heavy burdens of 600, 700, and 800 pounds' weight, they can continue their march during a long period of time, with little food or rest, and sometimes without tasting water for eight or nine days. By the wise economy of Providence, the camel seems formed on purpose to be the beast of burden in those regions where he is placed, and where his service is most wanted. In all the districts of Asia and Africa, where deserts are most frequent and extensive, the camel abounds. This is his proper station, and beyond this the sphere of his activity does not extend far. He dreads alike the excesses of heat and cold, and does not agree even with the mild climate of our temperate zone."—ROBERTSON'S *Ancient India.*

The first trade in Indian commodities of which we have any account (Genesis xxxvii. 25) was carried on by camels; and they still continue to be the medium employed in the conveyance of merchants and merchandise throughout Turkey, Persia, Arabia, Egypt, Barbary, and many contiguous countries. The merchants assemble in considerable numbers, forming themselves into an association, or *caravan* (*see* CARAVAN), for their mutual protection against the attacks of robbers, and the dangers incident to a journey through such rude and inhospitable countries. These caravans are often very large, and usually consist of more camels than men. The capacity of the camel to endure fatigue, and the small supply of provisions that he requires, is almost incredible. "His ordinary burden," says Volney, "is 750 pounds; his food whatever is given him—straw, thistles, the stones of dates, beans, barley, etc. With a pound of food a day, and as much water, he will travel for weeks. In the journey from Cairo to Suez, which is 40 or 46 hours, they neither eat nor drink; but these long fasts, if often repeated, wear them out. Their usual rate of traveling is very slow, hardly above two miles an hour: it is in vain to urge them; they will not quicken their pace; but if allowed some short rest, they will travel 15 or 18 hours a day."—*Voyage en Syrie.* The Arabians regard the camel as a sacred animal, the gift of Heaven, without whose aid they could neither subsist, nor trade, nor travel. Its milk is their ordinary food; they also eat its flesh, especially that of the young camel, which they reckon excellent; its hair, which is renewed every year, is partly manufactured into stuffs for their clothes and furniture, and partly sent abroad as a valuable article of merchandise; and even its fæces serve them for fuel. Blessed with their camels, the Arabs want nothing, and fear nothing. In a single day they can travese 40 or 50 miles of the desert, and interpose its trackless sands as an impenetrable rampart between them and their foes. (See the admirable description of the camel, in BUFFON.) But, however useful to the inhabitants of parched, sandy deserts, it may be worth while, perhaps, to observe, that the camel is of very little service elsewhere. He can not walk 100 yards in wet or slippery ground without stumbling. He is totally unknown in all hilly or woody countries; and, with few exceptions, may be said to be as great a stranger in the Eastern Islands, Japan, the southern parts of China, the whole country lying between China and India, and all the southern parts of the latter, including Bengal, as he is in Europe. In all those vast countries the ox is the most useful of the lower animals. It is used for draught (for which the camel is totally unfit), in the cart and plow, in the carrying of burdens, in treading corn, in the oil-press, etc., and finally as food.

In 1855, Congress, in accordance with a recommendation of the Secretary of War, granted an appropriation for the purpose of importing and introducing the camel into the United States, to be used principally on the prairies and deserts of the West—the States of Texas and New Mexico especially. To carry out this plan, an expedition, under Major Wayne, of the United States Artillery, and Lieutenant Porter, United States Navy, visited the Mediterranean, and purchased a number of camels and dromedaries, and conveyed them to Texas. A second expedition has just started, as the plan promises to succeed, and the plan will be tested on a larger scale. Emigrants have suffered much in their trains for the want of a burden animal that could do without water for a long time, and a great number of animals are annually lost on the plains with thirst.

There are now thirty-two camels, old and young, in the State of Texas, in charge of officers of the army, and forty more on their way to this country. With the natural increase, the experiment will thus be commenced with nearly a hundred of these "ships of the desert." The War Department has the highest expectations of their availability for the inland travel on southern portions of this continent, and there can be little doubt of the justification of his hopes. The route to the Pacific offers better forage for these hardy animals than they find in their own deserts; and as to climate, the Tartars use them on the steppes of Asia, in regions as inhospitable as can be found on the California route, except in mid-winter, when travel may be suspended. A correspondent of the *Galveston News* states that the Indians have never yet had a sight of these strange animals, and it is expected that the appearance of such ungainly creatures will cause, for a season at least, such terror to the red man as to prove a protection for caravans. The Indians may get over this; but, unless the horses of the prairies differ from their Asiatic cousins, they will require long training to learn to like the aspect of the camel. The Tartars who visit Chinese frontier towns and markets throw every thing into confusion. Horses fling, and bound, and break their halters to escape a creature to which they will not get accustomed. We happened once to see a couple of camels driven through a country village, and never were horses and mules inspirited with more ridiculous fright than the farmers' nags were at this ungainly apparition.

Camel, a machine, of Dutch invention, for raising large ships so far above the water-line as to enable them to pass over the obstruction of a bar or shallow. It consisted of two large boxes, or half ships, which were applied to each side of the hull of a large vessel, and from which a number of cables were passed under the keel, and attached to horizontal windlasses on the deck of either half of the camel. When the machine was to be used, water was allowed to enter, so as to sink the two parts of the machine to the requisite depth; the ropes were then cast loose, and large beams were placed horizontally through the port-holes of the ship, with their ends resting on the camel on each side. When the ropes were made fast, and the ship properly secured, the water was pumped out of the camel, which then rose and bore up the ship along with it. By this contrivance, East Indiamen drawing 15 feet could be made to draw only 11 feet; and ships of war carrying 90 or 100 guns were enabled to pass the sand banks of the Zuyder Zee.—BECKMANN'S *Hist. of Inventions*, vol. iii. p. 338. This machine is also available for raising sunken vessels.—E. B.

Camel's Hair (Germ. *Kameelhaar;* Fr. *Poil de chameau*, *Laine de chevron;* It. *Pelo di camello;* Sp. *Pelo ó lana de cámello*). The hair of the camel imported into this country is principally used in the manufacture of fine pencils for drawing and painting. In the East, however, it is an important article of commerce, and is extensively used in the arts. It serves for the fabrication of the tents and carpets of the Arabs, and for their wearing apparel. Cloth is also manufactured of it in Persia and other places. The most esteemed hair comes from Persia, divided into three qualities—black, red, and gray. The black is the dearest, and the gray only worth half the red. Considerable quantities of camel's hair are exported from Smyrna, Constantinople, and Alexandria. It is used in the manufacture of hats, particularly by the French. —REES' *Cyclopedia, art.* CAMELUS.

Camelia, a very ornamental genus of plants, natives of China and Japan, belonging to the natural order *Ternstromiaceæ*. Many varieties of this plant are grown in England and Belgium, sometimes in the open air, but more generally in hot-houses. Though usually cultivated in pots, they are found to thrive best in open soil in a glass-house artificially heated.

Cameo, a peculiar kind of onyx; also a stone, on which are found various figures or representations of landscapes, a kind of *lusus naturæ*, exhibiting pictures without painting. It is of these *camaieux* that Pliny is understood to speak when he says of the manifold pictures of gems, and the party-colored spots of precious stones, *Gemmarum pictura tam multiplex lapidumque tam discolores maculæ*. Cameo is also frequently applied to any kind of gem on which figures are sculptured, either indentedly or in relievo. The shell of large univalves is now much used for making cameos, the subject being wrought on the outer or white layer of the shell, and the pink or brown under one serving for the ground. Cameo is also used for a painting of only one color, where the lights and shadows are of gold, wrought on a golden or azure ground. When the ground is yellow the French call it *cirage;* when gray, *grissaile*. This kind of work is chiefly used to represent basso relievos. The Greeks called such works *μονοχρωματα*.—E. B.

Camera Lucida. Invented by Dr. Hook, about 1674.—WOOD'S *Ath. Ox.* Also an instrument invented by Dr. Wollaston, in 1807.

Camera Obscura (i. e. *Dark Chamber*), in *Optics*, a machine or apparatus representing an artificial eye, by which the images of external objects, received through a double convex glass, are exhibited distinctly, and in their native colors, on a white matter placed within the machine, in the focus of the glass. The *camera obscura* affords very diverting spectacles, by representing images perfectly like their objects, while at the same time it exhibits all their motions. By means of this instrument, a person unacquainted with designing may delineate objects with the greatest accuracy.—E. B. The *camera obscura*, or dark chamber, was invented, it is believed, by the celebrated Roger Bacon, in 1297; it was improved by Baptista Porta. the writer on natural magic, about 1500.—MORERI. Sir Isaac Newton remodeled it. By the recent invention of M. Daguerre, the pictures of the camera are rendered permanent: the last was produced in 1839.—HAYDN.

Camlet, or **Camblet** (Ger. and Du. *Kamelot;* Fr. *Camelot;* It. *Ciambellotto;* Sp. *Camelote;* Russ. *Kamlot*), a plain stuff, manufactured on a loom, with two treadles, as linens are. There are camlets of various colors and sorts; some wholly of goats' hair; others in which the warp is of hair, and the woof half hair and half silk; others, again, in which both the warp and the woof are of wool; and, lastly, some of which the warp is of wool and the woof of thread: some are striped, some watered, and some figured. The true Oriental camlet is made of the hair of a sort of goat frequent about Angora, and which constitutes the riches of that city. Camlets are now made in Europe. Writers of the Middle Age mention stuffs of camel's hair, under the denominations of *cameletum* and *camelinum*, whence probably the term; but these are represented as coarse and rough, and seem to have been chiefly used among the monks by way of mortification, as the hair shirt of later times.

Camomile, or more properly **Chamomile**, the flowers of the *Anthemis nobilis*. The flowers have a white ray with a central yellow disk, and an aromatic bitter taste and powerful odor. The infusion of the flowers is, when cold, a useful stimulant, bitter or tonic; the infusion taken warm, however, acts as an emetic. The virtues reside in a volatile oil, and in a bitter principle, which may be separated from one another.

Camphor or **Camphire** (Ger. *Kampfer;* Du. *Kamfer;* Fr. *Camphre;* It. *Canfora;* Sp. *Alcanfor;* Russ. *Kamfora;* Lat. *Camphora;* Arab. and Pers. *Kāfoor;* Mal. *Kaafur*). There are two descriptions of this valuable article, which must not be confounded. 1. *Camphor of Commerce*, which is obtained by boiling the timber of a species of laurel (*Laurus camphora*) found in the forests of Fokien, in China, near the city of Chinehew, and in certain localities in Japan. Most of the camphor imported into Europe is from China; but a small quantity, considered of superior quality, comes from Japan by way of Batavia. The exports from Canton may be estimated at about 3000 piculs, or 400,000 lbs.; and if to this we add the exports from Batavia of Japan camphor, amounting to about 500 piculs, the total annual exports will be about 466,000 lbs. It is packed in chests, drums, and casks; and is in small, granular, friable masses, of a dirty white or grayish color, very much resembling half-refined sugar. When pure, the camphor of commerce has a strong, peculiar, fragrant, penetrating odor, and a bitter, pungent, aromatic taste. It is in reality a concrete essential oil. Camphor, when refined, is in thin hollow cakes, beautifully white, and, if exposed to the air, totally evaporates. Great care is, therefore, requisite in packing camphor to prevent serious loss. 2. *Camphor, Malay*, commonly called, to distinguish it from the last, camphor of Baros, from the port of Sumatra, where it is mostly shipped. It is a product of the *Dryobalanops camphora*, a forest tree confined to Sumatra, Borneo, and the Malay peninsula. It is found in concrete masses in the fissures of the wood: there are, however, but very few trees that afford it; and those that do, only in small quantities. This species of camphor is more fragrant, and less biting and pungent, than that yielded by the laurel, and is in high repute among the Chinese, by whom it is almost wholly consumed. There is an immense disparity in the prices of the two species in China; the finest Chinese camphor being sometimes quoted at $30 per picul, while the Malay camphor is quoted at $30 per catty, making the price of the latter 100 times greater than that of the former! Malay camphor is wholly unknown in this country as an article of trade.

Camphor Oil (Malay, *Minyak*), a fragrant essential oil, obtained in large quantities by heating the wood of the *Dryobalanops camphora*. It is nearly as cheap as spirits of turpentine, but is not held in any esteem by the Chinese. It might, perhaps, be profitably imported as a substitute for spirits of turpentine in the arts, and for medicinal purposes. We may add, that the timber of the *Dryobalanops camphora* is not inferior to any produced in the countries where it grows, for the purposes of house and ship building.—Private information, and CRAWFURD'S *Indian Archipelago*.

Cam-wood, a red dyewood, first brought to Europe from Africa by the Portuguese. It is principally obtained from the vicinity of Sierra Leone. The coloring matter which it affords differs but little from that of ordinary Nicaragua wood, either in quality or quantity; and it may be employed with similar mordants.—BANCROFT *on Colors*.

Canada. This extensive tract of country, and most important colony of England, may be described as a great belt of territory stretching from the centre of North America to the shores of Labrador, and from the waters which flow into the Northern Ocean to the parallel of Pennsylvania, in the United States. Its extent from east to west is computed at about 1400 miles, and from north to south at from 200 to 400 miles. Its precise geographical limits are between the parallels of 41° 71′ and 50° N. lat., and between the meridian of 57° 50′ and 117° W. long. Canada, lying diagonally along the frontier of the United States, from northeast to southwest, and possessing an inland navigation along its entire border, in a series of lakes and rivers unrivaled for extent and grandeur, has, especially of late years, been making such rapid progress, that it promises soon to become, in conjunction with its sister British provinces, a power of first-class importance, commercially and politically. The entire surface of the present territory of Canada, exclusive of its great waters, has been estimated at 196,000,000 acres, or between two and three times the size of Great Britain and Ireland. This country, formerly divided into two provinces known as Upper and Lower Canada, was in 1841, by an act of the Imperial Parliament, constituted one province, with one Legislature. Although now united, however, for legislative and other purposes, the country will most probably continue to be viewed and spoken of under its formerly recognized divisions of Upper and Lower Canada.

Canada may be said to comprise one vast valley, through which the great River St. Lawrence takes its course, issuing from Lake Superior and flowing successively through Lakes Huron, Erie, and Ontario, until it falls into the ocean after a course of 2000 miles. This immense valley is on each side encompassed by different mountain ranges, sometimes nearly approaching the water, and at other times receding into the interior, and thus forming extensive plains, for the most part alluvial, and suitable for nearly every description of produce. The high table-land along the northern boundary of this valley separates the streams which take their rise within it and flow into its basin from those that take their rise in the almost unknown territory beyond, and which fall into Hudson's Bay. The high land along the southern boundary of the valley separates the streams which flow northward into its basin from those that have their course southward toward the Atlantic and Mississippi. Commencing at the northern shore of the St. Lawrence, toward the mouth of that river, where the width is 90 miles, we find one of the walls of this vast valley which constitutes Canada rising boldly in mountainous form, close to the river, and continuing thus to form its rugged bank for upward of 100 miles. One of the most remarkable of the heights of this northern bank is Cape Tourment, overhanging the very brink of the river, and somewhat preparing the voyager for the still bolder and more magnificent grandeur of Cape Diamond, the Gibraltar of America, which rises to a height of 400 feet, and is crowned by the citadel of Quebec.

The city of Quebec, here clinging around the rocky steeps of Cape Diamond, and overlooking one of the most magnificent harbors in the world, is situate on the northern bank of the St. Lawrence, and about 400 miles from the mouth of that river. The view from the citadel presents on every side a country with features of peculiar and striking grandeur. Immediately opposite Quebec the St. Lawrence contracts to about half a mile in width, with bold rocky banks on either side. The northern or Cape Diamond side, being much the bolder of the two, commands a view of the wide stretch of table-land extending beyond the southern bank, the vast plains presenting for leagues upon leagues their dark masses of forest, with houses and cultivated fields interspersed, until the distant mountains of the States of Maine and Vermont bound the view. The northern shore presents a wilder and more rugged aspect. From the heights of Cape Diamond the spectator surveys bold ranges of hills fringing the northern horizon, and forming the boundaries of almost unexplored territories beyond.

About 30 miles below Quebec is Cape Tourment, to which, in our upward progress, we had traced the rocky northern bank of the river. Here the ridge, taking a direction west-southwest, terminates on the River Ottawa, about 120 miles above its confluence with the St. Lawrence, thus extending westward from Cape Tourment along the course of the St. Lawrence about 300 miles. The tract of country lying between this ridge and the St. Lawrence, which may be estimated at from 15 to 30 miles in breadth, is beautifully picturesque, well watered, level, and fertile. This portion of Canada, stretching along the northern shore of the river, from below Quebec upward to Montreal, a distance of about 200 miles, and thence along the banks of the beautiful Ottawa, may be considered, especially toward its upper and western extremity, one of the choicest parts of the country.

The territory lying beyond this ridge is intersected by another and higher range of mountains, which runs into the interior in a northwest direction, at the distance of about 200 miles from the other, and forms the water-shed between the tributary streams of the St. Lawrence and those that fall into Hudson's Bay. This territory may be said to be only one great wilderness of forest, whose solitudes are as yet unexplored, and only occasionally tracked by wandering hunters.

Glancing at the south shore of the St. Lawrence, a ridge commences nearly 100 miles below Quebec, which, passing upward in a southwest direction, opposite that city, at a distance of 30 miles from the river, crosses the boundary line between Canada and the United States, and finally slopes down to the River Hudson. Beyond this ridge, at about the distance of 50 miles, is another and a higher one, which commences at Cape Rozière, the bold headland at the mouth of the St. Lawrence, and, running for about 400 miles in a direction nearly parallel with the river and with the other chain, terminates upon the eastern branch of the River Connecticut. This forms the dividing ridge between the tributary streams of the St. Lawrence and those which flow toward the Atlantic Ocean, and separates a portion of Canada from the territory of the United States. The general character of the country along this south side of the river, from Cape Rozière upward, to within about 100 miles of Quebec, where the lesser ridge commences, is somewhat rugged and mountainous; but there are many fertile parts near the river which are populous and well cultivated. On the south side of this main ridge, down to the shores of Gaspé and Chaleur Bay, the country is mountainous, but interspersed with level and fertile spots, some of which are under cultivation, especially along the coast, where the inhabitants are principally dependent on the fisheries. The country for 100 miles below Quebec, and extending to the River Chaudière, a few miles above that city, has much of the broken and hilly character which it has farther down the river, but with extensive tracts of excellent land. This portion, as well as for a distance of above 100 miles farther down along the banks of the river, is a succession of settlements. Between Quebec and the lower ridge of mountain-land already mentioned, the country presents a fertile plain, broken by a few insulated hills covered with trees to their summits. It is well settled, and a considerable portion of the land cultivated. The country above Quebec, along the south side of the St. Lawrence, to the line 45° of N. lat. (which is the southern boundary of Lower Canada), may be characterized as one extensive and fertile plain, in parts agreeably broken and undulating. Much of it is covered with populous and prosperous settlements. As it lies contiguous to the United States, and embraces some of the principal points of communication between the two territories, it is at present, and bids fair to continue to be, the most flourishing portion of this lower division of Canada.

The city and island of Montreal, situated in Lower Canada, and immediately below the confluence of the River Ottawa with the St. Lawrence, may be said to form the chief connecting link between the lower and upper provinces. Being about 180 miles above Quebec, and Quebec being itself about 400 miles up the river, Montreal is thus situated nearly 600 miles in the interior of Canada.

"The banks of the St. Lawrence are here presented stretched out into smiling plains of most luxuriant appearance, in midst of which, and forming a main feature, is the garden-island of Montreal—producing grain and fruit, especially some descriptions of the latter, in perhaps greater perfection than in any other part of the country. The size of this island is 32 miles in length and about 10 in breadth, upon which is situated the city, covering above one thousand acres—with its quaint mixture of English, American, and old French architecture, in its streets, shops, English, American, and Scotch churches, French cathedrals and spires, and ancient convents. Rising from, and forming a sheltering background to the city on the north, is 'The Mountain,' as it is called, thickly wooded to the summit—an elevation of between 500 and 600 feet, commanding a magnificent view of the picturesque and luxuriant country around, the expanse of the St. Lawrence, and the bold mountain scenery in the distance. Along the substantially-built stone wharfs skirting the south of the town, and toward the broadest channel of the river, lie throngs of ships, barges, and steam-vessels, loading and unloading the natural products of the interior, and the manufactures and other merchandise of Britain. Montreal, situated about 600 miles up the St. Lawrence, forms the head of navigation for the large class of ocean vessels, and is the main point at which the produce of the interior arrives, in steamboats, screw-propellers, and barges, for reshipment on board of the Atlantic vessels."

Ocean vessels may now, however, by recent improvements of the internal navigation upward through the great lakes, proceed with their cargoes many hundreds of miles farther into the interior; thus opening up to Canada not only the fertile regions of her own most westerly districts, but the famous Far West of the United States, stretching even to the territories of the Mississippi; and it may be at no remote period to the yet distant shores of the Pacific.

Upper Canada.—We will now briefly describe the leading features of Upper Canada. This division of the country, commencing about 80 miles up the St. Lawrence from Montreal, upon the north side of the river, extends for about 100 miles farther along this shore of the river to the city of Kingston, at the foot of Lake Ontario, and thence along the north shores of the great lakes Ontario, Erie, St. Clair, Huron, and Superior, with their connecting rivers or straits, and stretching to the head waters of the streams which flow into Lake Superior. This great stretch of territory, with its almost unsurpassed extent of inland coast navigation, extends from 74° 30′ to 117° W. long. The grand course of navigable waters directly inland through Canada, by the St. Lawrence and great lakes, may be safely stated to exceed 2000 miles. The coast of the lakes alone has been estimated at upward of 5000 miles. The shores of this great valley, through which these waters take their course, embrace a country which has been styled "the Garden of North America." It has already in our own day presented an increase in population, and in agricultural and commercial wealth, so wonderfully rapid as to be unprecedented in history. Upper Canada, thus so favorably situated—comprehending one side of the entire upper portion of the great valley of the St. Lawrence—is bounded on the south by the territories of the United States, on the north by the Hudson's Bay Territory, and on the east by Lower Canada, while to the west extends that vast tract of country within British dominion, but as yet in a comparatively primeval state, and most generally known hitherto as the Northwest Indian Territory.

That portion of Upper Canada which has been set apart and divided for settlement, extends from its extreme eastern point, where it leaves Lower Canada, 80 miles above Montreal, and reaches along the northern shore of the St. Lawrence, and upward along the lakes to the shores of Lake Huron—a direct course of about 700 miles. This breadth of settled country toward the north may be said to vary from 50 to 80 miles. Throughout the whole of this tract the soil is excellent, and is not surpassed by any other part of the American continent. It consists, generally speaking, of a fine dark loam, mixed with a vegetable mould, but it is in a great measure so varied as to present soils adapted to almost every species of produce. From the commencement of Upper Canada to the head of the Bay of Quinte, on Lake Ontario, the land is spread out into an almost uniform level of great beauty, which rises only a few feet from the banks of the St. Lawrence. It is in every direction well watered by numerous streams, which are generally navigable for boats and canoes, and at the same time present the most desirable situations for the erection of machinery. Farther into the interior, along the course of the great stream of the Ottawa, which flows into the St. Lawrence a short distance above Montreal, and between the Ottawa and Lake Ontario, the face of the country—which we have noticed as being spread out into a plain so attractive—is, in parts, here diversified by ridges and bold heights, and also by numerous streams and inland lakes. The Rideau Canal, a work constructed by the imperial government for military purposes, passing through this part of the interior, from the town of Bytown, on the Ottowa, 120 miles above Montreal, through the country to Kingston—a distance of 135 miles—is almost one continued chain of natural lakes and streams. The chief link of these waters is Rideau Lake, 24 miles in length, forming the summit level of the canal, and being 280 feet above the level of the Ottawa River, and 150 feet above Lake Ontario. Lake Ontario, which receives the waters of the upper lakes from the Niagara River, and discharges them into the St. Lawrence, nearly 800 miles from the mouth of that river, may be said to be the first link in our upward progress of the chain of great lakes which so distinguish Canada, and confer upon the country unsurpassed means of internal communication. The height of this lake above the sea is 232 feet. It is 180 miles in length, 50 miles in breadth, and 470 miles in circumference. While the shores of this lake present the most populous and prosperous parts of Canada, the lake itself is believed to be the safest of the three lower lakes for the purposes of navigation. It possesses several excellent harbors; and from its great depth of 500 feet, compared with the two lakes above it, it is not so easily moved by storms as Lake Erie, while it is quite exempt from the shallows, or *flats*, as they are called, of Lake St. Clair.

There are several pretty large islands scattered over the lower extremity of Lake Ontario, one of which, Amherst Island, is about 10 miles in length and 6 in breadth. One of the most fertile and beautiful portions of this lake is the magnificent inlet of the Bay of Quinte, commencing near the city of Kingston, at the foot of the lake, and forming a spacious indentation of about 70 miles to the mouths of the rivers Trent and Moira. The shores of this bay are more diversified and pleasing in their features than those of the great lake itself, whose Indian name, "Ontario," signifies the Beautiful. Lake Ontario is never frozen over, and throughout winter steamboats frequently run across the upper part of the lake from Toronto to Niagara when the weather is fine. All along the north shore of Lake Ontario, a distance of 180 miles, one extensive fertile plain presents itself, now and then agreeably sloping to the very edge of the lake, and bearing evidences of successful cultivation and progress. Several thriving towns are growing up rapidly along the shores of Ontario, the chief of which are, Kingston, at the foot of the lake; Toronto, 35 miles from the head; and Hamilton, at the extreme head. Toronto, which is very finely situated, spreading over a wide and gently rising plateau, and in a protected part of the lake shore, is the largest city of Upper Canada. The generally level stretch of well-cultivated plain which forms this northern shore of Lake Ontario is only partially broken by an inconsiderable ridge which runs through it, and which, coursing around the head of the lake, and crossing into the United States at the Falls of Niagara, forms the commencement of the extensive and fertile table-land which stretches westward from Lake Ontario, and, situated between Lakes Erie and Huron, forms the great western peninsula of Upper Canada. The eastern boundary of this peninsula, thus situated between these three great lakes, is the neck of land of 36 miles between the shores of Lake Ontario, at Toronto, and Lake Simcoe, which communicates by means of the River Severn with the Georgian Bay, on Lake Huron. The settled parts of this great peninsula embrace about one-half of the settled parts of Upper Canada; and it is estimated to have at present a cultivated surface equal to about a fourth part of the cultivated surface of Scotland. This settled and partially occupied portion of the peninsula contains upward of 9,000,000 acres. The entire district has been styled "the Garden of Upper Canada." "I am delighted to have seen this part of the country," said the late Lord Sydenham, in recording his impressions to a friend, after having visited this district in the course of a tour which he performed in the capacity of governor general of Canada, in the autumn of 1840—"I am delighted to have seen this part of the country; I mean the great district, nearly as large as Ireland, placed between the three lakes—Erie, Ontario, and Huron. You can conceive nothing finer! The most magnificent soil in the world—4 feet of vegetable mould; a climate certainly the best in North America—the greater part of it admirably watered. In a word, there is land enough and capabilities enough for some millions of people, and in one of the finest provinces in the world."—E. B.

The number of acres held by the 194,309 occupiers of land in Canada is 17,937,148, 9,283,333 acres of which are in Upper Canada. The number of acres under cultivation in Canada in 1852 was 7,303,241, the greater proportion of this cultivated land being in the upper provinces. The increasing quantity of cultivated land in Upper Canada is another of the gratifying proofs of the substantial progress of the country; and this increase of the area of cultivation keeps full pace with the increase of population. In 1842 the population of Upper Canada, amounting to 486,055, possessed 1,927,816 acres of land under cultivation; and in 1852 the population, which had increased to 952,004, possessed an area under cultivation of 3,697,724 acres. The proportion of occupied lands in Canada under cultivation, under crops, pasture, and used as gardens and orchards, and also in forest or wild state, were as follows:

	Acres.
Land under crops	4,347,539
Land under pasture	2,870,004
Land under gardens	85,698
Land forest or wild	10,633,907
Total	17,937,148

The distribution of the land under crops, and the produce of these crops respectively, were:

Under	Acres.	Produce.
		Bushels.
Wheat	1,209,226	15,768,720
Oats	1,012,106	20,161,438
Peas	357,301	4,055,584
Potatoes	150,916	9,443,586
Buckwheat	96,046	1,169,801
Maize	93,240	2,096,800
Rye	84,975	821,094
Barley	72,843	1,294,501
Turnips	21,032	4,014,851
Fallow and other crops	1,249,854	....
Total land under crops	4,347,539	
Total produce of above specified crops		58,826,375

Besides these amounts of specified produce from these 4,347,539 acres of land under crops, the Canadian farmers possessed other crops, such as hay, clover, and grass seeds, carrots, mangel-wurzel, beans, hops, flax, hemp, and tobacco. The quantity of tobacco produced in Canada in 1852 amounted to 1,253,128 pounds; of this 764,476 pounds were the produce of Upper Canada; and the greater portion of which was grown along the shores of the upper part of Lake Erie, and of the River Detroit, where the soil and climate seem best adapted for this description of crop, and where the farmers in those parts have had the best opportunities of receiving the services of the colored or runaway slave population of the United States, who have been accustomed to the management of such produce in the tobacco plantations of the South. The produce in tobacco of the two counties of Kent and Essex alone, situated in this southwestern point of Canada, amounted in 1852 to 760,300 pounds.

The growth of hemp in Canada assumes a position of great national importance at the present time, when British supplies have been so seriously checked by the war with Russia. The important towns upon the east coast of Scotland, which are the chief seats of the flax trade, have suffered severely by the check received by their dependence upon Russia for this great staple of a growing branch of national manufactures.

One effect of the Canadian Reciprocity Treaty has been to give business to the leading railroads of New York and Massachusetts, and to reduce the import and export trade of Quebec; thus benefiting the towns of Canada West, while those on the St. Lawrence are becoming less and less the points of transhipment. Thus the exports of Quebec in two years have declined one-third, and the imports in the same ratio; while at Toronto the exports have nearly doubled, and the imports have increased twenty per cent. between the years 1853 and 1855. The exports and imports of the leading towns for the years 1853, 1854, and 1855 are as follows:

	1853.	1854.	1855.
IMPORTATIONS.			
Quebec........	£1,141,595	£1,754,320	£732,556
Montreal......	3,381,540	3,816,082	3,064,061
Toronto.......	1,165,656	1,362,706	1,401,454
EXPORTS.			
Quebec........	£2,243,453	£2,511,767	£1,558,702
Montreal......	1,883,723	572.514	475,650
Toronto.......	221,490	273,040	404,105
DUTIES COLLECTED.			
Quebec........	£128,454	£179,139	£74,307
Montreal......	449,102	478,603	310,219
Toronto.......	156,033	172,576	152,586

The Canadian £ is equal to four dollars United States currency; the shilling being equal to twenty cents. Formerly, all the importations into Canada were made via Quebec, but the opening of the Atlantic and St. Lawrence Railroad, between Portland and Montreal, has developed a large and increasing import and export trade with Montreal direct. At the same time, the Reciprocity Treaty is the means of facilitating, by a period of fifteen to twenty days, the delivery of goods at Toronto via New York, in lieu of Quebec. The export trade of the latter is mainly products of the forest, grain, etc.

EXPORTS OF CANADA FOR THE YEAR 1855.

Produce of the forest........................	£2,355.255
Produce of the mines	27,339
Produce of the sea...........................	85,000
Value of ships built.........................	620,000
Vegetable food	1,995,094
Animals and their produce	342,031
Manufactures, produce, etc.	525.006
Total	£5,950,325

The reduced business of Quebec is further shown in the comparative number of arrivals and tonnage at that port for the first ten months of 1854 and 1855.

Arrivals.	Vessels.	Tons.
1854 (to Oct. 22)	1276	559,631
1855 "	665	341,901

The value of exports from the United States to Canada for the fiscal year 1852-'53 was $7,829,000, exceeding those to any country, except Great Britain, France, and the Hanse Towns. Since then the trade with Canada has been increasing rapidly, and assuming each year a greater importance to us.

Reciprocity Treaty between the United States and Great Britain.—This treaty was concluded and signed by the respective ministers of the two governments on the 5th of June, 1854. The following is a *synopsis* of it:

Art. 1. It is agreed that United States fishermen shall have the privilege of taking fish on the sea-coasts and shores, in the bays, harbors, and creeks of Canada, New Brunswick, Nova Scotia, Prince Edward's Island, and the adjacent islands, without being restricted to any distance from the shore; with permission to land on these coasts and islands for the purpose of drying their nets and curing their fish, provided they do not interfere with any prior right of British fishermen. It is understood that this includes only sea-fish—shell-fish, salmon, and shad fisheries, and all river fisheries, are reserved exclusively for British fishermen.

Art. 2. It is agreed that British fishermen shall have similar privileges to take fish on the sea-coasts and shores of the United States north of the 36th parallel of latitude.

Art. 3. It is agreed that the articles enumerated in the following schedule, being the growth and product of the aforesaid British colonies, or of the United States, shall be admitted into each country free of duty:

Grain and breadstuffs of all kinds.
Animals of all kinds.
Fresh, smoked, and salted meats.
Cotton-wool.
Seeds and vegetables.
Undried fruits.
Dried fruits.
Fish of all kinds.
Products of fish, and of all other creatures living in the water.
Poultry.
Eggs.
Hides, furs, skins, or tails, undressed.
Stone or marble in its crude or unwrought state.
Slate.
Butter.
Cheese.
Tallow.
Lard.
Horns.
Manures.
Ores of metals of all kinds.
Coal.
Pitch, tar, turpentine.
Ashes.
Timber and Lumber of all kinds—round, hewed, and sawed, unmanufactured in whole or in part.
Fire-wood, plants, shrubs, and trees.
Pelts.
Wool.
Fish-oil.
Rice.
Broom-corn and bark.
Gypsum, ground or unground.
Hewn, or wrought, or unwrought burr or grindstones.
Dye-stuffs.
Flax, hemp, and tow, unmanufactured.
Unmanufactured tobacco.
Rags.

Art. 4. It is agreed that the citizens and inhabitants of the United States shall have the right to navigate the River St. Lawrence and the canals in Canada used as a means of communicating between the Great Lakes and the Atlantic Ocean, with their vessels, boats, and crafts, as fully and freely as the subjects of her Britannic majesty, subject only to the same tolls and other assessments as are now exacted of British subjects.

Art. 5. It is agreed that British subjects shall have the right to navigate Lake Michigan on the same terms, as long as the Canada canals and St. Lawrence River are open.

Art. 6. It is agreed that no export duty shall be levied on lumber or timber cut on that portion of the State of Maine watered by the River St. John and its tributaries, and floated down that river and shipped to the United States from the province of New Brunswick.

The effect of this treaty, especially of *Art.* 3, has been to give a great impetus to the trade between the United States and the British possessions, especially Canada. This treaty has been and will be of great advantage to both countries, promoting intercourse and extending commercial relations.

Canal, Canals. A canal is an artificial channel, filled with water kept at the desired level by means of locks or sluices, forming a communication between two or more places.

Ancient Canals.—The comparative cheapness and facility with which goods may be conveyed by sea, or by means of navigable rivers, seem to have suggested at a very early period the formation of canals. The best-authenticated accounts of ancient Egypt represent that country as intersected by canals conveying the waters of the Nile to the more distant parts of the country, partly for the purpose of irrigation, and partly for that of internal navigation. The efforts made by the old Egyptian monarchs, and by the Ptolemies, to construct a canal between the Red Sea and the Nile, are well known, and evince the high sense which they entertained of the importance of this species of communication.—AMEILHON, *Comm. des Egyptiens*, p. 76. Greece was too small a territory, too much intersected by arms of the sea, and subdivided into too many independent states, to afford much scope for inland navigation. Attempts were, however, made to cut a canal across the Isthmus of Corinth; but they did not succeed. The Romans did not distinguish themselves in canal navigation. Their aqueducts, the stupendous ruins of which attest the wealth and power of their founders, were intended to furnish supplies of water to some adjoining city, and not for the conveyance of vessels or produce.

Chinese Canals.—In China, canals, partly for irrigation and partly for navigation, have existed from a very early period. The most celebrated among them is the Imperial or Grand Canal, commencing at Hang-tchou, near the mouth of the Tching-tang-chiang river, in about lat. 30° 22′ N., long. 119° 45′ E.; it then stretches north, and, crossing the great rivers Yang-tse-Kiang and Hoang-ho, terminates at Ling-ting, on the Eu-ho River, in about lat. 37° N., long. 116° E. The direct distance between the extreme limits of the canal is about 512 miles, but, including its bends, it is above 650 miles in length; and as the Eu-ho, which is a navigable river, unites with the Pei-ho, also navigable, an internal water communication is thus established between Hang-tchou and Pekin across 10° of latitude. But, apart from its magnitude and utility, the Grand Canal does not rank high as a work of art. A vast amount of labor has, however, been expended upon it; for though it mostly passes through a flat country, and winds about to preserve its level, its bed is in parts cut down to a great depth, while in other parts it is carried over extensive hollows, and even lakes and morasses, on vast mounds of earth and stone. The sluices, which preserve its waters at the necessary level, are all of very simple construction, being merely intended to elevate or depress the height of the water by a few inches; as, excepting these, there is not a single lock or interruption to the navigation throughout the whole length of the canal. It is seldom more than five or six feet in depth, and in dry seasons is sometimes considerably less. The vessels by which it is navigated are sometimes rowed, and sometimes dragged by men, so that the navigation is for the most part slow. The canal is frequently faced with stone. The construction of this great work is usually ascribed to the Tartars, but the Chinese allege that it was merely repaired and renovated by the latter, and that it had been completed in the remotest period of their history.—BARROW's *China*, p. 335, etc.; LA LANDE, *Canaux de Navigation*, p. 529, etc.

Italian Canals.—The Italians were the first people in modern Europe that attempted to plan and execute canals. They were principally, however, undertaken for the purpose of irrigation; and the works of this sort executed in the Milanese and other parts of Lombardy, in the eleventh, twelfth, and thirteenth centuries, are still regarded as models, and excite the warm admiration of every one capable of appreciating them. In 1271, the Navilio Grande, or canal leading from Milan to Abbiate Grasso and the Tesino, was rendered navigable.—YOUNG's *Travels in France*, etc. vol. ii. p. 170.

Dutch Canals.—No country in Europe contains, in proportion to its size, so many navigable canals as the kingdom of the Netherlands, and particularly the province of Holland. The construction of these canals commenced as early as the twelfth century, when, owing to its central and convenient situation, Flanders began to be the *entrepôt* of commerce between the north and south of Europe. Their number has since been astonishingly increased. "Holland," says Mr. Phillips, in his *History of Inland Navigation*, "is intersected with innumerable canals. They may be compared in number and size to our public roads and highways; and as the latter with us are continually full of vehicles and horsemen going from and to the different cities, towns, and villages, so, on the former, the Hollanders in their boats and pleasure barges, their treckschuyts, and vessels of burden, are continually journeying and conveying commodities for consumption or exportation from the interior of the country to the great cities and rivers. An inhabitant of Rotterdam may, by means of these canals, breakfast at Delft or the Hague, dine at Leyden, and sup at Amsterdam, or return home again before night. By them, also, a most prodigious inland trade is carried on between Holland and every part of France, Flanders, and Germany. When the canals are frozen over, they travel on them with skates, and perform long journeys in a very short time, while heavy burdens are conveyed in carts and sledges, which are then as much used on the canals as on our streets. The yearly profits produced by these canals are almost beyond belief; but it has been incontestably proved that they amount to more than £250,000 for about 400 miles of inland navigation, which is £625 per mile, the square surface of which mile does not exceed two acres of ground; a profit so amazing, that it is no wonder other nations should imitate what has been found so advantageous. The canals of Holland are generally 60 feet wide and 6 deep, and are carefully kept clean; the mud, as manure, is very profitable. The canals being generally level, but few locks are required. From Rotterdam to Delft, the Hague, and Leyden, the canal is quite level, but is sometimes affected by strong winds. For the most part, the canals are elevated above the fields or the country, to enable them to carry off the water, which in winter inundates the land. To drain the water from Delftland, a province not more than 60 miles long, they employ 200 wind-mills in springtime to raise it into the canals. All the canals of Holland are bordered with dams or banks of immense thickness, and on these depends the security of the country from inundation; of course, it is of great moment to keep them in the best repair; to effect which there is a kind of militia, and in every village is a magazine of proper stores, and men whose business it is to convey stones and rubbish in carts to any damaged place. When a certain bell rings, or the waters are at a fixed height, every man repairs to his post. To every house or family there is assigned a certain part of the bank, in the repair of which they are to assist. When a breach is apprehended, they cover the banks all over with cloth and stones."

Canal from Amsterdam to Niewdiep, near the Helder.—The object of this canal, which is the greatest work of its kind in Holland, and probably in the world, is to afford a safe and easy passage for large vessels from Amsterdam to the German Ocean. This city has 40 feet of water in the road in front of its port; but the pampas or bar at the junction of the Y with the Zuyder Zee, 7 miles below, has only a depth of 10 feet; and hence all ships of any considerable burden entering or leaving the port must unload and load part of their cargoes without the bar. As the Zuyder Zee is every where full of shallows, all ordinary means of improving the access to Amsterdam were necessarily ineffectual; and the resolution was, therefore, at length adopted of cutting a canal from the city to the Helder, the most northern point of the province of Holland. The distance between these extreme points is 41 English miles, but the length of the canal is about 50½. The breadth at the surface of the water is 124½ English feet (120 Rhineland feet); the breadth at bottom, 36 feet; the depth, 20 feet 9 inches. Like the Dutch canals generally, its level is that of the highest tides, and it receives its supply of water from the sea. The only locks it requires are two tide-locks at the extremities; but there are, besides, two sluices, with flood-gates in the intermediate space. It is crossed by about 18 draw-bridges. The locks and sluices are double—that is, there are two in the breadth of the canal; and their construction and workmanship are said to be excellent. They are built of brick, for economy; but bands of limestone are interposed at intervals, and these project about an inch beyond the brick to protect it from abrasion by the sides of vessels. There is a broad towing-path on each side, and the canal is wide enough to admit of two frigates passing. The line which the canal follows may be easily traced on a map of Holland. From the Y, at Amsterdam, it proceeds north to Purmerend; thence west to Alkmaar Lake; again north by Alkmaar to a point within 2 miles of the coast, near Petten; whence it runs nearly parallel to the coast, till it joins the sea a little to the east of the Helder, at the fine harbor of Niewdiep, formed within the last 30 years. At the latter place there is a powerful steam-engine for supplying the canal with water during neap-tides, and other purposes. The time spent in towing vessels from Niewdiep to Amsterdam is 18 hours. The Helder is the only spot on the shores of Holland that has deep water; and it owes this advantage to its being opposite to the Texel, which by contracting the communication between the German Ocean and the Zuyder Zee to a breadth of about a mile, produces a current which scours and deepens the channel. Immediately opposite the Helder there are 100 feet water at high tides, and at the shallowest part of the bar to the westward there are 27 feet. In the same way, the artificial mound which runs into the Y opposite Amsterdam, by contracting the water-way to about 1000 feet, keeps a depth of 40 feet in the port (at high water), while above and below there are only 10 or 12. The canal was begun in 1819, and finished in 1825. The cost was estimated at 10,000,000 or 12,000,000 florins, or about £1,000,000 sterling. If we compute the magnitude of this canal by the cubic contents of its bed, it is the greatest, we believe, in the world, unless some of the Chinese canals be exceptions. The volume of water which it contains, or the *prisme de remplissage*, is twice as great as that of the New York and Erie Canal, or the canal of Languedoc, and two and a half times as great as that of the artificial part of the Caledonian Canal. In consequence, however, of the facility with which the Dutch canal was dug, and of the evenness of the ground through which it passes, the difficulties with which the engineer had to contend in making it were trifling compared to those which had to be overcome in constructing the canals now mentioned. We have not learned what returns this canal yields; most probably it is not, at least in a direct point of view, a profitable concern. Even in Holland, notwithstanding the lowness of interest, it would require tolls to the amount of £40,000 a year to cover interest and expenses; and so large a sum can hardly, we should think, be raised by the very moderate tolls laid on the ships passing through it.—*See* AMSTERDAM. This, however, is not the only consideration to be attended to in estimating the value of a work of this sort. Its influence in promoting the trade of Amsterdam, and, indeed, of Holland, may far more than compensate for its cost. It is evident, too, that the imposition of oppressive tolls would have effectually counteracted this advantage; that is, they would have defeated the very object for which the canal was constructed.

Danish Canals.—The Holstein Canal, in Denmark, is of very considerable importance. It joins the River Eyder with Kiel Bay, on the northeast coast of Holstein, forming a navigable communication between the North Sea, a little to the north of Heligoland, and the Baltic; enabling vessels to pass from the one to the other by a short cut of about 100 miles, instead of the lengthened and difficult voyage round Jutland, and through the Cattegat and the Sound. The Eyder is navigable for vessels not drawing more than 9 feet of water, from Tonningen, near its mouth, to Rendsburg, where it is joined by the canal, which communicates with the Baltic at Holtenau, about 3 miles north of Kiel. The canal is about 26 English miles in length, including about 6 miles of what is principally river navigation. The excavated portion is 95 feet wide at top, 51 feet 6 inches at bottom, and 9 feet 6 inches deep (English measure). Its highest elevation above the level of the sea is 24 feet 4 inches; to which height vessels are raised and let down by 6 locks or sluices. It is navigable by vessels of 120 tons burden, or more, provided they are constructed in that view. The total cost of the canal was about £500,000. It was opened in 1785, and has so far realized the views of its projectors, as to enable coasting vessels from the Danish islands in the Baltic and the east coast of Holstein, Jutland, etc., to proceed to Hamburg, Holland, England, etc., in less time, and with much less risk, than, in the ordinary course of navigation, they could have cleared the point of the Skaw; and conversely with ships from the west. The smaller class of foreign vessels, particularly those under the Dutch and Hanseatic flags, navigating the Baltic and North Seas, have largely availed themselves of the facilities afforded by this canal. About 3000 vessels pass annually through the canal. This is a sufficient evidence of its utility. It would, however, be much more frequented, were it not for the difficult navigation of the Eyder from the sea to Rendsburg. The dues are moderate.—COXE's *Travels in the North of Europe*, 5th edition, vol. v. p. 239, where there is a plan of the canal; CATTEAU, *Tableau des États Danois*, tome ii. p. 300–304; and private information.

Swedish Canals.—The formation of an internal navigation connecting the Cattegat and the Baltic has long engaged the attention, and occupied the efforts, of the people and government of Sweden. Various motives conspired to make them embark in this arduous undertaking. The Sound and other channels to the Baltic being commanded by the Danes, they were able, when at war with the Swedes, greatly to annoy the latter, by cutting off all communication by sea between the eastern and western provinces of the kingdom. And hence, in the view, partly of obviating this annoyance, and partly of facilitating the conveyance of iron, timber, and other bulky products, from the interior to the coast, it was determined to attempt forming an internal navigation, by means of the River Gotha, and the Lakes Wener, Wetter, etc., from Gottenburg to Soderkœping, on the Baltic. The first and most difficult part of this enterprise was the perfecting of the communication from Gottenburg to the Lake Wener. The Gotha, which flows from the latter to the former, is navigable, through by far the greater part of its course, for vessels of considerable burden; but, besides others less difficult to overcome, the navigation at the point called Tröllhætta is interrupted by a series of cataracts about 112 feet in height. Owing to the rapidity of the river, the stubborn red granite rocks over which it flows, and the perpendicular banks by which it is bounded, the attempt to cut a lateral canal, and still more to render it directly navigable, presented the most formidable obstacles. But undismayed by these, on which it is, indeed, most probable he had not sufficiently reflected, Polhem, a native engineer, undertook, about the middle of last century, the Herculean task of constructing locks in the channel of the river, and rendering it navigable. Whether, however, it were owing to the all but insuperable obstacles opposed to such a plan, to the defective execution, or deficient strength of the works, they were wholly swept away, after being considerably advanced, and after vast sums had been expended upon them. From this period, down to 1793, the undertaking was abandoned; but in that year the plan was proposed, which should have been adopted at first, of cutting a lateral canal through the solid rock, about 1½ mile from the river. This new enterprise was begun under the auspices of a company incorporated for the purpose in 1794, and was successfully completed in 1800. The canal is about 3 miles in length, and has about 6½ feet water.—CATTEAU, *Tableau de la Mer Baltique*, tome ii. p. 77; ODDY, in his *European Commerce*, p. 306, and BALBI, *Abrégé de la Géographie*, p. 385, say that the depth of water is 10 feet. It has 8 sluices, and admits vessels of above 100 tons. In one part it is cut through the solid rock to the depth of 72 feet. The expense was a good deal less than might have been expected, being only about £80,000. The Lake Wener, the navigation of which was thus opened with Gottenburg, is very large, deep, and encircled by some of the richest of the Swedish provinces, which now possess the inestimable advantage of a convenient and ready outlet for their products. As soon as the Tröllhætta canal had been completed, there could be no room for doubt as to the practicability of extending the navigation to Soderkœping. In furtherance of this object, the Lake Wener was joined to the Lake Wetter by the Gotha Canal, which admits vessels of the same size as that of Tröllhætta; and the prolongation of the navigation to the Baltic from the Wetter, partly by two canals of equal magnitude with the above, and partly by lakes, has since been completed. The entire undertaking is called the Gotha Navigation, and deservedly ranks among the very first of the kind in Europe. Besides the above, the canal of Arboga unites the Lake Hielmar to the Lake Maelar; and, since 1819, a canal has been constructed from the latter to the Baltic at Södertelge. The canal of Strœmsholm, so called from its passing near the castle of that name, has effected a navigable communication between the province of Dalecarlia and the Lake Maelar, etc.—For further details, see, besides the authorities already referred to, COXE's *Travels in the North of Europe*, 5th ed. vol. iv. p. 253–266, and vol. v. p. 58–66; THOMSON's *Travels in Sweden*, p. 35, etc.

French Canals.—The first canal executed in France was that of Briare, 34½ English miles in length, intended to form a communication between the Seine and the Loire. It was commenced in 1605, in the reign of Henry IV., and was completed in 1642, under his successor, Louis XIII. The canal of Orleans, which joins the above, was commenced in 1675. But the most stupendous undertaking of this sort that has been executed in France, or indeed on the continent, is the canal of Languedoc. It was projected under Francis I.; but was begun and completed in the reign of Louis XIV. It reaches from Narbonne to Toulouse; and was intended to form a safe and speedy means of communication between the Atlantic Ocean and the Mediterranean. It is 64 French leagues in length, and 6 feet deep; and has in all 114 locks and sluices. In its highest part it is 600 feet above the level of the sea. In some places it is conveyed, by bridges of great length and strength, over large rivers. It cost upward of £1,300,000; and reflects infinite credit on the engineer, Riquet, by whom it was planned and executed. Besides this great work, France possesses several magnificent canals, such as that of the Centre, connecting the Loire with the Saone; of St. Quentin, joining the Scheldt and the Somme; of Besançon, joining the Saone, and consequently the Rhone, to the Rhine; of Burgundy, joining the Rhone to the Seine, etc. Some of these are of very considerable magnitude. The canal of the Centre is about 72 English miles in length. It was completed in 1791, at an expense of about 11,000,000 francs. Its summit level is about 240 feet above the level of the Loire at Digoin; the breadth at the water's edge is about 48 feet, and at bottom 30 feet; depth of water, 5¼ feet; number of locks, 81. The canal of St. Quentin, 28 English miles in length, was completed in 1810. The canal joining the Rhone to the Rhine is the most extensive of any. It stretches from the Saone, a little above St. Jean de Losne, by Dole, Besançon, and Mulhouse, to Strasburg, where it joins the Rhine—a distance of about 200 English miles. From Dole to Vogeaucourt, near Montbéliard, the canal is principally excavated in the bed of the Doubs. It is not quite finished. The canal of Burgundy will, when completed, be about 242 kilometres, or 150 English miles, in length; but at present it is only navigable to the distance of about 95 kilometres. In addition to these, a great many other canals have been finished, while several are in progress, and others projected. There is an excellent account of the French canals, in the *Histoire de la Navigation Interieure de la France*, by M. Dutens, in 2 vols. 4to, and to it we beg to refer the reader for further details. He will find, at the end of the second volume, a very beautiful map of the rivers and canals of France. The railroads now in the course of construction in France have, however, checked the progress of canals. We may observe, too, that the state of the law in France is very unfavorable to the undertaking and success of all great public works; and we are inclined to attribute the comparative fewness of canals in France, and the recent period at which most of them have been constructed, to its influence. In that country, canals, docks, and such like works, are mostly carried on at the expense and for behoof of government, under the control of its agents. No scope has been given to the enterprise of individuals or associations. Before either a road or a canal can be constructed, plans and estimates must be made out and laid before the Minister of the Interior, by whom they are referred to the prefect of the department, and then to the *Bureau des Ponts et des Chaussés;* and supposing the project to be approved by these, and the other functionaries consulted with respect to it, the work must after all be carried on under the superintendence of some public officer. In consequence of this preposterous system, very few works of this description have been undertaken as private speculations. And while not a few of those begun by government remain unfinished and comparatively useless, those that are completed have, as was to be expected, rarely proved profitable. There are some good remarks on this subject in the useful work of M. Dupin, on the *Forces Commerciales* of Great Britain.

Prussian Canals.—The Prussian states are traversed by the great navigable rivers the Elbe, the Oder, and the Vistula; the first having its embouchure in the North Sea, and the others in the Baltic. The formation of an internal navigation, that should join these great *water-ways*, excited the attention of government at a distant period; and this object has been successfully accomplished, partly by the aid of the secondary rivers falling into the above, and partly by canals. In 1662, the canal of Muhlrose was undertaken, uniting the Oder and the Spree; the latter being a navigable river falling into the Havel, also a navigable river joining the Elbe near Havelburg. But the navigation from the Oder to the Elbe by this channel was difficult, and liable to frequent interruption; and to obviate these defects, Frederick the Great constructed, toward the middle of last century, the Finnow Canal, stretching from the Oder, at Oderburg, to the Havel, near Liebenwalde; the communication is thence continued by the latter and a chain of lakes to Plauen; from which point a canal has been opened, joining the Elbe near Magdeburg. The Elbe being in this way connected with the Oder by a comparatively easy navigation, the latter has been united to the Vistula, partly by the River Netze, and partly by a canal joining that river to the Brahe, which falls into the Vistula near Bromberg. A vast inland navigation has thus been completed, barks passing freely through the whole extent of the country from Hamburg to Dantzic; affording the means of shipping the products of the interior, and of importing those of foreign countries, either by the North Sea or the Baltic, as may be found most advantageous.—CATTEAU, *Tableau de la Mer Baltique*, tome ii. p. 11–18.

Russian Canals.—The inland navigation of Russia is of vast extent, and very considerable importance. By means partly of rivers, and partly of canals, St. Petersburg is connected with the Caspian Sea. Goods are conveyed from the latter to the capital, a distance of 7434 miles, without reshipment.

Bavarian Canals.—A grand canal, which was for a lengthened period in progress in Bavaria, was completed in 1846, and promises to become of great public utility. It extends from Dietfurth, on the Altmühl, a navigable affluent of the Danube, to Bamberg, on the Mayn, a distance of 23½ German, or about 112 English miles. It is on a large scale, and has cost above £1,000,000. This magnificent undertaking, which carries an inland navigation through the centre of Europe, and realizes the project of Charlemagne for uniting the Black Sea with the German Ocean, is conducted by a joint-stock company, with the assistance of the Bavarian government. But the navigation of the Mayn and the Danube requires to be considerably improved before this grand channel of communication acquires all the importance which, most probably, it is destined to obtain.

Austrian Canals.—The Austrian empire is traversed in its whole extent by the Danube; but the advantages that might result to the foreign trade of the empire from so great a command of river navigation have been materially abridged by the jealousy of the Turks, who command the embouchure of the river, and by the difficulties that are in some places incident to its navigation. Two pretty extensive canals have been constructed in Hungary. That called the Bega Canal is 73 English miles in length: it stretches from Fascet through the Bannat, by Temeswar to Becskerek, whence vessels pass by the Bega into the Theiss, a little above its junction with the Danube. The other Hungarian canal is called after the Emperor Francis. It stretches from the Danube by Zambor to the Theiss, which it joins near Foldvar, being 62 English miles in length; its elevation, where highest, does not exceed 27 feet. Besides the above, the canal of Vienna establishes a communication between that city and Neustadt. It is said to be the intention to continue this canal to Trieste; but however desirable, we doubt much whether this be practicable. A railroad has been made from Munchausen, on the Danube, to Budweiss, on the Moldau, a navigable river that falls into the Elbe, which promises to be a highly useful communication.—Bright's *Travels in Hungary*, p. 246; Balbi, *Abrégé de la Géographie*, p. 216.

Spanish Canals.—Nowhere are canals more necessary, both for the purposes of navigation and irrigation, than in Spain; but the nature of the soil, and the poverty and ignorance of the government, as well as of the people, oppose formidable obstacles to their construction. During the reign of Charles II., a company of Dutch contractors offered to render the Mançanares navigable from Madrid to the Tagus, and the latter from that point to Lisbon, provided they were allowed to levy a duty for a certain number of years on the goods conveyed by this channel. The Council of Castile took this proposal into their serious consideration, and, after maturely weighing it, pronounced the singular decision, "That if it had pleased God that these two rivers should have been navigable, he would not have wanted human assistance to have made them such; but that, as he has not done it, it is plain he did not think it proper that it should be done. To attempt it, therefore, would be to violate the decrees of his providence, and to mend the imperfections which he designedly left in his works!"—Clarke's *Letters on the Spanish Nation*, p. 284. But such undertakings are no longer looked upon as sinful; and many have been projected since the accession of the Bourbon dynasty, though few have been perfected. The canal of the Ebro, begun under the Emperor Charles V., is the most important of the Spanish canals; but it is only partially completed, and during dry seasons it suffers from want of water. It runs parallel to the right bank of the Ebro, from Tudela, in Navarre, to below Saragossa; the intention being to carry it to Sastago, where it is to unite with the Ebro. The canal of Castile is intended to lay open the country between the Douro and Reynosa, and to facilitate the conveyance of grain from the interior to Santander and Bilbao. It passes by Valladolid, Palencia, and Aguilar del Campos; a small part has been executed, and is now in operation. A company has also undertaken, what the Dutch contractors formerly offered, to render the Tagus navigable from Aranjuez to Lisbon—the free navigation of the river having been stipulated at the Congress of Vienna. A project for deepening the Guadalquiver and some others are also on foot.—*Geographical Dictionary*, ii. 710.

British Canals.—Owing partly to the rise of extensive manufactures and commerce in Great Britain, but more, perhaps, to the insular situation of the country, no part of which is very distant from the sea, or from a navigable river, no attempt was made in England to construct canals till a comparatively recent period. The efforts of those who first began to improve the means of internal navigation were limited to attempts to deepen the beds of rivers, and to render them better fitted for the conveyance of vessels. So early as 1635, a project was formed for rendering the Avon navigable from the Severn, near Tewkesbury, through the counties of Warwick, Worcester, and Gloucester, "that the towns and country might be better supplied with wood, iron, pit-coal, and other commodities." This scheme was approved by the principal nobility and land-owners in the adjoining counties; but the civil war having broken out soon after, the project was abandoned, and does not seem to have been revived. After the restoration, and during the earlier part of last century, various acts were at different times obtained for cheapening and improving river navigation. For the most part, however, these attempts were not very successful. The current of the rivers gradually changed the form of their channels; the dikes and other artificial constructions were apt to be destroyed by inundations; alluvial sand banks were formed below the weirs; in summer the channels were frequently too dry to admit of being navigated, while at other periods the current was so strong as to render it quite impossible to ascend the river, which at all times, indeed, was a laborious and expensive undertaking. These difficulties in the way of river navigation seem to have suggested the expediency of abandoning the channels of most rivers, and of digging parallel to them artificial channels, in which the water might be kept at the proper level by means of locks. The act passed by Parliament in 1755 for improving the navigation of Sankey Brook, on the Mersey, gave rise to a lateral canal of this description, about 11½ miles in length, which deserves to be mentioned as the earliest effort of the sort in England. But before this canal had been completed, the celebrated Duke of Bridgewater, and his equally celebrated engineer, the self-instructed James Brindley, had conceived a plan of inland navigation independent altogether of natural channels, and intended to afford the greatest facilities to commerce, by carrying canals across rivers and through mountains, wherever it was practicable to construct them. The duke was proprietor of a large estate at Worsley, 7 miles from Manchester, in which were some very rich coal-mines that had hitherto been in great measure useless, owing to the cost of carrying coal to market. Being desirous of turning his mines to some account, it occurred to his grace that his purpose would be best accomplished by cutting a canal from Worsley to Manchester. Mr. Brindley, having been consulted, declared that the scheme was practicable; and an act having been obtained, the work was immediately commenced. "The principle," says Mr. Phillips, "laid down at the commencement of this business reflects as much honor on the noble undertaker as it does upon his engineer. It was resolved that the canal should be perfect in its kind; and that, in order to preserve the level of the water, it should be free from the usual obstruction of locks. But in accomplishing this end many difficulties were deemed insurmountable. It was necessary that the canal should be carried over rivers, and many large and deep valleys, where it was evident that such stupendous mounds of earth must be raised as would scarcely, it was thought by numbers, be completed by the labor of ages; and, above all, it was not known from what source so large a supply of water could be drawn, even on this improved plan, as would supply the navigation. But Mr. Brindley, with a strength of mind peculiar to himself, and being possessed of the confidence of his great patron, contrived such admirable machines, and took such methods to facilitate the progress of the work, that the world soon began to wonder how it could be thought so difficult.

The success that attended the Duke of Bridgewater's canal stimulated public-spirited individuals in other districts to undertake similar works. Mr. Brindley had early formed the magnificent scheme of joining the great ports of London, Liverpool, Bristol, and Hull, by a system of internal navigation; and though he died in 1772, at the early age of 56, he had the satisfaction to see his grand project in a fair way of being realized. The Trent and Mersey, or, as it has been more commonly termed, the Grand Trunk Canal, 96 miles in length, was begun in 1766, and completed in 1777. A water communication between Hull and Liverpool was thus completed; and by means of the Staffordshire and Worcestershire Canal, which joins the Grand Trunk near Haywood in the former, and the Severn near Stourport in the latter, the same means of communication was extended to Bristol. During the time that the Grand Trunk Canal was being made, a canal was undertaken from Liverpool to Leeds, 130 miles in length; another from Birmingham to the Staffordshire and Worcestershire Canal, joining it near Wolverhampton; and one from Birmingham to Fazely, and thence to Coventry. By canals subsequently undertaken, a communication was formed between the Grand Trunk Canal and Oxford, and consequently with London, completing Brindley's magnificent scheme. In 1792 the Grand Junction Canal was begun, which runs in a pretty straight line from Brentford, on the Thames, a little above the metropolis, to Braunston, in Northamptonshire, where it unites with the Oxford and other central canals. It is about 90 miles in length. There is also a direct water communication, by means of the River Lea navigation, the Cambridge Junction Canal, etc., between London and the Wash. In addition to these, an immense number of other canals, some of them of great magnitude and importance, have been constructed in different parts of the country; so that a command of internal navigation has been obtained, unparalleled in any European country, with the exception of Holland.

In Scotland, the great canal to join the Forth and Clyde was begun in 1768, but it was suspended in 1777, and was not resumed till after the close of the American war. It was finally completed in 1790. Its total length, including the collateral cuts to Glasgow and the Monkland Canal, is 38¾ miles. Where highest, it is 150 feet above the level of the sea. It is on a larger scale than any of the English canals. Its medium width at the surface is 56, and at the bottom 27 feet. Originally it was about 8 feet 6 inches deep; but within these few years its banks have been raised, so that the depth of water is now about 10 feet. It has in all 39 locks. In completing this canal many serious difficulties had to be encountered. These, however, were all successfully overcome; and though unprofitable for a while, it has for many years past yielded a handsome return to its proprietors, the dividend having latterly been about 20 per cent. on the original stock. Swift boats on the plan of those subsequently described were established on this canal in 1832.—*See* CLELAND'S *Statistics of Glasgow*, p. 170, etc. The Union Canal joins the Forth and Clyde Canal near Falkirk, and stretches thence to Edinburgh, being 31½ miles in length. It is 40 feet wide at the top, 20 at the bottom, and 5 deep. It was completed in 1822. But it appears to have been an extremely ill-advised undertaking; so much so that its proprietors have sold it, at a heavy loss, to the Edinburgh and Glasgow Railway Company, who employ it in the conveyance of coal and other heavy goods. A canal intended to form a communication between Glasgow, Paisley, and Ardrossan, was commenced in 1807; but only that portion connecting Glasgow with Paisley and the village of Johnstoun has hitherto been finished. This part is about 12 miles long; the canal being 30 feet broad at top, 18 at bottom, and 4½ deep. It was here that the experiments were originally made on quick traveling by canals, which are said to have demonstrated that it was practicable to impel a properly-constructed boat, carrying passengers and goods, along a canal at the rate of 9 or 10 miles an hour, without injury to the banks! The Crinan Canal across the peninsula of Kintyre, admitting vessels of 160 tons burden, is 9 miles in length, and 12 feet in depth. The Caledonian Canal is the greatest undertaking of the sort attempted in the empire. It stretches southwest and northeast across the island from a point near Inverness to another near Fort William. It is chiefly formed by Loch Ness, Loch Oich, and Loch Lochy. The total length of the canal, including the lakes, is 60½ miles; but the excavated part is only about 23 miles. At the summit it is 96½ feet above the level of the Western Ocean. It is mostly constructed upon a grand scale, being intended to be 20 feet deep, 50 feet wide at bottom, and 122 at top; the locks are 20 feet deep, 172 long, and 40 broad; and had it been wholly executed as was originally intended, frigates of 32 guns, and merchant ships of 1000 tons burden, might have passed through it. It was opened in 1822, being executed entirely at the expense of government, from the designs and under the superintendence of Thomas Telford, Esq. The entire cost amounted, exclusive of interest, on the 1st of May, 1853, to £1,347,780. It would appear, however, to have been projected without due consideration, and has been a most unprofitable speculation. The revenue of the canal amounted, in 1852–'53, to only £5889, whereas the expenditure during the same year amounted to £7429! But this is not all. Owing to a wish to lessen the expense, and to hasten the opening of the canal, parts of it were not excavated to their proper depth, while others were executed in a hurried and insufficient manner. Hence the canal does not really admit vessels of above 250 or 300 tons burden; and previously to steam-tugs being provided on the lakes, they were frequently delayed in making their passage across for a lengthened period. During 1837 and 1838 the works sustained considerable damage; and the reader need not be surprised to hear that it was gravely debated whether it would not be better entirely to break up and abandon the canal! There was naturally, however, an extreme disinclination to destroy a work which, how inexpedient soever originally, has been executed at an enormous expense; and various schemes have been suggested for relieving the public from the expense of keeping it up without involving its destruction. Among others, it has been proposed to assign it to a joint-stock company, on their agreeing to complete the works and keep them in repair; and an act authorizing such transfer was passed in 1840. But hitherto it has not been found possible to dispose of the canal in this way; and Parliament has since voted large sums for the partial repair of the works, which, though a good deal improved, will every now and then require fresh outlays. Some other canals have been projected and completed in different parts of Scotland. Of these the Monkland Canal, for the supply of Glasgow with coal, has been the most successful.

Irish Canals.—Various canals have been undertaken in Ireland, of which the Grand Canal and the Royal Canal are the principal. The Grand Canal was begun in 1765, by a body of subscribers; but they could not have completed the work without very large advances from government. The canal commences at Dublin, and stretches in a westerly direction, inclining a little to the south, to the Shannon, with which it unites near Banagher, a distance of 85 statute miles, and thence on the west side of the river to Ballinasloe, 14 miles. But, exclusive of the main trunk, there is a branch to Athy, where it joins the Barrow, a distance of about 27 miles; and there are branches to Portarlington, Mount-Mellick, and some other places. The total length of the canal, with its various branches, is about 164 English miles. Its summit elevation is two hundred feet above the level of the sea at Dublin. It is 40 feet wide at the surface, from 24 to 20 feet at bottom, has six feet water, and cost in all above £2,000,000.

American Canals.—The States of the Union are distinguished by the spirit with which they have undertaken, and the perseverance they have displayed in executing, the most magnificent plans for improving and extending internal navigation. The following is a description of the principal canals in the United States:

MAINE.—Cumberland and Oxford Canal. This navigation, partly natural and partly artificial, extends about 50 miles from Portland, Maine, to Sebago Lake. The head of the canal is at the end of Long Pond, which is 10 miles in length.

NEW YORK.—This State has the most extended and important system of canals, connecting the navigation of the Hudson River with that of the great Lakes, and Lake Champlain, Delaware, and Alleghany Rivers. Champlain Canal is 63½ miles in length, 40 feet wide at the surface, 28 feet at the bottom, and 4 feet in depth, and connects Albany, on the Hudson River, with Whitehall on Lake Champlain.

Important Connection of New York Canals.—The Lateral Canal, connecting the canals of New York State with the head waters of the Alleghany River, has just been finished to its terminus at Olean, on that river, in Cattaraugus county, New York. From thence it extends to the Genesee Canal, on the Genesee River, in Alleghany county, New York, which runs north to Rochester, where it commands the trade of Lake Ontario, and, connecting with the Erie Canal, leads to Buffalo and Albany. The connection of Pittsburg and Rochester, by this route, depends on the navigation of the Alleghany River. The whole distance to Olean, 240 miles, is said to be navigable, and for 200 miles above Pittsburg it is navigable for small steamboats. The consummation of this work will be of vital importance to the people of the Alleghany Valley, and a large share of the rapidly increasing trade of that section will find its way to this city over the Pennsylvania Railroad. The distance from Pittsburg to Philadelphia is 353 miles, and from Olean to New York, by the New York and Erie Railroad, is 396 miles.

Delaware and Hudson Canal, built by a private company. It is 33 miles in length, 32 feet wide at the surface, 20 feet at the bottom, and 4 feet deep. It connects the Hudson at Rondout with the Delaware River, and connects with the Lackawaxen Canal, in Pennsylvania. The principal trade of this canal is in coal, as it extends by its connections into the coal region of Pennsylvania.

NEW JERSEY.—Morris Canal is 102 miles long, 32 feet wide at the surface, and 18 feet at the bottom, and 4 feet deep. It extends from Jersey City, on the Hudson, to Easton, Pennsylvania, where it connects with the Lehigh Canal, Pennsylvania.

PENNSYLVANIA.—Schuylkill Canal or Navigation. It is 108 miles in length, is 36 feet wide at the surface, 24 feet at the bottom, and 4 feet deep. It extends from Philadelphia to Reading, and from thence to Mount Carbon, where it has connections with the anthracite coal mines.

The Pennsylvania Canal is formed of several divisions: it is to connect Columbia with Pittsburg, on the Ohio; but its middle division over the Alleghany Mountains, from Hollidaysburg, on the eastern side, to Johnstown, on the western side, is a division of railroad. Its total length, including 37 miles of railroad, is 315 miles.

The Chesapeake and Ohio Canal, had it been completed, would have been a great and useful work. It begins at the tide-water of the Potomac River, above Georgetown, in the District of Columbia, and is intended to terminate at Pittsburg, in Pennsylvania, a distance of 341½ miles. Its dimensions are nearly identical with those of the new Erie Canal: its breadth at the surface being from 60 to 80 feet, 50 feet at the bottom, with a depth of water varying from 6 to 7 feet. Several tunnels occur in the line, which crosses the Alleghany ridge. The cost of this work was estimated at $22,275,000, which were to be subscribed partly by individuals, and partly by the United States and the States of Maryland and Pennsylvania. This canal now terminates at Cumberland, Maryland, and there is but a slight probability of its ever being completed.

OHIO.—The principal canal in this State is from Portsmouth, on the Ohio, to Cleveland, on Lake Erie: it is 307 miles long.

ILLINOIS.—The canal from Chicago, on Lake Michigan, to Peru, on the Illinois River, is of the first importance to the trade of this State.

INDIANA.—The Louisville and Portland Canal, now the sole property of the United States, has been under the direction of the Treasury Department the past two years. The tolls, by direction of the department, were reduced one-half, and the receipts for the past two years have been expended in the repair of the locks and enlargement of the canal, improvement of the bridges, etc.

Erie Canal.—Besides others of great, though inferior, magnitude, a canal has been formed connecting the Hudson with Lake Erie. This work is 363 miles in length, the rise and fall along the entire line being 692 feet. It was originally 40 feet wide at the surface, 28 feet at the bottom, and 4 feet deep. But these dimensions being found, from the rapidly increasing traffic and importance of the canal, to be far too limited, an act was passed in 1835 providing for its enlargement. Under this act the canal has been increased, so as to be 70 feet wide on the surface, 42 feet at the bottom, and 7 feet in depth, the locks being of corresponding dimensions. The original cost of the canal was $9,027,456; and the cost of the enlargement has been about $25,000,000, or nearly three times its first cost. The Erie Canal is the property of the State of New York, and is one of the greatest and most important works of its kind in the world. Notwithstanding the contracted scale on which it was originally constructed, it has completely verified the predictions of its projector, De Witt Clinton, having been of singular advantage, in a public point of view, to the State of New York and the Union generally. This work was first suggested as early as the year 1816, by a memorial from the City of New York to the Legislature. An artificial canal from the Hudson to Lake Erie had, in fact, been under consideration by eminent citizens of the State for a century before. As early as 1724, Cadwallader Colden, then surveyor general of the province of New York, described the route as practicable to Lakes Champlain and Ontario. During the Revolution, the importance of such a work was made evident. After that period, General Washington made a tour to the interior of New York, and also westwardly to Pittsburg, and at that early day urged the connection of the Ohio with the waters of the Chesapeake. President Jefferson took a deep interest in the same subject, and said, "there will be a competition between the Hudson and Potomac Rivers for the residue of the commerce of all the country westward of Lake Erie."—*See* HUNT's *Merchants' Magazine*, September, 1850, p. 262. He urged the construction of a canal from the Ohio to the Chesapeake, as nearer to Alexandria than New York by 580 miles; and that navigation through New York would be closed several months of the year; "whereas the channel to the Chesapeake leads directly into a warmer climate, so that vessels may pass the whole winter, subject only to short delays."—*Ibid.* The importance of adding facilities for communication with the western parts of New York was also urged by Governor Clinton, in 1791 and 1792; by General Schuyler; Surveyor general De Witt, in 1808; and at every meeting of the Legislature from the time of the adoption of the Constitution, the subject was strongly urged upon the consideration of the members. In March, 1810, a joint resolution was introduced for the appointment of Governeur Morris, Stephen Van Rensselaer, De Witt Clinton, Peter B. Porter, and others, as commissioners for exploring the route for inland navigation from the Hudson to Lakes Ontario and Erie; and $3000 appropriated for expenses of surveys. A through canal was then considered as the acme of human wishes, so far as communication with the *Far West* was concerned. Railroads were not dreamed of then, nor, in fact, until the years 1820 and 1825.

The commissioners said in 1812: "Viewing the extent and fertility of the country with which this canal is to open a communication, it is not extravagant to suppose that, when settled, its produce will equal the present export of the United States." (The foreign exports of that year amounted to the enormous sum of $38,000,000, and four years before were $108,000,000). And they add, "Will it appear improbable that twenty years hence (1832) the canal should annually bring down 250,000 tons?"

The prophecy of the commissioners was more than fulfilled. In twenty years after the completion of the Erie Canal, there came to tide-water on that canal 1,107,000 tons, valued at more than $45,000,000; and the tolls amounted to two and a half millions of dollars.

On the 26th of October, 1825, eight years and four months from the time of its commencement, the Erie Canal was completed. The original profile of the Erie Canal, published in 1825, shows 83 locks, and a rise and fall equal to 687 feet. These were finally reduced to 71 locks, and a rise and fall of 640 feet.

In 1828, an act was passed to connect the Cayuga and Seneca Canal with Cayuga Lake. In 1829 the construction of the Chenango Canal was authorized, and surveys ordered of a route from the Erie Canal to the Alleghany River; 2. For the Black River Canal; 3. For a canal from Otsego Lake to the Erie Canal.

In July, 1835, the Canal Board resolved that the Erie Canal be enlarged, so as to give 6 feet depth and 60 feet width of water on the surface, and that the locks be 105 feet long and 15 feet wide in the clear. It was finally decided to make the locks 110 feet long and 18 feet wide.

Previous to this time, in addition to the Erie and Champlain Canals, the following had been authorized:

1. The Oswego Canal; from the Erie Canal at Syracuse to Lake Ontario, thirty-eight miles, finished in 1838, at a cost of	$565,437
2. The Cayuga and Seneca Canal, connecting the Cayuga and Seneca Lakes with the Erie Canal at Montezuma, twenty-three miles, finished in 1829, at a cost of	237,000
3. The Chemung Canal, connecting the Chemung River at Elmira with the head of Seneca Lake; length in all, thirty-nine miles; finished in 1833, at a cost of	$316,000
4. Crooked Lake Canal, eight miles, finished in 1836	$120,000
5. The Chenango Canal, from the Susquehanna River at Binghamton to the Erie Canal at Utica, ninety-six miles, finished in 1837	$2,417,000

CANAL TOLLS OF THE ERIE AND CHAMPLAIN CANALS.

Years.	Erie Canal.		Champlain Canal.		Total Tolls.
	Miles.	Tolls.	Miles.	Tolls.	
1820	94	$5,244			$5,244
1821	94	23,001	24	$1,386	24,388
1822	116	60,446	49	3,625	64,072
1823	160	126,132	61	26,966	153,100
1824	280	294,546	64	46,214	340,761
1825	333	492,664	64	73,615	566,280
1826	363	677,466	64	84,536	762,003
1827	363	775,919	64	83,341	859,260
1828	363	727,650	64	107,757	835,407
1829	363	707,883	64	87,171	795,054
1830	363	943,545	64	89,053	1,032,600
1831	363	1,091,714	64	102,896	1,194,610
1832	363	1,085,612	64	110,191	1,195,804
1833	363	1,290,136	64	132,539	1,422,695
1834	363	1,179,744	64	115,211	1,294,956
1835	363	1,375,821	64	116,131	1,491,952
1836	363	1,440,539	64	115,425	1,555,965
		$12,297,929		$1,296,084	$13,594,013

A further enlargement of the Erie Canal, and of the Genesee Valley and Black River Canals, was authorized by the law of July 10, 1851. This Act, although declared unconstitutional, was subsequently confirmed.—*See* NEW YORK and HUDSON RIVER.

CANALS IN THE UNITED STATES—1850.

Canals.	Miles.
Maine.	
Cumber'd and Oxford	20·5
Songo River Impr.	30·
New Hampshire.	
Bow Falls	·8
Hookset Falls	·1
Amoskeag Falls	1·
Sewell's Falls	·3
Middlesex	9·
Vermont.	
White River Falls	·5
Bellow's Falls	·2
Waterqueechy	·4
Massachusetts.	
Middlesex	27·
Pawtucket	1·6
Blackstone	45·
Hampshire	22·
Montague Falls	3·
South Hadley Falls	2·
Rhode Island.	
Blackstone	—
Connecticut.	
Enfield Falls	5·5
New York.	
Erie	364·
Champlain Junction	64·
Waterford Junction	2·
Oswego	38·
Cayuga and Seneca	21·
Crooked Lake	8·
Chemung	39·
Chemung Feeder	16·
Chenango	97·
Genesee Valley	108·5
Danville Branch	11·
Black River	77·5
Black River Feeder	10·
Delaware and Hudson	83·
Harlaem (not used)	3·
Croton Aqueduct	40·
Oneida	8·
New Jersey.	
Delaware and Raritan	42·
Morris	101·
Salem	4·
Pennsylvania.	
Delaware Division	59·7
Eastern Division	44·5
Susquehanna Division	39·
Juniata	127·5
West Branch	75·
North Branch	73·
Western Division	105·
Franklin	22·
Erie and Beaver	136·
French Creek Feeder	27·
Lackawaxen	22·
Bald Eagle	25·
Tide-water	45·
Conestoga	18·
Codorus	11·
Schuylkill	108·
Union	82·
Lehigh Navigation	47·
Delaware.	
Chesapeake and Del.	14·
Maryland.	
Chesapeake and Ohio	184·
Chesapeake and Delaware	—
Virginia.	
Alexandria	7·2
James River and Kanawha	148·
Dismal Swamp	23·
Branches	11·
North Carolina.	
Weldon	12·
Club Foot	1·5
Dismal Swamp	—
South Carolina.	
Santee	22·
Winyaw	7·5
Saluda	6·2
Drehr's	1·3
Lorick	1·
Lockhart's	2·7
Wateree	4·
Catawba	7·8
Georgia.	
Savannah	16·
Brunswick	12·
Alabama.	
Muscle Shoal	35·7
Huntsville	16·
Louisiana.	
Orleans Bank	4·2
Carondelet	4·
Barataria	85·
Lake Veret	8·
Kentucky.	
Louisville and Portl'd	2·5
Kentucky River Impr.	100·
Licking " "	94·
Green " "	190·
Barren " "	100·
Illinois.	
Illinois and Michigan	100·
Indiana.	
Wabash and Erie	367·7
Whitewater	—
Ohio.	
Ohio and Erie	307·
Zanesville Branch	14·
Columbus "	10·
Lancaster "	9·
Hocking Valley	56·
Walhonding Branch	25·
Eastport "	4·
Dresden "	2·
Miami and Branches	87·7
Miami Extension, etc.	139·
Wabash and Erie	91·
Muskingum Impr.	91·
Sandy and Beaver	86·

COMPARATIVE COST OF CANALS.

	Miles.	Per Mile.
Of New York	513	$24,150
Of Pennsylvania	642	26,100
Of New Jersey	144	41,300
Of Maryland and Delaware	204½	62,350
Of Virginia	147	34,150
Of Ohio	646	16,600
Of Indiana	379	33,968
Of Illinois	102	84,846
Of Canada	89½	155,300

Recapitulation of canals (including slack-water navigation) in each State in 1854.

States.	Miles of Canals.
Alabama	51
Connecticut	61
Delaware	14
Florida	....
Georgia	28
Illinois	100
Indiana	367
Iowa	....
Kentucky	486
Louisiana	101
Maine	50
Maryland	184
Massachusetts	100
Michigan	....
Mississippi	....
Missouri	....
New Hampshire	11
New Jersey	147
New York	989
North Carolina	13
Ohio	921
Pennsylvania	936
Rhode Island	....
South Carolina	50
Tennessee	....
Texas	....
Vermont	....
Virginia	189
Wisconsin	....
Total	4798

Canadian Canals.—The British government has expended a very large sum upon the Rideau River and Canal, stretching from Kingston, on Lake Ontario, to Bytown, on the Ottawa, or Grand River, an affluent of the St. Lawrence. But this work was undertaken as much in the view of improving the military defenses of Canada as of protecting its commerce, though in the latter respect it has been of considerable utility. The British government has also constructed the Welland Canal, uniting Lakes Erie and Ontario, the navigation between which by the river is interrupted by the Falls of Niagara. This canal has become a well-frequented commercial channel, and is every day rising in importance. The public works of Canada have already attained some degree of celebrity, both in America and England. "There is no country," observes Mr. I. D. Andrews, in his report to the United States Senate, "which possesses canals of the magnitude and importance of those in Canada." The Erie Canal, which is the rival American water route for carrying the produce of the great Western wheat-growing countries to the Atlantic sea-board, is capable only of transporting barges of 75 tons burden; whereas the canals of Canada are on a scale to allow of ocean-going vessels of from 350 to 500 tons, and carrying 4000 barrels of flour, to proceed through them, and thus accomplish an inland navigation into the heart of the continent for a distance of 1587 miles from tide water at Quebec. The public productive works of Canada, consisting of canals, light-houses, etc., yielded a net revenue in 1851 of £58,738. The work yielding the largest amount of revenue was the Welland Canal, extending from the head of Lake Ontario to the foot of Lake Erie, thus overcoming the interruption to navigation caused by the Falls of Niagara. The length of the main trunk of this canal is 28 miles, and of a feeder branch, from the Grand River to the main trunk, 21 miles. Its width at bottom is 35 feet, at top 71 feet, and the depth is 10 feet. The dimensions of the locks are from 150 to 200 feet in length, the width from 26½ to 45 feet, and the depth on metre 9½ feet. The amount of lockage is 346 feet, and the number of locks 27. This canal is also important as affording an unlimited supply of water-power to numbers of mills and factories on its banks. The St. Lawrence Canals, connecting Lake Ontario with the River St. Lawrence at Montreal, extend in all to 40½ miles, having 27 locks, and an amount of lockage of 204¾ feet. The whole of these have the dimensions of their locks as large as those of the Welland Canal, and have all 9 feet of water in these locks. The Lachine Canal, cutting through the island of Montreal, is 8 miles in length and 10 feet deep. It is now in contemplation to construct another important canal, connecting Lake Champlain with the St. Lawrence, and thus afford a more desirable route for the trade between the Hudson River and Canada and the Western States.

Increased Speed of Traveling by Canals.—Great, however, as have been the advantages derived from the formation of canals, their progress has been to a considerable degree checked by the formation of RAILROADS (which see). We believe, however, that canals will always be preferred for the conveyance of coal and other bulky and heavy products; and even passengers are now conveyed along them with a rapidity that would previously have been supposed impossible. This new system was introduced on the Paisley and Glasgow Canal, by Mr. Houston, in June, 1831. The results are described in the following statements, to which it is unnecessary to call the reader's attention.

Mr. Thomas Grahame, civil engineer, in his "Letter to Canal Proprietors and Traders," says, "The experiments of great velocity have been tried and proved *on the narrowest, shallowest, and most curved canal in Scotland*, viz., the Ardrossan or Paisley Canal, connecting the city of Glasgow with the town of Paisley and village of Johnstoun, a distance of 12 miles." The result has disproved every previous theory as to difficulty and expense of attaining great velocity on canals, and as to the danger or damage to their banks by great velocity in moving vessels along them. "The *ordinary speed* for the conveyance of passengers on the Ardrossan Canal has, for nearly two years, been *from nine to ten miles an hour;* and, *although there are fourteen journeys along the canal per day at this rapid speed, its banks have sustained no injury*. The boats are 70 feet in length, about 5 feet 6 inches broad, and, but for the extreme narrowness of the canal, might be made broader. They carry easily from 70 to 80 passengers; and, when required, can and have carried upward of 110 passengers. The entire cost of a boat and fittings up is about £125. The hulls are formed of light iron plates and ribs, and the covering is of wood and light oiled cloth. They are more airy, light, and comfortable than any coach. They permit the passengers to move about from the outer to the inner cabin, and the fares per mile are *one penny* in the *first*, and *three farthings* in the *second cabin.* The passengers are all carried under cover, having the privilege also of an uncovered space. These boats are drawn by two horses (the prices of which may be from £50 to £60 per pair), in stages of four miles in length, which are done in from 22 to 25 minutes, including stoppages to let out and take in passengers, each set of horses doing three or four stages alternately each day. In fact, the boats are drawn through this narrow and shallow canal at a velocity which many celebrated engineers *had demonstrated, and which the public believed, to be impossible.* The entire amount of the whole expenses of attendants and horses, and of running one of these boats four trips of 12 miles each (the length of the canal), or 48 miles daily, including interest on the capital, and 20 per cent. laid aside annually for replacement of the boats, or loss on the capital therein vested, and a considerable sum laid aside for accidents and replacement of the horses, is £700 some odd shillings; or, taking the number of working days to be 312 annually, something under £2 2*s.* 4*d.* per day, or about 11*d.* per mile. The actual cost of carrying 80 to 100 persons a distance of 30 miles (the length of the Liverpool Railway), at a velocity of nearly 10 miles an hour, on the Paisley Canal, one of the most curved, narrow, and shallow in Britain, is therefore just £1 7*s.* 6*d.* sterling. Such are the facts, and, incredible as they may appear, they are facts which no one who inquires can possibly doubt. Boats on this principle have since been established on a great many British canals, and on the Grand and Royal Canals in Ireland.

Profits of Canals.—It is a well-known fact that canals, at an average, and allowing for the length of time that must elapse from the first outlay of capital before they yield any return, are not very productive. When, indeed, they connect places that have an extensive intercourse, and when no very extraordinary difficulties have to be surmounted in their construction, they most commonly yield very large profits; but, generally speaking, this does not appear to be the case; and, on the whole, they seem to have been more beneficial to the public than to their projectors.

Canary Islands. They lie in the North Atlantic Ocean, between the parallels of lat. 27° 40' and 29° 30' N., and the meridians of long. 13° 30' and 18° 20' W. The names of the seven principal islands, their respective area in English square miles, and their population in 1835, are given in the following table:

	Teneriffe.	Grand Canary.	Palma.	Lanzarote	Fuerteventura.	Gomera	Hierro.
Area, sq. miles....	877·7	758·3	718·5	323·5	326·1	169·7	82·2
Population	85,000	68,000	33,000	17,400	13,800	11,700	4400

Fuerteventura lies nearest to the African coast, the interval being between 50 and 60 miles. Besides these, there are many islets, most of which are uninhabited. The grape disease made its appearance at the Canaries in 1853, and destroyed nearly the whole crop. Previously the total annual produce was estimated at about 40,000 pipes, of which 25,000 pipes were produced in Teneriffe. Between 8000 and 9000 pipes were exported. The price per pipe on board ranged from £8 to £20. Some of the wine is distilled into good brandy. Sumach for the tanners, canary-seed, and a little flax, are grown. The gardens produce, in addition to the vegetables of English gardens, pumpkins, gourds, yams (taro), garlic, red pepper, and the castor-oil plant. The fruit trees are badly managed, so that the fruit is generally inferior. Here are found fruits from every quarter of the globe, including oranges, figs, bananas, dates, pine-apples, pomegranates, papaws, guavas, custard apples, and prickly pears (the fruit of the cactus). There are no cocoa-nut trees or bread-fruit trees, as Humboldt reports. A little oil is obtained from the olive in Grand Canary. The agave is abundant, and supplies a material for ropes, girths, etc. The leaves of the date palm are made into hats and baskets. A good deal of orchilla lichen is gathered for exportation; and the ice-plant is cultivated for barilla. The sugar manufacture, once so largely carried on, has fallen before the American and West Indian trade; the only two existing mills are on Palma. Wine having been for some time so little remunerative, other things have received attention, the chief of which is the cochineal insect, which feeds on the common cactus (*Opuntia tuna*), and is now largely produced on all the islands, land formerly occupied by grain and vines being devoted to its cultivation. The insect has not been long introduced, but the cultivation has rapidly extended. In 1849, 800,000 pounds were exported, principally to France and England. Since that year the exports have much increased; the price paid to the Canary exporter is about a dollar per pound. The silkworm is reared to a small extent, chiefly on Palma. Raw silk is exported, and some is manufactured on the spot into stockings, ribbons, etc. Some linen and woolen stuffs of a coarse kind are made for home consumption, but the great bulk of the clothing in use is of British manufacture. The island goats (a peculiar and esteemed breed) furnish milk, from which butter and cheese are made. Sheep, of a small coarse-wooled breed, are numerous. Horses and cattle are scarce; domestic fowls and rabbits are plentiful. Asses and mules are much used. A fishery on the African coast, at present engaging from 40 to 50 vessels, and giving employment to many persons, has existed since an early period. It was deemed of such importance, that the home government lately sent out a commissioner to report on it with a view to its improvement. The fish taken is principally bream. It is salted, and largely consumed at the Canaries. There is an extensive intercourse by means of boats and small sailing vessels among the different islands. In this way wine, raw silk, cochineal, barilla, and dried fruits are taken to the places of export; and grain is conveyed from those islands where it is abundant to those where the supply is deficient. The principal foreign trade is with England, the chief exports being wine, cochineal, barilla, and orchilla. The imports consist of iron, metal goods, glass, crockery, leather, silk, cotton, and woolen manufactures. There is also a considerable trade with the United States, and the countries bordering the Mediterranean. With Hamburg and France an exchange of commodities takes place. The ships employed in this commerce are foreign, chiefly British, but the islanders send a few vessels of their own with brandy, coarse earthen-ware, and silk goods to the Spanish West Indies, bringing back cigars, sugar, coffee, rum, cacao (the material of chocolate), and a few other articles. Santa Cruz, Orotava, and Las Palmas, are the only ports engaged in foreign trade: nearly 200 vessels enter these ports in the course of a year. In 1852 the ports were practically made free—the small duty of 2*s.* per cent. only being now levied upon imported goods, with the exception of tobacco, which pays 5*d.* per pound, and cigars, which pay 10*d.* per pound. A Spanish steamer from Cadiz makes two voyages to Santa Cruz every month. The Spanish government packet, on her outward voyage to Havana, touches at Santa Cruz once a month; and the same port is visited monthly by the English mail steamers to Brazil and the African coast, both on their outward and homeward voyages.

Teneriffe, the largest island of the group, lies between Canary and Gomera. It is of an irregular shape, 60 miles in length, with an extreme breadth of 30 miles. Not more than one-seventh is cultivable. A chain of mountains traverses the island in the direction of its greatest length, and in the middle of the broadest part rises the celebrated peak locally known as the Pico de Teyde, which, with its supports and spurs, occupies nearly two-thirds of the whole island. It has a double top; the highest, El Piton, is 12,180 feet above the sea; the second, Chahorra, connected with the first by a short and narrow ridge, has a height of 9880 feet. They are both orifices in the same grand dome of trachyte. Neither reaches the line of perpetual snow. There is, however, a natural cavern, 11,000 feet above the sea, where snow is preserved all the year. Snow remains about four months on the upper part of the peak.—E. B.

There are several species of *nopal* (*la Tunera silvestre*), Indian fig (*Cactus tuna*), short leaf with numerous thorns, which serves only for coloring sugar, fruit, and wafers; and *la Tunera amarilla*, with large, yellow, sweet fruit, and round green leaves. The *Tunera blanca* is best adapted for the culture of cochineal; but it is inconvenient on account of its numerous thorns. Lastly, there is an American species, with very soft thorns, which is likewise available for cochineal culture.

The following table shows the increased product and exportation of cochineal from the Canaries:

Years.	Pounds.	Years.	Pounds.
1831	7½	1842	69,116
1832	118	1843	74,964
1833	1,060	1844	88,294
1834	1,752	1845	168,109
1835	4,561	1846	232,550
1836	5,966	1847	296,292
1837	7,001	1848	375,585
1838	23,112	1849	449,757
1839	27,661	1850	782,670
1840	66,521	1851	368,109
1841	90,919	1852	806,254

Thus, in the year 1853, the exportation would probably amount to 1,300,000 pounds; and the value of this, since the increased price consequent on the failure of crops in Honduras, would be £225,000.

Candle (Ger. *Lichter*, *Kerzen*; Du. *Kaarzen*; Fr. *Chandelle*; It. *Candelle*; Sp. and Port. *Velas*; Russ. *Swjetschi*; Lat. *Candela*), a taper of tallow, wax, or spermaceti, the wick of which is commonly of several threads of cotton spun and twisted together. The Roman candles were composed of strings surrounded by wax or dipped in pitch. Splinters of wood, fatted, were used for light among the lower classes in England about A.D. 1300. At this time wax candles were little used, and esteemed a luxury, and dipped candles usually burned. The Wax Chandlers' Company, of London, was incorporated 1484. Mould candles are said to be the invention of the sieur Le Brez, of Paris. Spermaceti candles are of modern manufacture. The Chinese candles are made from the berries of the candlebury-myrtle, and they universally burn this wax, which is fragrant, and yields a bright light.—HAYDN.

Dr. Ure gives the following table, as containing the result of certain experiments he had made, in order to determine the relative intensity of the light, and the duration of different sorts of tallow candles:

Number in a Pound.	Duration of a Candle.	Weight in Grains.	Consumption per Hour, in Grains.	Proportion of Light.	Economy of Light.	Candles equal one Argand.
10 mould	5 hrs. 9 min.	682	132	12¼	68	5·7
10 dipped	4 " 36 "	672	150	13	65¼	5·25
8 mould	6 " 31 "	856	132	10¼	59¼	6·6
6 mould	7 " 2¼ "	1160	163	14¼	66	5·0
4 mould	9 " 36 "	1787	186	20¼	89	3·5
Argand oil flame			512	69·4	100	

"A Scotch mutchkin," says Dr. Ure, "or ⅛th of a gallon of good seal oil, weighs 6010 gr., or 13 1-10 oz. avoirdupois, and lasts in a bright Argand lamp 11 hours 44 minutes. The weight of oil it consumes per hour is equal to four times the weight of tallow in candles eight to the pound, and three times and a quarter the weight of tallow in candles six to the pound. But its light being equal to that of 5 of the latter candles, it appears from the above table, that 2 pounds weight of oil, value 9*d.*, in an Argand, are equivalent in illuminating power to 3 pounds of tallow candles, which cost about 2*s.* The larger the flame in the above candles, the greater the economy of light."

Until of late years, candles were solely manufactured from beeswax, spermaceti, or tallow. The application of scientific chemical research, however, to this branch of art, coupled with the withdrawal of the vexatious excise supervision, which prevents improvements in every trade which comes under its influence, has so improved the materials used, as well as the manufacture itself, that all the best candles are now made from the pure solid and crystallizable margaric and stearic acids. These are freed from the fluid oleic acid, and from glycerin, which exist in combination with them in ordinary tallow, as well as from other analogous substances, as from paraffine (a carbo-hydrogenous substance resembling spermaceti, prepared from tar and peat), the stearic and margaric acids of the cocoa-nut oil and the palm oil (*Elais guineensis*), besides the old substances spermaceti, and wax, both vegetable and animal.

The discovery by the celebrated French chemist Chevreul, that fats were composed of three highly inflammable bodies, stearic and margaric acids (solids), and oleic acid (a liquid), combined with a comparatively uninflammable body, glycerin, has led to the creation of the great new manufacture of stearic and composite candles; the importance and growth of which will be understood when we state, that while in 1833 the new candles were unknown in England, and the quantity manufactured in France amounted to only twenty-five tons *annually*, a single London house (that of E. Price and Co.) manufactured last winter (1854) more than that quantity of stearic and composite candles *daily*, and employs in this business above 900 hands, and a capital of nearly three-quarters of a million. The old process for making stearic acid may be thus described: Tallow is boiled up with thin cream of lime, which causes the fat acids by superior affinity to forsake their glycerin and combine with the lime, the glycerin dissolving in the water; this combination is then broken by means of sulphuric acid, which, seizing on the lime, sets free the fat acids; these are then separated (the liquid from the solid) by means of pressure. This process of making fat acids is called "lime saponification." The hard matter remaining in the press is stearic, or a mixture of stearic and margaric acids, and the candles made from it are called stearin, or more properly stearic candles.

In 1840, it was discovered in England that by combining stearic acid with the solid matter, or stearin obtained by pressure from cocoa-nut oil, good candles not requiring snuffing might be made at a considerably less cost than stearic candles. These were called by the inventor "composite." The trade in these composite candles is now very great. Since 1840, numerous great improvements have been invented, which have resulted in the present manufacture of candles having all the good qualities of the old stearic, while they are sold at prices little exceeding that of tallow candles. The present improved process is this: Palm oil or other fatty matter is exposed at a high temperature to the action of concentrated sulphuric acid, which changes it into a mixture of fat acids of a very dark color, with a high melting point; this is then distilled in an atmosphere of steam. The distilled material is either used for making the cheaper descriptions of composite candles, or is subjected to hydraulic pressure, first at the temperature of the air, and then at a high heat; the result of pressure being the material used for making what are known as "Belmont sperm," corresponding with stearic candles.

A great improvement has been made in the manufacture of wicks; instead of the common twisted wick, a wick is now used plaited by machinery. The new wick, together with an improved process of preparing stearin, are used in the manufacture of the Star candles, which are burned in large quantities in the United States.

Wax candles do not appear to have participated in the improvements which have attended the manufacture of the improved stearic or composite candles, and they appear to be still chiefly manufactured by hand. They are made of a cotton or flaxen wick, slightly twisted, and covered with white or yellow wax. Of these there are several kinds; some of a conical figure, used to illuminate churches, and in religious processions, funeral ceremonies, etc.; others of a cylindrical form, used on ordinary occasions.—E. B.

Sale or Auction by Inch of Candle, is when a small piece of candle being lighted, the by-standers are allowed to bid for the merchandise that is selling; but the moment the candle is out, the commodity is adjudged to the last bidder.

Candy, or **Sugar Candy**, a preparation of sugar made by melting and crystallizing it six or seven times, to render it hard and transparent. *Candying* is the method of preserving fruits, etc., in substance, by boiling them in sugar.

Canella Alba (Fr. *Canelle blanche*; Ger. *Weisser Zimmet*; It. *Canella bianca*; Sp. *Canella blanca*; Lat. *Canella alba*), the inner bark of the *Canella alba*, a tree growing in the West Indies. It is exported packed in casks and cases, in long pieces, some rolled in quills and others flat; the quilled sort is considerably thicker than cinnamon, and the flat nearly one-fourth of an inch in thickness. The quilled pieces are yellow on both sides; the flat pieces are yellow on the outside and pale brown within. The odor of both kinds, when fresh broken, is aromatic, something like a mixture of cloves and cinnamon; and the taste slightly bitter, and extremely warm and pungent.

Canes. *See* BAMBOO, RATANS.

Cannon, Cannons (Du. *Kanonen*; Fr. *Canons*; Ger. *Kanonen*; It. *Cannoni*; Pol. *Dziala*; Port. *Canhoes*; Russ. *Puschki*; Sp. *Canones*; Sw. *Kanon*), a kind of long hollow engines for throwing iron, lead, or stone balls by the force of gunpowder, commonly made of iron, but frequently also of a mixture of copper, tin, and brass. They are either cast hollow, or solid and then bored; those made in the latter way being very superior. Brass cannons, or cannons made of mixed metal, are said not to be so well calculated for hard service, or quick and continued firing, as those made of iron. The proportions of the ingredients used in making the former do not differ materially in different countries, though they rarely coincide. To 240 pounds of metal fit for casting, is commonly put 68 pounds of copper, 52 pounds of brass, and 12 pounds of tin. To 4200 pounds of metal fit for casting, the Germans put 3687 3-41 pounds of copper, 204 11-41 pounds of brass, and 307 36-41 pounds of tin. Others, again, use 100 pounds of copper, 6 pounds of brass, and 9 pounds of tin; and others, 100 pounds of copper, 10 pounds of brass, and 15 pounds of tin.

It seems to be the general opinion that cannon were first made use of in 1336 or 1338; but Don Antonio de Capmany has produced some statements which render it almost certain that some sort of artillery was used by the Moors in Spain so early as 1312.—*Questiones Criticas*, p. 181, etc. Cannons were certainly used by the English in 1347 at the siege of Calais, and by the Venetians at Chioggia in 1366, and in their wars with the Genoese in 1379 and 1380. The Turks employed them at the sieges of Constantinople, in 1394 and 1453. When first introduced, they were for the most part very heavy and unwieldy, and threw balls of an enormous size; they were, however, owing to their frequently bursting, about as dangerous to those using them as to their opponents. There is a valuable article on the construction and history of cannons in Rees' *Cyclopedia;* but it was published previously to the appearance of Capmany's work referred to above.

The largest known piece of ordnance is of brass, cast in India in 1685. At Ehrenbreitstein Castle, one of the strongest forts in Germany, opposite Coblentz, on the Rhine, is a prodigious cannon eighteen feet and a half long, a foot and a half in diameter in the bore, and three feet four inches in the breech. The ball made for it weighs 180 pounds, and its charge of powder 94 pounds. The inscription on it shows that it was made by one Simon in 1529. In Dover Castle is a brass gun called Queen Elizabeth's pocket-pistol, which was presented to her by the States of Holland: this piece is 24 feet long, and is beautifully ornamented, having on it the arms of the states, and a motto in Dutch, importing thus,

> "Charge me well, and sponge me clean,
> I'll throw a ball to Calais Green."

Some fine specimens are to be seen in the Tower. A leathern cannon was fired three times in the King's Park, Edinburgh, October 23, 1788.—Phillips.

The precise date of the first cast-iron guns is not known, but it has been asserted by General Haguenin, that a piece of this description at Bois-le-Duc bears the date 1411. Some doubt, however, has been expressed on this subject; and it has been thought more probable, with reference to the invention of high smelting furnaces, to suppose this date 1511. In 1540 Ralph Page cast eight iron guns at Rackstadt; and in 1547 the use of such artillery began to become general, and was for nearly a century exclusively adopted in some countries. In France cast-iron guns were not manufactured before 1600; but so evident were the advantages to be gained by their use, both as regards the qualities of the guns and their moderate cost, that they were speedily adopted in most countries; founderies for iron guns having been established in Silesia in 1470, in Germany in 1577, in Saxony in 1594, in the Hartz in 1626, and in Sweden in 1640; one foundery alone, in the latter country, having been said to have supplied for some time from 400 to 500 cannons annually.

All these pieces of ordnance were cast hollow until 1729, when a horizontal boring machine was established at Lyons, and, after some trials made in 1734, M. Maritz abandoned hollow casting at Strasburg in 1744–'45, and adopted the boring machines.—E. B.

Canoe, or **Canoa**, the term generally used to designate the small vessels which uncivilized people, living near the water, use. In the East Indies there is a kind of boat known by this name, sometimes from 40 to 50 feet long, and 5 or 6 broad. The North American Indians generally impel their canoes with paddles, which have a very large blade and are managed perpendicularly. The canoes of Canada are of the most fragile texture, and of so little weight, that in passing from one river to another, the boatmen carry them on their heads across their portages. They are mostly covered with bark, the pieces of which are sewed together with a kind of grass. This bark is generally not more than a quarter of an inch in thickness; yet, in these frail vessels, the Indians and Canadians do not hesitate to descend very dangerous rapids. The Esquimaux are exceedingly dexterous in the management of their canoes. These consist of a light, wooden frame, covered with seal-skins, sewed together with sinews. The skins are not only extended round the bottom and sides, but likewise over the top, forming a complete deck, and having only one opening to admit the Indian to his seat. To this hole a flat hoop, rising about four inches, is fitted, to which is fastened the surrounding skin. The paddle is about 10 feet long, light, and flat at each end. In the Esquimaux language, the canoe is called a *kaiak*, or *man's boat*, to distinguish it from *umiak*, the *woman's boat*, which latter is a large boat for transporting the women with their families and possessions. The Greenlanders and Esquimaux use the same kind of canoes, and it is astonishing, when we consider their insignificant construction, at what a distance from the regions they commonly inhabit, these people, especially the former, are found in them. In the islands of the South Sea, the natives have a double canoe, united by a strong platform, serving in this way as one vessel. Such a canoe is capable of carrying a number of persons, and a considerable lading. Captain Cook gives us a long account of the different kinds of canoes used in Otaheite. —E. A.

Canoe Birch (*Betula papyracea*). By the French Canadians *Bouleau Blanc*, white birch, and *Bouleau à Canot*, canoe birch: it is known to the American also by these denominations, and sometimes by that of *paper birch*. The heart or perfect wood of this tree, when first laid open, is of a reddish hue, and the sap is perfectly white. It has a fine glossy grain, with a considerable share of strength; that it is but little employed is attributed partly to its speedy decay when exposed to the succession of dryness and moisture, and partly to the existence, in the countries which produce it, of several species of wood, which are far preferable for the uses of the carpenter and the wheelwright. It is sometimes employed by cabinet-makers for tables which are stained in imitation of mahogany. But the most important purpose for which it is employed, and one in which it is replaced by the bark of no other tree, is the construction of canoes. To procure proper pieces, the largest and smoothest trunks are selected: in the spring two circular incisions are made several feet apart, and two longitudinal ones on opposite sides of the tree; after which, by introducing a wooden wedge, the bark is easily detached. These plates are usually ten or twelve feet long, and two feet nine inches broad. Great use is made of these canoes by the Indians and by the French Canadians in their long journeys into the interior of the country; they are very light, and are easily transported on the shoulders from one lake or river to another, which is called the *portage*. A canoe calculated for four persons, with their baggage, weighs from forty to fifty pounds: some of them are made to carry fifteen passengers. Such are the ordinary uses of the bark and of the wood of this tree.—Brown's *Sylra Americana*.

Cantharides, or **Spanish Fly** (Fr. *Cantharides, Mouches d'Espagne;* Ger. *Spanische Fliegen*; It. *Cantarelle;* Lat. *Cantharis;* Russ. *Hischpanskie muchi;* Sp. *Cantaridas*). This insect is found on a variety of shrubs in Spain, Italy, France, etc. Those used in England are imported partly from Sicily, but principally from Astracan, packed in casks and small chests: the most esteemed come from St. Petersburg. The best are of a lively fresh color, a small size, and not mouldy. They are frequently adulterated with the

Melolontha vitis; but this is distinguishable by its form, which is squarer than the cantharis, and by its black feet. If they be properly dried and protected from the air, they may be kept for a very long period. —THOMSON'S *Dispensatory*. There were four new varieties of cantharides from India shown at the London Exhibition of 1851.

Canton, one of the greatest emporiums in the East, ranking, as a port of trade, either before, or immediately after, Calcutta, in the province of Quantong, in China; being, previously to 1843, the only place in that empire open by authority to European traders: lat. 23° 7′ 10″ N., lon. 113° 14′ E. Canton stands on the eastern bank of the Pekin River, which flows from the interior in a navigable stream of 300 miles to this city, where it is rather broader than the Thames at London Bridge; falling, after an additional course of 80 miles, into the southern sea of China. Near its junction with the sea, it is called by foreigners Bocca Tigris. The town is surrounded by a thick wall, partly of stone and partly brick, and is divided into two parts by another wall running east and west. The northern division is called the old, and the southern the new city. In the old city is the Mantchou or Tartar general, with his garrison of Mantchou troops. The lieutenant governor or Fooyuen's office is also in the old city, but the governor and hoppo (principal customs officer) reside in the new city, not far from the river.

All foreign commerce is conducted in the southwest suburb, where the foreign factories are situated; and which, with the other suburbs, is probably not less populous than the city itself. The residence of Europeans is confined to a very small space, on the banks of the river; which might, however, be as pleasant as a crowded mercantile place can well be, were it not for the great number of small *dwelling boats* which cover the face of the river. The people who occupy the larger portion of these boats are said to have come originally from the south; and being a foreign and despised race, were not, at first, allowed to dwell on shore; but most of the distinctions between them and the rest of the people have been abolished. Although Canton is situated nearly in the same parallel of latitude as Calcutta, there is a considerable difference in their temperature; the former being much the coolest, and requiring fires during the winter months. The streets are very narrow, paved with little round stones, and flagged close to the sides of the houses. The front of every house is a shop, and those of particular streets are laid out for the supply of strangers. China Street is appropriated to Europeans; and here the productions of almost every part of the globe are to be found. One of the shop-keepers is always to be found sitting on the counter, writing with a camel's-hair brush, or calculating with his swampan, on which instrument a Chinese will perform operations in numbers with as much celerity as the most expert European arithmetician. This part of Canton being much frequented by the seamen, every artifice is used by the Chinese retailers to attract their attention; each of them having an English name for himself painted on the outside of his shop, besides a number of advertisements composed for them by the sailors in their own peculiar idiom. The latter, it may be supposed, are often duped by their Chinese friends, who have, in general, picked up a few sea phrases, by which the seamen are induced to enter their shops; but they suit each other extremely well, as the Chinese dealers possess an imperturbable command of temper, laugh heartily at their jokes without understanding them, and humor the seamen in all their sallies. Ships only ascend the river as far as Whampoa, about 15 miles below Canton, loading and unloading by means of native boats.

The Chinese, considered as traders, are eminently active, persevering, and intelligent. They are, in fact, a highly commercial people; and the notion that was once very generally entertained of their being peculiarly characterized by a contempt of commerce and of strangers is as utterly unfounded as any notion can possibly be. Business is transacted at Canton with great dispatch; and nowhere in the world may cargoes be sold and bought, loaded and unloaded, with more business-like speed and activity. Provisions and refreshments of all sorts are abundant in Canton, and, in general, of an excellent quality; nor is the price exorbitant. Every description of them, dead and alive, is sold by weight. It is a curious fact that the Chinese make no use of milk, either in its liquid state, or in the shape of curds, butter, or cheese. Among the delicacies of a Chinese market are to be seen horse-flesh, dogs, cats, hawks, and owls. The country is well supplied with fish from the numerous canals and rivers by which it is intersected.

Foreign Factories.—These extend for a considerable way along the banks of the river, at the distance of about 100 yards. They are named, by the Chinese, *hongs*, and resemble long courts, or closes, without a thoroughfare, which generally contain four or five separate houses. They are built on a broad quay, and have a parade in front. This promenade is railed in, and is generally called *Respondentia Walk;* and here the European merchants, commanders, and officers of the ships meet after dinner and enjoy the cool of the evening. The English hong, or factory, far surpasses the others in elegance and extent. This, with the American and Dutch hongs, are the only ones that keep their national flags flying. The neighborhood of the factories is occupied with warehouses for the reception of European goods, or of Chinese productions, until they are shipped. In 1822, during a dreadful conflagration that took place at Canton, the British factories and above 10,000 houses were destroyed; on which occasion the East India Company's loss was estimated at £500,000 sterling, three-fifths in woolens.

For the space of four or five miles opposite to Canton the river resembles an extensive floating city, consisting of boats and vessels ranged parallel to each other, leaving a narrow passage for others to pass and repass. In these the owners reside with their families, the latter rarely visiting the shore. All the business at Canton with Europeans is transacted in a jargon of the English language. The sounds of such letters as B, D, R, and X are unknown in China. Instead of these they substitute some other letter, such as L for R, which occasions a Chinese dealer in rice to offer for sale in English a rather unmarketable commodity. The name mandarin is unknown amorg the Chinese, the word used by them to denote a person in authority being *quan*. Mandarin is a Portuguese word derived from the verb *mandar*, to command.—HAMILTON'S *East India Gazetteer;* MILBURN'S *Orient. Commerce; Companion to Anglo-Chinese Calendar*, *etc.*

The trade of Canton is retrograding, while that of Shanghai is increasing; and indeed it is not unlikely that the latter will in time supplant Canton in the European trade, as it enjoys the additional advantage of being nearer the tea districts. Canton was no doubt fixed upon by the Chinese government for the European trade, as being the most distant from the capital, Pekin.

Formerly only a limited number of merchants, called the hong or security merchants, were allowed to trade with foreigners. They were commonly men of large property, and were famed for integrity in their transactions. All foreign cargoes passed through the hands of these merchants, and by them also the return cargoes were furnished. They became security for the payment of duties, and it was treason for any other merchant to engage in the trade with foreigners. This severe law, however, has recently been abolished, and foreigners may now deal with any merchant they think fit to employ.

All goods are sold by weight in China—even articles of food, such as fowls, hogs, and the like.

The foreign trade of Canton is very extensive; but the great article of export is tea, for which the demand in Europe has been increasing for upward of a century. This article was formerly monopolized by the East India Company; and from their accounts it appears that they imported annually into England about 30,000,000 of pounds. But this monopoly was abolished in 1834, and the commerce with China was thrown open to all. The other exports are raw silk and silk manufactures, nankeen cloth, cassia, lignea, etc. The principal imports are cotton and woolen goods, earthen-ware, iron, steel, etc. In 1848, 176 British vessels of 73,975 tons, with goods of the value of 8,653,033 dollars, left, and 171 of 72,315 tons, with goods to the value of 6,534,597 dollars, entered the port of Canton. The Americans, French, and Dutch, also carry on a considerable trade with Canton.

Although situated in the same parallel of latitude as Calcutta, the climate of Canton is much cooler, and is considered superior to that of most places situated between the tropics. The thermometer, during the months of July and August, averages from 80° to 88°; and in January and February from 50° to 60°. The highest recorded observation in 1831 was 94° in July, and the lowest 29° in January. In shallow vessels ice sometimes forms at Canton a line or two in thickness. A fall of snow, nearly two inches deep, occurred at Canton in February, 1835, and remained on the ground three hours—a circumstance so unusual that the citizens hardly knew its proper name. Fogs are common during February and March. Most of the rain falls during May and June, but it is nothing in comparison of a rainy season in Calcutta. July, August, and September are the regular monsoon months, the wind coming from the southwest, with frequent showers, which allay the heat. In the succeeding months the northerly winds commence, with some interruptions at first; but from October to January the temperature is agreeable, the sky clear, and the air invigorating. Few large cities are more healthy than Canton; no epidemics nor malaria prevail there, though much of the town is built upon piles.

The intercourse between China and Europe by the way of the Cape of Good Hope began in 1517, when Emanuel, king of Portugal, sent a fleet of eight ships, with an embassador, who was conveyed to Pekin, and who obtained the sanction of the emperor to establish a trade at Canton. It was in 1596, in the reign of Queen Elizabeth, that the English first attempted, with two ships, to open an intercourse with China; but they were lost in the outward voyage. About 1634 several English ships visited Canton; but a misunderstanding having occurred with the Chinese authorities, by the treachery of the Portuguese, a rupture and a battle took place, and it was with difficulty that this misunderstanding was rectified. China was again visited in 1673 by an English ship that was refused admission into Japan. In 1677 a factory was established at Amoy; but in 1680 the factory was destroyed by an irruption of the Tartars, and it was not till 1685 that the emperor permitted any trade with the Europeans. Upon the union of the two East India companies in London, an imperial edict was issued, restricting the European commerce to the port of Canton. Tea was first imported about the year 1667. This is one of the five Chinese ports opened to Europeans by the treaty of 1842.—E. B.

General Regulations under which the British Trade (and applying to all Foreigners) is to be conducted at the five Ports of Canton, Amoy, Foo-chow-foo, Ningpo, and Shanghai.

1. *Pilots.*—Whenever a British merchantman shall arrive off the five ports opened to trade, viz., Canton, Foo-chow-foo, Amoy, Ningpo, or Shanghai, pilots shall be allowed to take her immediately into port; and in like manner, when such British ship shall have settled all legal duties and charges, and is about to return home, pilots shall be immediately granted to take her out to sea, without any stoppage or delay. Regarding the remuneration to be given these pilots, that will be equitably settled by the British consul appointed to each particular port, who will determine it with due reference to the distance gone over, the risk run, etc.

2. *Custom-house Guards.*—The Chinese Superintendent of Customs at each port will adopt the means that he may judge most proper to prevent the revenue suffering by fraud or smuggling. Whenever the pilot shall have brought any British merchantman into port, the superintendent of customs will depute one or two trusty custom-house officers, whose duty it will be to watch against frauds on the revenue. These will either live in a boat of their own, or stay on board the English ship, as may best suit their convenience. Their food and expenses will be supplied them from day to day from the custom-house, and they may not exact any fee whatever from either the commander or consignee. Should they violate this regulation, they shall be punished proportionately to the amount so exacted.

3. *Masters of Ships reporting themselves on Arrival.*—Whenever a British vessel shall have cast anchor at any one of the above-named ports, the captain will, within four-and-twenty hours after arrival, proceed to the British consulate and deposit his ship's papers, bills of lading, manifest, etc., in the hands of the consul; failing to do which he will subject himself to a penalty of 200 dollars. For presenting a false manifest the penalty will be 500 dollars. For breaking bulk and commencing to discharge before due permission shall be obtained, the penalty will be 500 dollars, and confiscation of the goods so discharged. The consul, having taken possession of the ship's papers, will immediately send a written communication to the superintendent of customs, specifying the register tonnage of the ship, and particulars of the cargo she has on board; all of which being done in due form, permission will then be given to discharge, and the duties levied as provided for in the tariff.

4. *Commercial Dealings between English and China Merchants.*—It having been stipulated that English merchants may trade with whatever native merchants they please, should any Chinese merchant fraudulently abscond, or incur debts which he is unable to discharge, the Chinese authorities, upon complaint being made thereof, will of course do their utmost to bring the offender to justice; it must, however, be distinctly understood that if the defaulter really can not be found, or be dead or bankrupt, and there be not wherewithal to pay, the English merchants may not appeal to the former customs of the Hong merchants paying for one another, and can no longer expect to have their losses made good to them.

5. *Tonnage Dues.*—Every English merchantman, on entering any one of the above-mentioned five ports, shall pay tonnage dues at the rate of five mace per register ton, in full of all charges. The fees formerly levied on entry and departure, of every description, are henceforth abolished.

6. *Import and Export Duties.*—Goods, whether imported into or exported from any one of the above-mentioned five ports, are thenceforward to be taxed according to the tariff as now fixed and agreed upon, and no further sums are to be levied beyond those which are specified in the tariff. All duties incurred by an English merchant vessel, whether on goods imported or in the shape of tonnage dues, must first be paid up in full; which done, the superintendent of customs will grant port clearance, and this being shown to the British consul, he will thereupon return the ship's papers, and permit the vessel to depart.

7. *Examination of the Goods at the Custom-house.*—Every English merchant having cargo to load or discharge must give due intimation thereof, and hand particulars of the same to the consul, who will immediately dispatch a recognized linguist of his own establishment to communicate the particulars to the superintendent of customs, that the goods may be examined, and neither party subjected to loss. The English merchant must have a properly qualified person on the spot, to attend to his interests when his goods are being examined for duty; otherwise, should there be complaints, these can not be attended to. Regarding such goods as are subject by the tariff to an *ad valorem* duty, if the English merchant can not agree with the Chinese officer in fixing a value, then each party shall call two or three merchants to look at the goods, and the highest price at which any of these merchants would be willing to purchase shall be assumed as the value of the goods. To fix the tare on any article, such as tea: if the English merchant can not agree with the custom-house officer, then each party shall choose so many chests out of every 100, which, being first weighed in gross, shall afterward be tared, and the average tare upon these shall be assumed as the tare upon the whole, and upon this principle shall the tare be fixed upon all other goods in packages. If there should still be any disputed points which can not be settled, the English merchant may appeal to the

consul, who will communicate the particulars of the case to the superintendent of customs, that it may be equitably arranged. But the appeal must be made on the same day, or it will not be regarded. While such points are still open, the superintendent of customs will delay to insert the same in his books, thus affording an opportunity that the merits of the case may be duly tried and sifted.

8. *Manner of paying the Duties.*—It is herein-before provided, that every English vessel that enters any one of the five ports shall pay all duties and tonnage dues before she be permitted to depart. The superintendent of customs will select certain shroffs, or banking establishments of known stability, to whom he will give licenses authorizing them to receive duties from the English merchants on behalf of government, and the receipts of these shroffs for any money paid them shall be considered as a government voucher. In the paying of these duties, different kinds of foreign money may be made use of; but as foreign money is not of equal purity with sycee silver, the English consuls appointed to the different ports will, according to time, place, and circumstances, arrange with the superintendent of customs at each port what coins may be taken in payment, and what percentage may be necessary to make them equal to standard or pure silver.

9. *Weights and Measures.*—Sets of balance-yards for the weighing of goods, of money weights, and of measures, prepared in exact conformity to those hitherto in use at the custom-house of Canton, and duly stamped and sealed in proof thereof, will be kept in possession of the superintendent of customs, and also at the British consulate, at each of the five ports, and these shall be the standard by which all duties shall be charged, and all sums paid to government. In case of any dispute arising between British merchants and the Chinese officers of customs regarding the weights or measures of goods, reference shall be made to these standards, and disputes decided accordingly.

10. *Lighters or Cargo Boats.*—Whenever an English merchant shall have to load or discharge cargo, he may hire whatever kind of lighter or cargo boat he pleases, and the sum to be paid for such boat can be settled between the parties themselves, without the interference of government. The number of these boats shall not be limited, nor shall a monopoly of them be granted to any parties. If any smuggling take place in them, the offenders will, of course, be punished according to law. Should any of these boat people, while engaged in conveying goods for English merchants, fraudulently abscond with the property, the Chinese authorities will do their best to apprehend them; but, at the same time, the English merchants must take every due precaution for the safety of their goods.

11. *Transhipment of Goods.*—No English merchant ships may tranship goods without special permission; should any urgent case happen where transhipment is necessary, the circumstances must first be submitted to the consul, who will give a certificate to that effect, and the superintendent of customs will send a special officer to be present at the transhipment. If any one presumes to tranship without such permission being asked for and obtained, the whole of the goods so illicitly transhipped will be confiscated.

12. *Subordinate Consular Officers.*—At any place selected for the anchorage of the English merchant ships, there may be appointed subordinate consular officers, of approved good conduct, to exercise due control over the seamen and others. He must exert himself to prevent quarrels between the English seamen and the natives, this being of the utmost importance. Should any thing of the kind unfortunately take place, he will in the like manner do his best to arrange it amicably. When sailors go on shore to walk, officers shall be required to accompany them; and should disturbances take place, such officers will be held responsible. The Chinese officers may not impede natives from coming alongside the ships to sell clothes, or other necessaries to the sailors living on board.

Opium.—A notion having been entertained that opium might be legally imported into China, under the provisions of this tariff, on paying an *ad valorem* duty of 5 per cent., the following proclamation has been issued on the subject:

PROCLAMATION.—*It having been brought to my notice that such a step has been contemplated as sending vessels with opium on board into the ports of China to be opened by treaty to foreign trade, and demanding that the said opium shall be admitted to importation, by virtue of the concluding clause of the new tariff, which provides for all articles not actually enumerated in that tariff passing at an* ad valorem *duty of 5 per cent., I think it expedient, by this proclamation, to point out to all whom it may concern, that opium being an article the traffic in which is well known to be declared illegal and contraband by the laws and imperial edicts of China, any person who may take such a step will do so at his own risk, and will, if a British subject, meet with no support or protection from her Majesty's consuls or other officers. This proclamation will be translated and published in Chinese, so that no one may plead ignorance of it.*

GOVERNMENT-HOUSE, VICTORIA, *this* 1*st day of August*, 1843.

But, notwithstanding this proclamation, and in defiance of the strong denunciation of smuggling in the proclamation of the 2d day of July it is distinctly stated in Hong Kong papers that there was, on the 21st day of September, 1843, almost in sight of the consular flags, a "fleet of British vessels openly engaged in the vending of opium to the Chinese!" This certainly is a curious commentary on the above proclamation; and it were much to be wished, seeing that the trade can not be suppressed, that it were legalized on opium paying a reasonable duty. The consuls for the United States have salaries.—*See* CONSULS. The payment of British consuls by fees is much, and we believe justly, objected to at Canton. Supposing, however, that the treaty with China is *bona fide* carried into effect, still it may be doubted whether the trade with that empire will ever be so extensive as many suppose. We believe, indeed, that China will afford a most extensive outlet for various descriptions of manufactured goods, provided we can bring away equivalents suitable for the European and other foreign markets. But this, we incline to think, will be no easy matter. Excepting tea, China has few articles suitable for extensive use in Europe, other than silk and silver. Chinese silk is, however, losing ground as compared with that of Italy and Turkey, while it is most probable that the enhancement of its price, consequent to any great increase in the exportation of silver, would in no very long time bring it to a close. Tea is the grand equivalent which the Chinese have to exchange for our products, and this trade is increasing very rapidly.—For the exports of tea to the United States for the last ten years, *see* CHINA.

Hong Kong.—The island of this name, ceded to England by the above treaty, is situated on the northern side of the entrance from the sea to the estuary of the Canton River, being separated from the main land by a narrow channel having 14 fathoms water. It stretches about 8 miles from east to west, and is of a very irregular figure, having several promontories, and being deeply indented with bays. It consists principally of a series of high hills, the highest having an elevation of about 1200 feet. Victoria, the principal British settlement on the north side of the island, in lat. 22° 16′ 27″ N., long. 114° 10′ 48″ E., has the advantage of an excellent roadstead, with from 3 to 7 fathoms water and good holding ground. There are also numerous well-sheltered roads and bays with deep water on the south side of the island, which, indeed, appears, from its position and other advantages, extremely well fitted for a naval station. Every thing, however, will depend on the fact of its being healthy, of which, we are sorry to observe, grave doubts are entertained. Should these happily prove unfounded, it is probable that in no very lengthened period a considerable portion of the trade which is at present centred in Canton will be transferred to Hong Kong; and, under the above condition, it can hardly fail to become an important *entrepôt* not merely for trade with the Canton River, but with China generally.

In 1844 the total population of Hong Kong (consisting of Chinese) was 19,463; while on the 31st of December, 1853, the Chinese population was 37,536; Europeans and Americans, 476; other races, 1005. In 1853, 1103 square-rigged vessels, carrying in all 447,053 tons, arrived in Victoria harbor. Of these vessels 201 imported, and 154 exported goods into and from the colony, being an increase over 1852 of 74 and 79 vessels respectively; while the total tonnage of vessels arrived as compared with the preceding year shows an increase of 13,670 tons.—*See* HONG KONG.

TARIFF OF DUTIES ON EXPORTS FROM CHINA, ESTABLISHED IN PURSUANCE OF THE ABOVE TREATY, IN CHINESE AND MERCANTILE CURRENCY (DOLLARS AND CENTS), REDUCED INTO THEIR EQUIVALENT RATES IN STERLING MONEY, ACCORDING TO ENGLISH WEIGHTS AND MEASURES.

EXPORTS.	Per	Chinese.	Mer. Cur.	Per	Sterling.
		T. M. C. C.	$ Cts.		s. d.
Alum	picul.	0 1 0 0	0 14	ton.	11 2·61
Anise-seed	—	0 5 0 0	0 70	cwt.	2 9·65
Anise-seed oil	—	5 0 0 0	6 94	pound.	0 3·00
Arsenic	—	0 7 5 0	1 04	cwt.	4 2·47
Bamboo screens, and bamboo ware of all kinds	—	0 2 0 0	0 28	—	1 1·46
Bangles, or glass armlets	—	0 5 0 0	0 70	—	2 9·65
Brass leaf	—	1 5 0 0	2 10	pound.	0 0·90
Building materials	—	Duty free.	....	....	....
Bone and horn ware	—	1 0 0 0	1 40	cwt.	5 7·30
Camphor	—	1 5 0 0	2 10	—	8 4·95
Canes of all kinds	1000.	0 5 0 0	0 70	1000.	3 4·06
Capoor cutchery	picul.	0 3 0 0	0 42	cwt.	1 8·19
Cassia	—	0 7 5 0	1 05	—	4 2·47
Cassia buds	—	1 0 0 0	1 40	—	5 7·30
Cassia oil	—	5 0 0 0	6 94	pound.	0 3·00
China-root	—	0 2 0 0	0 28	cwt.	1 1·46
China ware of all kinds	—	0 5 0 0	0 70	—	2 9·65
Clothes, ready-made	—	0 5 0 0	0 70	—	2 9·65
Copper ware, pewter ware, etc.	—	0 5 0 0	0 70	—	2 9·65
Corals (or false coral)	—	0 5 0 0	0 70	pound.	0 0·30
Crackers and fire-works of all kinds	—	0 7 5 0	1 05	—	0 0·45
Cubebs	—	1 5 0 0	2 10	cwt.	8 4·95
Fans (as feather fans, etc.)	—	1 0 0 0	1 40	pound.	0 0·60
Furniture of all kinds	—	0 2 0 0	0 28	cwt.	1 1·46
Galangal	—	0 1 0 0	0 14	—	0 6·73
Gamboge	—	2 0 0 0	2 78	—	11 2·61
Glass and glass ware of all kinds	—	0 5 0 0	0 70	—	2 9·65
Glass beads	—	0 5 0 0	0 70	—	2 9·65
Glue (as fish glue, etc.)	—	0 5 0 0	0 70	—	2 9·65
Grass cloth of all kinds	—	1 0 0 0	1 40	—	5 7·30
Hartall	—	0 5 0 0	0 70	—	2 9·65
Ivory ware of all kinds	—	5 0 0 0	6 94	pound.	0 3·00
Kittysols, or paper umbrellas	—	0 5 0 0	0 70	cwt.	2 9·65
Lacquered ware of all kinds	—	1 0 0 0	1 40	—	5 7·30
Lead, white	—	0 2 5 0	0 35	—	1 4·82
Lead, red	—	0 5 0 0	0 70	—	2 9·65
Marble slabs	—	0 2 0 0	0 28	—	1 1·46
Mats (straw, ratan, bamboo, etc.)	—	0 2 0 0	0 28	—	1 1·46
Mother-of-pearl ware	—	1 0 0 0	1 40	pound.	0 0·60
Musk	catty.	0 5 0 0	0 70	ounce.	0 1·87
Nankeens and cotton cloth of all kinds	picul.	1 0 0 0	1 40	cwt.	5 7·30
Pictures, viz., large paintings	each.	0 1 0 0	0 14	each.	0 8·01
Pictures, rice paper	100.	0 1 0 0	0 14	100.	0 8·01
Paper fans	picul.	0 5 0 0	0 70	pound.	0 0·30
Paper of all kinds	—	0 5 0 0	0 70	cwt.	2 9·65
Pearls (false)	—	0 5 0 0	0 70	pound.	0 0·30
Preserves and sweetmeats of all kinds	—	0 5 0 0	0 70	—	0 0·30
Ratan work of all kinds	—	0 2 0 0	0 28	cwt.	1 1·46
Rhubarb	—	1 0 0 0	1 40	pound.	0 0·60
Silk, raw, whether Chekiang, Canton, or elsewhere, all kinds	—	10 0 0 0	13 89	—	0 6·01
Silk, coarse, or refuse of silk	—	2 5 0 0	3 47	—	0 1·50
Silk organzine of all kinds	—	10 0 0 0	13 89	—	0 6·01
Silk ribbons, thread, etc.	—	10 0 0 0	13 89	—	0 6·01
Silk piece goods of all kinds; as silks, satins, pongees, velvets, crapes, lutestrings, etc.	—	12 0 0 0	16 67	—	0 7·01
N.B.—The additional duty of so much per piece, hitherto levied, to be henceforth abolished.					
Silk and cotton mixtures, silk and woolen mixtures, and goods of such class	—	3 0 0 0	4 17	—	0 1·80
Shoes and boots, leather, satin, or otherwise	—	0 2 0 0	0 28	cwt.	1 1·46
Sandal-wood ware	—	1 0 0 0	1 40	pound.	0 0·60
Soy	—	0 4 0 0	0 56	—	0 0·24
Silver ware and gold ware	—	10 0 0 0	13 89	oz. Troy.	0 0·41
Sugar, white and brown	—	0 2 5 0	0 35	cwt.	1 4·82
Sugar-candy of all kinds	—	0 3 5 0	0 49	—	1 11·55
Tin-foil	—	0 5 0 0	0 70	—	2 9·65
Tea	—	2 5 0 0	3 47	pound.	0 1·50
Tobacco of all kinds	—	0 2 0 0	0 28	—	0 0·12
Turmeric	—	0 2 0 0	0 28	cwt.	1 1·46
Tortoise-shell ware	—	10 0 0 0	13 89	pound.	0 6·01
Trunks of leather	—	0 2 0 0	0 28	cwt.	1 1·46
Treasure (coin of all kinds)	—	Duty free.	....	....	....
Vermilion	—	3 0 0 0	4 17	pound.	0 1·80
Articles unenumerated in this tariff to pay 5 per cent.	ad valorem.	....	....	....	....

Currency.—Doubts having been entertained respecting the value of the coins current in Hong Kong and its dependencies, the following rates at which such coins are made legal tender were fixed by a proclamation dated the 1st of May, 1845:

"The gold mohur of the East India Company's territory, coined since the 1st day of September, 1835, at the rate of 29*s.* 2*d.* sterling money of the United Kingdom.

"The dollar of Spain, Mexico, or American States, at the rate of 4*s.* 2*d.* sterling.

"The rupee of the East India Company's territory, coined since the 1st day of September, 1835, at the rate of 1*s.* 10*d.* sterling; and the half rupee, quarter rupee, and eighth of rupee pieces in proportion.

"The cash, or copper coin current in China, at the rate of 288 cash for 1*s.* sterling."

The following proviso establishes, with respect to silver currency, the principle that prevails in England:

"Provided that nothing herein contained shall be deemed or taken to render it compulsory on any person to accept at any one payment a larger amount in silver coins of the United Kingdom of lower denomination than 1*s.*, or in the half, quarter, or eighth rupee pieces herein-before mentioned, than the equivalent to 20*s.* sterling money, or a larger amount in copper coins of the United Kingdom, or in the Chinese copper coins before mentioned, than the equivalent to 1*s.* sterling.

ESTIMATIONS.—*Chinese Weights*, per steelyard: 1 picul = 100 catties = 1600 taels = 133⅓ lbs. avoirdupois; 1 tael = 583⅓ grains Troy; 400 lbs. avoirdupois = 3 piculs; 1 cwt. avoirdupois = 84 catties; 1 lb. avoirdupois = 12 taels.

Chinese Measures: 1 chang = 141 English inches, or

12 chang = 47 yards. Liquids, and generally grain, are sold by weight.

Chinese Moneys: 1 tael = 10 mace = 100 candareen = 1000 cash.

The principal monetary integer, the tael, is this weight of sycee silver, there being no Chinese coins in gold, and no other Chinese currency, or medium of payment, in silver, than small ingots of sycee silver, stamped by the shroffs or bankers appointed by the government. The average purity of sycee silver may be reckoned at 98 touch, or 13¼ dwts., better than British standard; and as it contains, on the average, about 12 grains of gold in the pound Troy, the net value at 60 pence per ounce standard, after making the usual allowance for the extraction of the gold, is very nearly equal to 78⅝ pence sterling per tael.

In mercantile currency, or the money of account of foreign merchants trading with China, the dollar is divided into 100 cents, and 720 taels of Chinese account are reckoned equal to 1000 dollars in this currency, making the tael equal to $1 38 8-9th cents; but in small amounts it is reckoned at $1 40 cents. This is, however, only a nominal valuation, by which the dollar is made nearly 56⅝ pence sterling, or 13¼ per cent. above its real value.

According to the 8th article of the general regulations under which the British trade is to be conducted at the five ports of Canton, Amoy, Foo-chow-foo, Ning-po, and Shanghai, the English consuls appointed to these ports are to arrange with the superintendents of the customs at each what coins may be taken in the payment of the duties, and what percentage may be necessary to make them equal to standard or pure silver. In pursuance of this regulation, the following estimations have been made at Canton, and will, probably, be followed at the other ports of trade: rupees weighing 109*t.* 7*m.* 9*c.* 0*c.*; Peruvian dollars, 111*t.* 4*m.* 5*c.* 5*c.*; Mexican dollars, 111*t.* 9*m.* 0*c.* 0*c.*; Bolivian dollars, 112*t.* 1*m.* 5*c.* 0*c.*; Chilian dollars, 112*t.* 5*m.* 2*c.* 0*c.*; and chopped dollars, 113*t.* 2*m.* 0*c.* 7*c.*; are to be accounted as 100 taels of sycee silver, being, according to this monetary tariff, respectively equal to 2 dwts., 5½ dwts., 6¼ dwts., 6½ dwts., 7½ dwts., and 8¾ dwts. worse than British standard. To these percentages are to be added ½ per cent. for difference between the hoppo's and the shroff's weights, and another ½ per cent. for refining. Hence the value of the tael of sycee silver is rendered very nearly equal to 79⅓ pence, and with the 1 per cent., to 80⅓ pence sterling, at which value the Chinese rates in the above schedule have been reduced.—TATE.

Moneys.—Accounts are kept at Canton in táels, mace, candarines, and cash; the tael being divided into 10 mace, 100 candarines, or 1000 cash. There is but one kind of money made in China, called cash, which is not coined, but cast, and which is only used for small payments: it is composed of six parts of copper and four of lead; it is round, marked on one side, and rather raised at the edges, with a square hole in the middle. These pieces are commonly carried, like beads, on a string of wire. A tael of fine silver should be worth 1000 cash; but, on account of their convenience for common use, their price is sometimes so much raised that only 750 cash are given for the tael.

Foreign coins, however, circulate here, particularly Spanish dollars; and for small change they are cut into very exact proportions, but afterward weighed; for which purpose merchants generally carry scales, called dotchin, made somewhat after the plan of the English steelyards.

The tael used to be reckoned at 6*s.* 8*d.* sterling in the books of the East India Company; but its value varies, and is generally computed according to the price paid per ounce for Spanish dollars in London. The tables given for this proportional value may be calculated in pence sterling, by the multiplier 1·208. Thus, if the price of the Spanish dollar be 60*d.* per ounce, the value of the tael will be 60 × 1·208 = 72·48*d.*; if at 66*d.*, the value of the tael will be 79·728*d.*; and for any other price in the same proportion.

Fineness of Gold and Silver.—The fineness of gold and silver is expressed by dividing the weight into 100 parts, called toques or touch; similar to the modern practice of France. Thus, if an ingot be 93 touch, it is understood to contain 7 parts of alloy and 93 of pure metal, making in the whole 100.

The fineness of the precious metals, expressed in these decimal proportions, may be converted into English proportions by the following analogies: Suppose gold is 91·66 touch; say, as 100 : 91·66 : : 12 : 11, the standard, and *vice versa;* and to convert standard silver into touch, say, as 240 : 222 : : 100 : 92·5, the touch of sterling silver. Pure gold or silver without alloy is called by the Chinese sycee; and sometimes, when of less purity, the metal is accepted as sycee.

Silver Ingots are used as money, and weigh from ½ a tael to 100 taels, their value being determined by their weight. These ingots are of the best sort of silver; that is, about 94 touch.

Gold Ingots.—Gold is not considered as money, but as merchandise: it is sold in regular ingots of a determined weight, which the English call shoes of gold; the largest of these weigh 10 taels each; and the gold is reckoned 94 touch, though it may be only 92 or 93.

Weights.—Gold and silver are weighed by the catty of 16 taels; the tael is divided into 10 mace, 100 candareens, or 1000 cash. 100 taels are reckoned to weigh 120 oz. 16 dwts. Troy, which makes the tael equal to 579·8 English grains or 37·566 grammes.

The principal weights for merchandise are the picul, the catty, and the tael; the picul being divided into 100 catties, or 1600 taels.

	Lbs.	oz.	dwts.	
1 Tael weighs, avoirdupois ..	0	1	5·333 =	1⅓ oz.
16 Taels, or 1 catty	1	5	5·333 =	1⅓ lb.
100 Catties, or 1 picul	133	5	5·333 =	133⅓ lbs.

Hence the picul weighs 60·472 kilogrammes, or 162 lbs. 0 oz. 8 dwts. 13 grs. Troy.

The above weights are sometimes otherwise denominated, especially by the natives: thus, the catty is called gin; the tael, lyang; the mace, tchen; the candareen, fivan; and the cash, lis.

There are no commercial measures in China, as all dry goods and liquids are sold by weight. In delivering a cargo, English weights are used, and afterward turned into Chinese piculs and catties.

Long Measure.—That used in China is the covid or cobre; it is divided into 10 punts, and is equal to 0·3713 metre, or 14·625 English inches.

The Chinese have four different measures answering to the foot, viz.:

	Metres.	Eng. inch.
The foot of the mathematical tribunal .	= 0·366	= 13·125
The builders' foot, called congpu	= 0·3228	= 12·7
The tailors' and tradesmen's foot......	= 0·3383	= 13·33
The foot used by engineers	= 0.3211	= 12·65

The li contains 180 fathoms, each 10 feet of the last-mentioned length; therefore the li = 1897½ English feet; and 192½ lis measure a mean degree of the meridian nearly; but European missionaries in China have divided the degree into 200 lis, each li making 1826 English feet, which gives the degree 69·166 English miles, or 11·131 French myriametres.

European Trade at Canton.—As soon as a vessel arrives among the islands which front the entrance to the Canton River, she is generally boarded by a pilot, who conducts her into Macao or Hong Kong roads. The entrance is, however, so safe that ships push on without waiting for the pilot, who, if the weather be bad, is sometimes long in coming on board. The pilots' names are registered at the Keun-min-foo's office near Macao; and for a license to act the sum of $600 is paid. The person who takes out the license sometimes knows nothing about ships or the river, but employs fishermen to do the duty. On the vessel's arrival in the roads, the pilot goes on shore to report her at the office of the keun-min-foo, who, when he has received answers to his inquiries, gives a permit for her to pass through the Bogue, and orders a river pilot on board. This pilot seldom repairs on board the vessel before 24 hours have elapsed. When arrived, the vessel proceeds through the Bogue, and up the Canton River toWhampoa.

Every ship that enters the port requires the service of a linguist and comprador before she can commence unloading. The master used to be required to give a written declaration, in duplicate, solemnly affirming that the ship has brought no opium. All the trade with foreigners used to be confined to the hong or security merchants; but this restriction has recently been abolished; and foreigners may now deal with any merchant or other party they think fit to employ. The linguists are government interpreters, who procure permits for delivering and taking in cargo, transact all the custom-house business, and keep accounts of the duties. All the minor charges of the government, also, are paid by them; in consideration of which they receive a fee of about $173 previously to the vessel's departure. When a vessel wishes to discharge or receive cargo, the linguist is informed a day or two previously what kind of goods are to be received or discharged, and in what quantities. He then applies for a permit, which being issued, the lighters or chop-boats proceed to Whampoa, where they usually arrive on the evening of the second or morning of the third day. For a single boat the linguist used to receive a fee of $23; but if a permit be obtained for from two to six boats at a time, the fee for each boat was only 11 taels 2 mace 6 cand., or about $15½.

When the goods are ready to be landed from or sent to the ship, the hoppo (principal custom-house officer) sends a domestic, a writer, and a police runner; the hong merchant who has secured the ship sends a domestic, called a court-going man (one who attends at the public offices on ordinary occasions in behalf of his master); and the linguist sends an accountant and interpreter to attend at the examination of the goods. The hong merchants used to be held responsible by government for all duties, whether on imports or exports in foreign vessels; and therefore, when goods were purchased, it was customary for the parties, before fixing the price, to arrange between themselves who was actually to pay the duties. Of an import cargo, each chop-boat, according to rule, which, however, is not rigidly enforced, should contain—of woolens, camlets, and long-ells, 140 bales; tin, 500 bars; lead, 600 pigs; Bombay cotton, 55 bales; Bengal cotton, 80 bales; betel-nut, pepper, etc., 300 piculs.

Of export goods, a chop-boat should take—of tea, 600 chests; of other sorts of goods, 500 piculs. If more than this, the hong merchant gives to the chop-boat, for each additional picul, $6½. In calculating the duties on export goods, 90 catties are considered 100. The woolens, long-ells, and camlets, are measured by the chang of 10 covids, without any deduction; and single articles are numbered.

If, after entering the port, any persons tranship goods, it is considered that the one ship sold them to the other; and in that case the same duty has to be paid as if the goods were brought up to Canton. Provisions are not included in this regulation. Ships' boats are not allowed to carry up or down any thing chargeable with duty. Gold, silver, copper, and iron are prohibited to be exported; a few culinary utensils are the only exceptions. When it is desired to export treasure, the hong merchant must make an estimate of the value of the import and export cargoes, and whatever balance there may be in favor of the ship may then be shipped off as treasure. If more cargo be sent to a ship than she can take on board, and she wishes it to be shipped on board another, it must be done within 3 days after announcing the goods at the custom-house, and a hong merchant must state it to government; if granted, a hong merchant and linguist are ordered to go to Whampoa and take an account of such goods; all which, with the expense of boats, runners, etc., at Whampoa, costs 40 or 50 dollars.—*Companion to Anglo-Chinese Calendar*, p. 99–101.

Hong Merchants.—Previously to the commencement of the new system, it had been the invariable practice, enforced by law, that all foreign vessels arriving in the port should employ, as broker or agent, a hong or security merchant, who became, by doing so, responsible to the government for the duties. These merchants, who were but few in number, were the only individuals in the empire legally authorized to trade with foreigners, a privilege for which they had to pay very largely. But after an arrangement had been made with any particular hong merchant for securing a ship, her captain or supercargo might deal with any other hong merchant, or even with any outside merchant (or merchant not belonging to the hong) he pleased. The peculiar duty of the hong merchant was to pay the duties on both the inward and outward cargoes; and hence arose the practice of foreigners buying all goods for export duty paid, and selling all the goods brought with them free of duty, the duties being, in both cases, paid by the hong merchants who had secured the ship; and hence, also, the ignorance of most foreigners as to the amount of the duties. But now that the privilege of the hong merchants has been abolished, the duties will have to be paid to the Chinese authorities by the parties importing and exporting, in the same way as in this country.

Port Charges are fixed under the new treaty at five mace per register ton, in full of all charges; so that the complex system that previously obtained for charging those duties is now, in so far at least as British ships are concerned, at an end. Vessels importing rice or other grain into any of the five ports open to British vessels, are liable to no charges whatever; but if they take away an export cargo, they then have to pay the duties on such cargo agreeably to the tariff, and one moiety of the tonnage dues, or 2½ mace per ton.

The whole number of vessels arriving at Canton in 1854 was 320, with the tonnage of 154,157. Of this number, 137 were British, 65 American, 23 Dutch, 21 Spanish, 11 Danish, and 18 Peruvian. The latter, we imagine, are all engaged in kidnapping, a system which condemns hundreds of Chinese to a speedy death among the guano islands of Callara. These vessels brought in the same year goods to the value of £795,255, constituting Canton a good, but not a first-rate customer to Europe. Of cotton goods our merchants purchased $2,706,425; of rice, $300,000 worth; and every thing else in infinitesimal quantity. Fish-maws, beche-de-mer, cloves, shark-fins, sandal-wood, liquors, appear to meet with the readiest sale in the great sea-port of China. The exports make a little better appearance; but still they are far from large. The tea trade has flown to Shanghai, the value exported from Canton being in 1854 only $4,627,552, but a fraction of the export at the northern port. Silk is sold to the value of about $1,140,000, and curiosities make up the remainder. Bamboo and rattan ware, bone and ivory toys, China dishes and lacquered ware, mother-of-pearl and marble slabs, preserves and drugs, sugar-candy and pitchers, all testify to the ingenuity of the Chinese, and the boundless opulence of certain classes in Europe and America. The whole amounts only to £1,445,308 a year, and this endures an exorbitant weight of taxation.

The tonnage paid by British ships alone amounted to £117,834, or nearly 10 per cent. *ad valorem* upon the whole movement of British trade in that port. The customs dues of Calcutta, heavy as we believe them to be, are a trifle when compared to those of Canton, which average very nearly 17 rupees a ton.—*Hong Kong Government Gazette.*

Foreign Merchants.—These consist of British, American, French, Dutch, Danish, Swedish, Spanish, and Portuguese, with Parsee and Indian Mohammedan British subjects. The Americans, French, and Dutch have each consular agents recognized by the imperial government. The same privileges have been, or are to be, conceded to all foreigners that have been granted to the English.

RATES OF COMMISSION IN CHINA, AGREED UPON IN NOVEMBER, 1831, AND REVISED BY THE CHAMBER OF COMMERCE, MARCH, 1838.

1. On all sales of opium, cotton, cochineal, camphor baroos, birds' nests, diamonds, and other precious stones, pearls, ships, houses	3 per cent.
2. On sales of all other goods	5 per cent.
3. On returns, if in goods	2½ per cent.
4. On returns, if in treasure, bullion, or bills	1 per cent.
5. On purchases, not being returns for goods sold:	
1st. Of raw silk	3 per cent.
2d. Of manufactured silk	5 per cent.
3d. Of all other goods	5 per cent.
6. On inspecting teas, whether for returns or otherwise, an additional charge of	½ per cent.
7. On sale, purchase, or shipment of bullion	1 per cent.
8. On drawing, sale, or negotiation of bills when not involving responsibility as drawer or indorser	1 per cent.
9. On drawing, sale, or negotiating of bills when guaranteed by the agent as drawer or indorser, and not covered by adequate security	2½ per cent.
10. On purchasing bills, or effecting remittance by bills, of the agent or otherwise	1 per cent.
11. On negotiating loans or respondentia	2 per cent.
12. On guaranteeing bills, bonds, or other engagements	2½ per cent.
13. On guaranteeing sales when especially required without including responsibility for remittances	2½ per cent.
14. On guaranteeing both sales and remittance of proceeds	1 per cent.
15. On bills of exchange, returned protested	1 per cent.
16. On letters of credit for mercantile purposes	2½ per cent.
17. On all advances of money for purposes of trade, whether the goods are consigned to the agent or not, and where a commission of 5 per cent. is not charged	2½ per cent.
18. On ordering goods or superintending the fulfillment of contracts, where no other commission is derived	2½ per cent.
19. On all goods, treasure, etc., consigned, and afterward withdrawn or sent to auction, and for goods consigned for additional delivery to others	½ commission.
20. On procuring freight, or advertising as agents, or owners, or commanders, on the amount of freight, whether the same passes through the hands of the agent or not	5 per cent.
21. On receiving inward freight	1 per cent.
22. On ships' disbursements	2½ per cent.
23. On chartering ships for other parties	2½ per cent.
24. On effecting insurance, or writing orders for insurance	½ per cent.
25. Settling insurance losses, total or partial, and on procuring return of premium	1 per cent.
26. Debts, where a process at law or arbitration is necessary, 2½ per cent.; and if recovered	5 per cent.
27. Collecting house rent	2½ per cent.
28. Acting for the estates of persons deceased, as executors or administrators	5 per cent.
29. The management of the estates of others, on the amount received	2½ per cent.
30. All cash receipts, not serving for the purchase of goods, and not otherwise specified above	1 per cent.
31. Shroffing	2 per mil.
32. Transhipping goods	1 per cent.
33. All advances not punctually liquidated, the agent to have the option of charging a second commission, as upon a fresh advance, provided the charge does not occur twice in the same year	1 per cent.
34. At the option of the agent, on the amount debited or credited within the year, including interest, and excepting only items on which a commission of 5 per cent. has been charged	1 per cent.

N.B.—This charge not to be applied to paying over a balance due on an account made up to a particular period, unless where such balance is withdrawn without reasonable notice.

Opium, which is by far the most profitable of all the articles imported into China, is excluded from the official account of imports, which comprises those articles only that are legally admissible. Although, however, it be nominally excluded, opium is openly, systematically, and easily introduced; the trade in it being, in fact, as safe and as regular as that in any other commodity, while it is incomparably more extensive. Notwithstanding the efforts that have sometimes been made to effect its exclusion, the imports have continued rapidly to increase. In 1816–'17 they amounted to only 3210 chests, whereas in 1829–'30 they had increased to about 14,000 chests; and they are now estimated at about 54,000 chests, worth about $33,000,000. So rapid an increase in the production and consumption of a drug is, perhaps, unparalleled in the history of commerce. It is probable, however, that its importation will shortly receive a check; for it is believed that the Chinese, aware at last of the impotency of the attempts to prevent its introduction, are about to legalize its importation and culture in the empire. And as the soil in many parts of China is understood to be well suited to the growth of the poppy, there can be little doubt that its cultivation will be rapidly extended. Should this expectation be realized, it will produce a very important change in the trade of China. On the whole, however, we incline to think that the change will be beneficial. It will go far to restore the balance between the imports and exports without draining China of her bullion; and it will enable her to purchase larger quantities of the manufactures and other products of this and other countries. The change in question, supposing it to be realized, will, however, seriously affect India, which furnishes almost all the opium sent to China, and the culture and sale of which, besides affording employment and subsistence to a large population, yields a net revenue to the East India Company of considerably more than £3,000,000 a year!

Shanghai is situated in the southern part of the province of Kiang-Su, at a considerable distance from the sea, on the River Woo-Sung, in about lat. 31° 10′ N., long. 120° 50′ E. The river, which may be navigated by large ships for a considerable distance above the town, crosses the grand canal, and, consequently, makes Shanghai an *entrepôt* for all the vast and fertile countries traversed by the canal and by the great rivers with which it is connected; and hence the present importance of this emporium, as evinced by the extent of our trade with it in 1848; and hence, also, the infinitely greater importance to which its commerce will hereafter most probably attain.

EXPORTS OF TEA FROM CHINA.

	Black Tea.	Green Tea.	Total.
	Pounds.	Pounds.	Pounds.
To Great Britain, 1848–'49.	38,763,500	8,479,200	47,242,700
To Great Britain, 1849–'50.	45,848,900	8,120,400	53,969,300
To Great Britain, 1850–'51.	55,696,800	8,056,600	63,753,400
To United States, 1851–'52.	13,361,513	20,965,915	34,327,428

From this statement it will be seen that the amount of the exports of black tea to Great Britain is increasing very fast, at the rate of 20 per cent. per annum; and was in 1850–'51 seven times as great as the exports of green tea; while the exports of black tea to the United States were only two-thirds the exports of green tea.

EXPORTS OF TEA FROM CHINA.

Year ending June.	United States.	Great Britain.
	Pounds.	Pounds.
1854	27,867,000	77,217,000
1855	31,515,000	86,509,000
1856	40,246,000	91,035,000

Trade with the Indian Islands, etc.—In his evidence before the select committee of the House of Commons, Mr. Crawfurd gave the following details with respect to the native foreign trade with China:

"The principal part of the junk or shipping trade is carried on by the four contiguous provinces of Canton, Fokien, Che-kiang, and Kiannan. No foreign trade is permitted with the island of Formosa; and I have no means of describing the extent of the traffic which may be conducted between China, Corea, and the Leechew islands. The following are the countries with which China carries on a trade in junks: viz., Japan, the Philippines, the Soo-loo islands, Celebes, the Moluccas, Borneo, Java, Sumatra, Singapore, Rhio, the east coast of the Malayan peninsula, Siam, Cochin China, Cambodia, and Tonquin; and these may, in all, employ about 222 junks. The ports of China at which this trade is conducted are, Canton, Tchao-tcheou, Nomhong, Hoeitcheon, Suheng, Kongmoon, Changlim, and Hainan, in the province of Canton; Amoy and Chinchew, in the province of Fokien; Ningpo and Siang-hai, in the province of Chekiang; and Soutcheon, in the province of Kiannan. The above estimate does not include a great number of small junks belonging to the island of Hainan, which carry on trade with Tonquin, Cochin China, Cambodia, Siam, and Singapore. Those for Siam amount yearly to about 50, and for the Cochin Chinese dominions to about 42; these alone would bring the total number of vessels carrying on a direct trade between China and foreign countries to 307. The trade with Japan is confined to the port of Ningpo, in Chekiang, and expressly limited to 10 vessels; but as the distance from Nangasaki is a voyage of no more than four days, it is performed twice a year. With the exception of this branch of trade, the foreign intercourse of the two provinces, Chekiang and Kiannan, which are famous for the production of raw silk, teas, and nankeens, is confined to the Philippine Islands, Tonquin, Cochin China, Cambodia, and Siam; and none of this class of vessels, that I am aware of, have ever found their way to the western parts of the Indian Archipelago. The number of these trading with Siam is 24, all of considerable size; those trading with the Cochin Chinese dominions, 16, also of considerable size; and those trading with the Philippines, 5; making in all 45, of which the average burden does not fall short of 17,000 tons. Besides the junks now described, there is another numerous class, which may be denominated the colonial shipping of the Chinese. Wherever the Chinese are settled in any numbers, junks of this description are to be found; such as in Java, Sumatra, the Straits of Malacca, etc.; but the largest commerce of this description is conducted from the Cochin Chinese dominions, especially from Siam, where the number was estimated to me at 200. Several junks of this description from the latter country come annually to Singapore, of which the burden is not less than from 300 to 400 tons. The junks which trade between China and the adjacent countries are some of them owned and built in China; but a considerable number also in the latter countries, particularly in Siam and Cochin China. Of those carrying on the Siamese trade, indeed, no less than 81 out of the 89, of considerable size, were represented to me as being built and owned in Siam. The small junks, however, carrying on the trade of Hainan, are all built and owned in China. The junks, whether colonial or trading direct with China, vary in burden from 2000 piculs to 15,000, or carry dead weight from 120 to 900 tons. Of those of the last size I have only seen three or four, and these were at Siam, and the same which were commonly employed in carrying a mission and a tribute yearly from Siam to Canton. Of the whole of the large class of junks, I should think the average burden will not be overrated at 300 tons each, which would make the total tonnage employed in the native foreign trade of China between 60,000 and 70,000 tons, exclusive of the small junks of Hainan, which, estimated at 150 tons each, would make in all about 80,000 tons.

"The junks built in China are usually constructed of fir and other inferior woods. When they arrive in Cambodia, Siam, and the Malayan islands, they commonly furnish themselves with masts, rudders, and wooden anchors, of the superior timber of these countries. The junks built in Siam are a superior class of vessels, the planks and upper works being invariably teak. The cost of ship-building is highest at the port of Amoy, in Fokien, and lowest in Siam. At these places, and at Chang-lim, in Canton, the cost of a junk of 3000 piculs, or 476 tons burden, was stated to me, by several commanders of junks, to be as follows: at Siam, $7400; Chang-lim, $16,000; Amoy, $21,000. A junk of the size just named has commonly a crew of 90 hands, consisting of the following officers, besides the crew: a commander, a pilot, an accountant, a captain of the helm, a captain of the anchor, and a captain of the hold. The commander receives no pay, but has the advantage of the cabin accommodation for passengers, reckoned on the voyage between Canton and Singapore worth 150 Spanish dollars. He is also the agent of the owners, and receives a commission, commonly of 10 per cent., on the *profits* of such share of the adventure, generally a very considerable one, in which they are concerned. The pilot receives for the voyage $200 of wages, and 50 piculs of freight out and home. The helmsman has 15 piculs of freight and no wages. The captains of the anchor and the hold have 9 piculs of freight each; and the seamen 7 piculs each. None of these have any wages. The officers and seamen of the colonial junks are differently rewarded. In a Siamese junk, for example, trading between the Siamese capital and Singapore, of 6000 piculs burden, the commander and pilot had each $100 for the voyage, with 12 piculs of freight apiece. The accountant and helmsman had half of this allowance, and each seaman had $13, with 5 piculs of freight. In construction and outfit, Chinese junks are clumsy and awkward in the extreme. The Chinese are quite unacquainted with navigation, saving the knowledge of the compass; notwithstanding this, as their pilots are expert, their voyages short, and as they hardly ever sail except at the height of the monsoons, when a fair and steady 7 or 8 knots' breeze carries them directly from port to port, the sea risk is very small. During 13 years' acquaintance with this branch of trade, I can recollect hearing of but four shipwrecks; and in all these instances the crews were saved. The construction and rigging of a Chinese junk may be looked upon as her proper registry, and they are a very effectual one; for the least deviation from them would subject her at once to foreign charges and foreign duties, and to all kinds of suspicion. The colonial junks, which are of a more commodious form and outfit, if visiting China, are subjected to the same duties as foreign vessels. Junks built in Siam, or any other adjacent country, if constructed and fitted out after the customary model, are admitted to trade to China upon the same terms as those built and owned in the country. If any part of the crew consist of Siamese, Cochin Chinese, or other foreigners, the latter are admitted only at the port of Canton; and if found in any other part of China, would be seized and taken up by the police exactly in the same manner as if they were Europeans. The native trade of China conducted with foreign countries is not a clandestine commerce, unacknowledged by the Chinese laws, but has in every case at least the express sanction of the viceroy or governor of the province, who, on petition, decides the number of junks that shall be allowed to engage in it, and even enumerates the articles which it shall be legal to export and import. At every port, also, where such a foreign trade is sanctioned, there is a hong or body of security merchants, as at Canton; a fact which shows clearly enough that this institution is parcel of the laws or customs of China, and not a peculiar restraint imposed upon the intercourse with Europeans. The Chinese junks properly constructed pay no measurement duty, and no cumshaw or present; duties, however, are paid upon goods exported and imported, which seem to differ at the different provinces. They are highest at Amoy, and lowest in the island of Hainan. The Chinese traders of Siam informed me that they carried on the fairest and easiest trade, subject to the fewest restrictions, in the ports of Ningpo and Siang-hai, in Chekiang, and Soutcheon, in Kiannan. Great dexterity seems every where to be exercised by the Chinese in evading the duties. One practice, which is very often followed, will afford a good example of this. The coasting-trade of China is nearly free from all duties and other imposts. The merchant takes advantage of this; and, intending in reality to proceed to Siam or Cochin China, for example, clears a junk out for the island of Hainan, and thus avoids the payment of duties. When she returns she will lie four or five days off the mouth of the port, until a regular bargain be made with the custom-house officers for the reduction of duties. The threat held out in such cases is to proceed to another port, and thus deprive the public officers of their customary perquisites. I was assured of the frequency of this practice by Chinese merchants of Cochin China, as well as by several commanders of junks at Singapore. From the last-named persons I had another fact of some consequence, as connected with the Chinese trade; viz., that a good many of the junks carrying on trade with foreign ports to the westward of China often proceeded on voyages to the northward in the same season. In this manner they stated that about 20 considerable junks, besides a great many small ones, proceeded annually from Canton to Souchong, one of the capitals of Kiannan, and in wealth and commerce the rival of Canton, where they sold about 200 chests of opium at an advance of 50 per cent. beyond the Canton prices. Another place where the Canton junks, to the number of five or six, repair annually, is Chinchew, in the province of Canton, within the Gulf of Pecheley, or Yellow Sea, and as far north as the 37th degree of latitude."—*Appendix, Report of* 1830, p. 298.

A Chinese ship or junk is seldom the property of one individual. Sometimes 40, 50, or even 100 different merchants purchase a vessel, and divide her into as many different compartments as there are partners, so that each knows his own particular part of the ship, which he is at liberty to fit up and secure as he pleases. The bulk-heads, by which these divisions are formed, consist of stout planks, so well caulked as to be completely water-tight. A ship thus formed may strike on a rock, and yet sustain no serious injury; a leak springing in one division of the hold will not be attended with any damage to articles placed in another; and, from her firmness, she is qualified to resist a more than ordinary shock. A considerable loss of stowage is, of course, sustained; but the Chinese exports generally contain a considerable value in small bulk. It is only the very largest class of junks that have so many owners; but even in the smallest class the number is very considerable.—*See* China.

Canvas (Fr. *Toile à voile*; Ger. *Segeltuch*; It. *Canevazzo*, *Lona*; Russ. *Parussnoe polotno*, *Parussina*; Sp. *Lona*), unbleached cloth of hemp or flax, chiefly used for sails for shipping.

Caoutchouc. "This substance, which has been improperly termed elastic gum, and vulgarly, from its common application to rub out pencil marks on paper, *India rubber*, is obtained from the milky juice of different plants in hot countries. The chief of these are the *Jatropha elastica*, and *Urceola elastica*. The juice is applied in successive coatings on a mould of clay, and dried by the fire or in the sun; and when of a sufficient thickness, the mould is crushed and the pieces shaken out. Acids separate the caoutchouc from the thinner part of the juice at once, by coagulating it. The juice of old plants yields nearly two-thirds of its weight; that of younger plants less. Its color, when fresh, is yellowish-white, but it grows darker by exposure to the air. The elasticity of this substance is its most remarkable property; when warmed, as by immersion in hot water, slips of it may be drawn out to 7 or 8 times their original length, and will return to their former dimensions nearly. Cold renders it stiff and rigid, but warmth restores its original elasticity. Exposed to the fire, it softens, swells up, and burns with a bright flame. In Cayenne it is used to give light as a candle."—Ure's *Dict.* *See* India Rubber.

Caoutchouc has become an article of very considerable importance. M. de la Condamine, who was one of the first to communicate authentic information with respect to it, mentions that, owing to its being impervious to water, it was made into boots by the Indians. —*Voyage de la Rivière des Amazones*, p. 76. It is now employed in a similar way here. Means have, within these few years, been discovered of reducing it to a state of solution; and when thin filaments of it are spread over cloth or any other substance, it is rendered impervious alike to air and water. Air-cushions and pillows are manufactured in this way; as are waterproof cloaks, now in very extensive demand, hats, boots, shoes, etc. It is also extensively used in the manufacture of braces and other articles which it is desirable should possess considerable elasticity; and there can be little doubt that it will be employed still more extensively, and in a still greater variety of ways.

The great variety of purposes to which its elasticity and imperviousness to water and to air have occasioned its application are too numerous and familiar to be particularized in this place. The extent of its employment in Britain in the several branches of manufacture is shown by the quantity of caoutchouc imported, which, for the year ending January 5, 1854, amounted to 17,326 cwt. The total quantity exported from Para alone, in 1852, was 32,860 cwt., and 116,465 pairs of shoes. The filature of caoutchouc, for the manufacture of elastic fabrics, such as cloth, cord, tape, braces, etc., is an important and increasing branch of our national industry. This operation has been made the subject of various patents, all modifications more or less perfect of our general principle, namely, that of reducing it to threads by means of steel edges acting either on the bottle caoutchouc compressed in a mould, on the solid cake, or by cutting it when stretched on a mandrel of wood, which is set in rapid revolution. In this operation water is allowed to trickle over the cutting blades in order to prevent the cohesion that would otherwise impede their progress. In this manner thread of 5000 yards to a pound weight is produced. Previous to its employment in the manufacture of textile fabrics, it is necessary to render the thread inelastic, which is effected by winding it tightly on reels and allowing it to remain in that condition until nearly deprived of its elasticity—which is afterward restored by exposing it to the action of a heated smoothing-iron. Sheets are sometimes cut from the solid cake, and may likewise be obtained of any size, and of extreme tenuity, by spreading a solution in naphtha upon cloth previously sized, stripping it off when dry. The use of rollers, with a piece of cloth similarly prepared and superimposed on the varnished surface of the first, may also be employed in this operation.—E. B.

Cap. The Romans went for many ages without regular covering for the head, and hence the heads of all the ancient statues appear bare. But at one period the cap was a symbol of liberty, and when the Romans gave it to their slaves it entitled them to freedom. The cap was sometimes used as a mark of infamy; in Italy the Jews were distinguished by a yellow cap, and in France those who had been bankrupts were forever after obliged to wear a green cap. The general use of caps and hats is referred to the year 1449; the first seen in these parts of the world being at the entry of Charles VII. into Rouen, from which time they took the place of chaperons or hoods. A statute was passed that none should sell any hat above 20*d.* (40 cents) nor cap above 2*s.* 8*d.* (66 cents), 5 Henry VII., 1489.—Haydn.

Cape Hatteras, a headland, North Carolina. Lat. 35° 15′ 12″ N., long. 75° 30′ 54″ W. The light-house was built in 1798 of brown sand-stone. The light is *fixed*, elevated 112 feet above the sea, and is visible for a distance of 17 nautical miles. Very dangerous shoals extend off from this point 10 nautical miles.

Cape Haytien, formerly *Cape Français*, and *Cape Henry*, a sea-port town of the island of Hayti, on its north coast, 90 miles north of Port au Prince. Lat. 19° 40′ N., long. 69° 54′ W. Population probably from 12,000 to 16,000. Previously to the Haytian revolution it was a handsome city, and it still has some fine buildings, with a secure and tolerably defended harbor, and a considerable trade, chiefly with the United States, Great Britain, France, and Germany.

Cape Henlopen, Delaware, a headland on the south side of the entrance to Delaware Bay. Lat. 38° 46′ 36″ N., long. 75° 4′ 42″ W. The light-house shows a *fixed* white light elevated 170 feet above the sea, and is visible for a distance of 18½ nautical miles.

Cape Henry, Virginia, a headland on the south side of the entrance to Chesapeake Bay. Lat. 36° 55′ 30″ N., long. 76° 0′ 12″ W. The light-house, built in 1791, is the leading mark for vessels bound into Chesapeake Bay. It shows a *fixed* white light elevated 120 feet above the sea, and is visible for a distance of 18 nautical miles.

Cape of Good Hope, an important colony of Great Britain, occupying the south part of the peninsula of Africa, between lat. 29° 41′ and 34° 51′ S., and long. 17° 10′ and 27° 32′ E.; bounded on the south and east by the Indian Ocean, and on the west by the Atlantic Ocean, on the north by the countries of the Namaquas, Griquas, and other Hottentot tribes, and on the northeast by British Kafraria. Length, west to east (Cape peninsula to Keiskamma River), 550 miles; average breadth, 250 miles. Area, estimated at 110,000 square miles. Population in 1850, 261,436, mostly Africans, Dutch, negroes, and a small number of Hottentots. The country is formed of a series of territories rising in successive stages from south to north. Bays, Helena, Table, False (the west part of which forms Simon's Bay), St. Sebastian, Mossel, Plettenberg, and Algoa. Streams are numerous but rapid, mostly dry in summer, and unfit for navigation; the chief are, on the east and south coast, Keiskamma, Great Fish, Bushman, Sunday, Camtoos, and Breede; on the west, Berg and Elephant or Oliphant; and on the north, several small streams tributary to the Orange. The climate is mild and healthy, but very dry; rains irregular, often falling in torrents on the coast, but rare in the plains of the interior. Snow falls only in the mountains, and is not permanent, even on the most elevated. December and January are the warmest, and June and July the coldest months. Mean temperature at Cape Town—in summer, 58°·3; in winter, 76°·6 Fahrenheit. The greater number of diseases are unknown at the Cape; the most common are consumption and apoplexy. Few of the inhabitants attain an advanced age. Soil fertile where sufficiently watered, but the general appearance of the country is sterile and monotonous. The arid steppes or *Karoos* of the interior are destitute of trees, and covered with an ephemeral vegetation, only after heavy rains. The flora of the colony is of a peculiar character, comprising 1200 species, which, however, are more remarkable for the variety and beauty of their flowers than for their uses. The most valuable is the aloe, the produce of which has been exported in one year to the amount of $12,000; a species of soda, found in the Karoo, is employed by the inhabitants in the manufacture of soap, and candles are made from the covering of the waxberry. European grains, and the fruits of temperate and tropical regions, have been successfully introduced. Corn is raised more than requisite for consumption, and the cultivation of the vine is an important source of wealth; a good white wine is produced in the interior, but only the small vineyard at the foot of Table Mountain produces the celebrated liqueur called *Constantia*. Cattle-rearing is the chief branch of rural industry; and the introduction of the Merino sheep has rendered the rural trade of the colony important. The value of produce of the colony exported in 1840 amounted to £359,517. The coasts abound with mackerel and herrings, and in 1842 the whale and seal fishery employed 144 boats. Some of the wild animals of Africa are still met with, but the larger species decrease in proportion as colonization extends. The lion, hyena, buffalo, hippopotamus, and zebra, are occasionally seen; the rhinoceros is rare, and the elephant is driven beyond the boundary. The ostrich and eagle are found in the mountains, and snakes are numerous. The commerce of the colony is extensive; the ports are Cape Town and Simon's Town in the west, and fort Elizabeth in the east. Total value of exports in 1844, £350,735, of which £246,217 were to the United Kingdom. Imports same year, £1,123,061. In 1845, 35 ships (3713 tons) and 307 men belonged to the colony; and in 1847, 791 ships (209,426 tons) entered, and 782 ships (205,618 tons) cleared from its ports. The colony consists of an east and a west province, and these are divided into 14 districts; viz., Cape Division and Stellenbosch in the southwest; Zwellendam, George, Uitenhage, and Albany, on the south coast; Clanwilliam on the northwest; Worcester and Beaufort, Graaf Reynet, and Somerset in the interior; Colesberg on the northeast; Cradock and Victoria on the east. The capitals have the same names as the districts, except Graham's Town, which is the capital of Albany, and Fredericksburg, of Victoria district. Stellenbosch is the chief wine, and Zwellendam the principal corn-growing district; the others are mostly appropriated to grazing. Government is administered by a Parliament, composed of the governor, legislative Council of 16 members, and a House of Assembly of 46 members, elected for a term of five years. (*Salary of governor and commander-in-chief*, £5000.) The Dutch founded a colony at the Cape in 1648, which was taken by the British in 1795.—*See* CAPE TOWN.

The boers or farmers of the Cape colony, descendants of the original Dutch settlers, have lost much of their ancestral industry and cleanliness; they are affectionate in their family relations, and strict in religious observances, but prejudiced and illiterate. Education has been long neglected in the colony; the only institutions of importance were, till lately, the South African college, and the South African institution at Cape Town; but a comprehensive system, embracing primary and classical schools, was instituted by the government in 1839. In many of the districts are missionary schools supported by different Protestant societies. In 1842 there were 40 public and 102 private schools, attended by 2700 children. The colonial grants in the same year were, for educational purposes, £6021, and for religious purposes, distributed among the different sects, £10,481. Slavery was abolished in 1833. The English language is alone used in the courts of law, but the Dutch is also taught in the government schools. The money in use is exclusively British; and Dutch weights and measures are nearly superseded by the English. The peace of the colony is frequently interrupted by incursions of the Kaffers, and other savage tribes on the frontier.

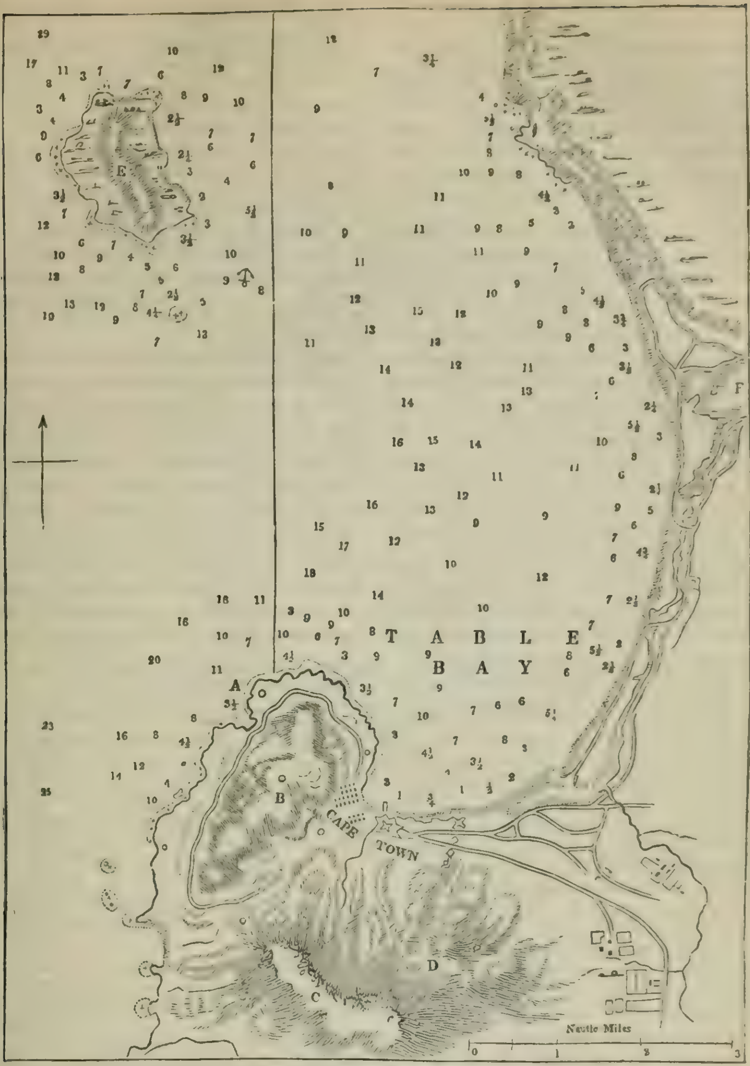
Capers (Fr. *Capres;* Germ. *Kappern;* Du. *Kappers;* It. *Cappari;* Sp. *Alcaparras;* Russ. *Kaperszü;* Lat. *Capparis*), the pickled buds of the *Capparis spinosa*, a low shrub, generally growing out of the joints of old walls and the fissures of rocks, in most of the warm parts of Europe. Capers are imported from different parts of the Mediterranean; the best from Toulon, in France. Some small salt capers come from Majorca, and a few flat ones from the neighborhood of Lyons. In 1852, 117,067 pounds of capers were retained for consumption.

Cape Town, the capital of the British territory in South Africa, at the bottom of Table Bay, about 32 miles north from the Cape of Good Hope, and on the western side of the territory to which it gives its name; lat. 33° 55′ 56″ S., long. 18° 21′ E. The town was founded by the Dutch in 1650; and remained, with the territory subject to it, in their possession till it was taken by the British in 1795. It was restored to the Dutch by the treaty of Amiens; but being again captured by the British in 1806, it was finally ceded to them in 1815. The streets are laid out in straight lines, crossing each other at right angles; many of them being watered by canals, and planted on each side with oaks. The population in 1842 amounted, according to the statement in the *Cape Almanac*, to 22,543, of whom about a third were blacks. The town is defended by a castle of considerable strength. Table Bay is capable of containing any number of ships; but it is exposed to the westerly winds, which, during the months of June, July, and August, throw in a heavy swell, that has been productive of many distressing accidents. This, in fact, is the great drawback upon Cape Town, which in all other respects is most admirably fitted for a commercial station. At the proper season, however, or during the prevalence of the easterly monsoon, Table Bay is perfectly safe; while the cheapness and abundance of provisions, the healthiness of the climate, and, above all, its position, render it a peculiarly desirable resting-place for ships bound to or from India, China, Australia, etc.

The plan of Table Bay on the opposite page is taken from the survey of the Cape of Good Hope, executed by Lieutenant Vidal and others, under the direction of Captain Owen.

Port Instructions.—Art. 1. On the arrival of merchant vessels in Table Bay, a proper berth will be pointed out to the masters thereof by the port captain when he boards them; and no master of a merchant vessel shall shift his birth without permission from the port captain, unless in case of extreme emergency, when he must report his having done so as early as possible at the port-office.

Art. 2. Should it be the intention of a master of a vessel to discharge or receive on board any considerable quantity of merchandise, a berth will be pointed



PLAN OF TABLE BAY. BY LIEUTENANT VIDAL, R. N.—*See* p. 268.

References to the Plan.—A, light-house, furnished with double lights. They may be seen clearly off deck at 16 miles' distance; but they do not appear double till within 6 or 7 miles to the westward; from the northward only one light is seen. B, Lion's Rump. C, Table Mountain. D, Devil's Peak, in lat. 33° 57′ 2″. E, Robbin Island. F, Salt River. The figures denote the soundings in fathoms.

out to him as close to the jetty, or other landing-place, as the safety of the vessel and other circumstances will admit. And the master will then moor with two bower anchors, with an open hawse to the north-northeast, taking especial care, in so mooring, not to overlay the anchors of any other ship, or in any way to give the vessel near him a foul berth. Ships and vessels touching in Table Bay for water and refreshments alone may ride at single anchor in the outer anchorage; but in this case it is particularly recommended to veer out 80 or 90 fathoms, if they ride by a chain cable, as the liability of starting or fouling the anchor, or breaking the chain, will thereby be greatly lessened; and if riding by a rope or coir cable, to run out a stream or good kedge, to steady the ship; and in both cases the other bower anchor should be kept in perfect readiness to let go. When the vessel is properly moored with bower anchors, or well secured with a bower and stream anchor, and with good cables, buoys, and buoy-ropes, the master will then take the exact place of the ship by the bearings of two landmarks, and the depth of the water; and should accident occur, by which the vessel may drift from this situation, or lose her anchors, a good bearing and depth of water must be taken at the time, and the same must be notified in writing to the port captain. It is particularly recommended that vessels be kept as snug as possible, to counteract the effects of the periodical winds, which at times blow with considerable violence.

The district subject to Cape Town is of very great extent, and contains every variety of soil, from the richest level land to the wildest mountain, and tracts destitute of even the appearance of vegetation. The climate fluctuates between the two extremes of rain and drought. On the whole, its advantages and disadvantages seem to be pretty equally balanced; and the prospects which it holds out to the industrious emigrant, if not very alluring, are certainly not discouraging.

Population.—According to the official returns, the population of the Cape Colony in 1847 consisted of 167,995.

Produce.—Large quantities of corn of a very good description are produced in the immediate neighborhood of Cape Town, and in other parts of the colony; but agriculture is crippled by the Dutch law of succession, which, by dividing a man's property equally among his children, hinders the accumulation of capital in masses, and the formation of proper farming establishments.—THOMSON'S *Travels in Southern Africa*, p. 324.

The Mauritius and Rio Janeiro are the principal markets for the corn of the Cape. The exports of wool have increased very rapidly within the last ten years, and it now forms by far the most important article sent from the colony. The native breed of sheep is very inferior; its fleece is worth nothing, and it is remarkable only for the size of the tail, which sometimes weighs 20 lbs.! But fine-wooled Spanish merinos, Saxon and English sheep, succeed remarkably well, and their wool fetches a high price. The eastern district of Albany is especially suitable for sheep.

Large quantities of wine, and of what is called brandy, are produced at the Cape; but, with the exception of Constantia, they are very inferior. The effect of allowing the importation of Cape wines into the United Kingdom at a comparatively low duty is, not to occasion their direct consumption, but to cause them to be employed as a convenient means of adulterating others; so that, besides being injurious to the revenue, such reduction of duty promotes fraudulent practices, and detracts from the comforts of the public.

Considerable quantities of hides, skins, and horns are exported. They are principally brought from Algoa Bay, on the eastern side of the colony; and the trade has increased very fast during the last six or seven years. Aloes are an important product; and horses, butter, beef, ivory, argol, and various other articles, are among the exports. The latter also include dried fish, whale and seal oil, etc., the Cape fisheries being of considerable value.

The imports at the Cape consist of woolens, cottons, hardware, earthen-ware, furniture, haberdashery, soap, paper, books, and portions of most articles used in this country. Piece goods and teak timber are imported from India, tea from China, sugar from India, the Mauritius, etc.

Trade.—The trade between the colonists and the independent natives is subjected to various restraints, of which it is not always very easy to discover the policy. The sale of gunpowder and fire-arms to the natives has been prohibited: a regulation which might have been a judicious one, had they not been able to obtain them from any one else. The Americans have, however, traded with the eastern coast, and have liberally supplied the natives with these and various other articles; so that by keeping up the regulation in question, the English exclude themselves from participating in what might be an advantageous trade But since they have taken possession of Natal, this intercourse may perhaps have been stopped.

ACCOUNT OF THE QUANTITIES AND VALUES OF THE STAPLE ARTICLES, THE PRODUCE OF THE COLONY OF THE CAPE OF GOOD HOPE, EXPORTED IN THE YEAR ENDING 5TH JANUARY, 1847.

Articles.		Quantities.	Value.	Articles.		Quantities.	Value.
			£ s. d.				£ s. d.
Aloes	Pounds.	213,730	2,346 0 0	Hides (horse and ox)	Num.	60,837	32,777 0 0
Argol	—	60,000	990 0 0	Horns	—	83,650	1,244 0 0
Beef and Pork	Casks.	4,806	13,434 0 0	Horses	—	490	17,028 0 0
Bone (whale)	Pounds.	3,851	264 0 0	Ivory	Pounds.	28,342	5,372 0 0
Butter	—	81,765	5,807 0 0	Mules	Num.	13	215 0 0
Candles	—	25,299	945 0 0	Oil—viz.: Whale	Gallons.	2,584	211 0 0
Corn and meal—viz.:				Skins—viz.: Calf	Num.	120	26 0 0
Barley	Muids.	2,399	1,302 0 0	Goat	—	230,164	22,649 0 0
Beans and peas	—	949	1,058 0 0	Seal	—	460	188 0 0
Bran	Pounds.	353,195	1,432 0 0	Sheep	—	249,949	9,793 0 0
Flour	—	756,438	7,918 0 0	Spirits—viz.: Brandy	Gallons.	4,947	653 0 0
Oats	Muids.	908	490 0 0	Tallow	Pounds.	147,971	2,491 0 0
Wheat	—	240	242 0 0	Wax	—	2,843	168 0 0
Feathers (ostrich)	Pounds.	1,327	7,655 0 0	Wine—viz.:			
Fish (cured)	—	1,392,925	7,221 0 0	Constantia	Gallons.	3,064	2,614 0 0
Fruits (dried)	—	255,812	3,838 0 0	Ordinary	—	508,708	37,858 13 6
Fruits (green)	—	5,800	50 0 0	Wool	Pounds.	3,271,128	178,011 0 0
							£366,290 13 6
Other Articles							32,485 0 6
Total							£398,775 13 6

	£ s. d.	
Of the above, the value of the exports from Cape Town was	228,815 0 0	
Ditto, exported from Simon's Town	471 13 6	
Ditto, exported from Port Elizabeth*	170,289 0 0	
		£398,775 13 6

* Port Elizabeth, on the east side of Algoa Bay, is rapidly rising in commercial importance; and from the greater fertility of the country in its vicinity, its exports will probably, in no very lengthened period, exceed those from the Cape.

A SUMMARY VIEW OF THE TRADE AND NAVIGATION OF THE COLONY IN THE YEAR ENDING 5TH JANUARY, 1847.

Ports.	Vessels inward.		Vessels outward.		Total Customs Duties.	Total Revenue collected by the Customs, including Fees, Wharfage, etc.	Total Value of Imports.	Total Value of Exports.
	No.	Tonnage.	No.	Tonnage.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Cape Town	399	138,885	374	131,708	74,163 12 8	80,937 1 7	814,687 0 4	315,090 0 0
Coastwise	181	21,834	195	27,780	....	....	....	....
Simon's Town	33	12,772	31	12,350	428 19 10	1,046 4 0	4,526 15 6 50,000 0 0 Specie commis.	470 3 6 800 0 0 Specie.
Coastwise	6	963	8	1,401	....	....	....	....
Port Elizabeth	76	19,865	62	16,328	18,488 7 11	18,774 19 2	253,848 0 0	172,994 0 0
Coastwise	99	15,107	112	16,051	....	....	....	....
Total Colony	508	171,522	467	160,386	93,081 0 5	100,758 4 9	1,123,061 15 10	489,354 3 6
Coastwise	586	37,904	315	45,232	....	....	....	....
Grand Total	794	209,426	782	205,618	93,081 0 5	100,758 4 9	1,123,061 15 10	489,354 3 6

By an act passed by the colonial government of the Cape of Good Hope, it is provided, "That it shall be lawful for the proper officers of customs to deliver, from any of the bonded warehouses in this colony, any articles whatever duly warehoused therein, being original packages as imported, to be shipped free from customs duty as stores for the use of any vessel, not being then on any voyage from any one port to any other port of this colony: such delivery and shipment shall be under such rules and regulations as the collector of customs shall direct; and any such articles shipped as stores contrary to such rules and regulations shall be forfeited, and shall be dealt with in the same manner as is provided in the ordinance No. 6 of 1853, in respect of goods forfeited, or liable to forfeiture, for breaches of the customs laws."

By an act passed June 8th, 1855, it is further provided, "That the following articles shall be exempt from the payment of wharfage and cranage duties, upon being landed or shipped in Table Bay or Simon's Bay respectively—that is to say, all surplus stores or provisions for the use of whaling vessels; all whalebone, whale-head matter, and whale or fish oil, landed or shipped from or on board of whaling vessels, or from or on board of any other vessel conveying such whalebone, whale-head matter, or oil, from or to any whaling vessel; provided, that such whalebone, whale-head matter, be not entered for colonial consumption."

Cape Verd, the most western cape of Africa, in the Atlantic Ocean, between the rivers Senegal and Gambia. Lat. 14° 43′ N., long. 17° 34′ W. Its name is derived from a group of enormous baobab-trees which crowns its summit.

Cape Verd Islands are situated 329 miles west of the Cape, between lat. 14° 45′ and 17° 13′ N., and long. 22° 45′ and 25° 25′ W. The Archipelago consists of the following ten islands: Sal, Boavista, Mayo, Santiago (St. James), the largest, Forgo, Brava, Grande, Rombo, St. Nicolão, and St. Luzia, and four islets, Branco, Razo, St. Vicente, and St. Antão. Area estimated at 1680 square miles. Population in 1850, 86,738. The white population, in the whole Archipelago is to the colored as 1 to 20. The surface of the islands is in general mountainous, and some of their peaks have a considerable elevation. The volcano of Fogo is 9157 feet in height. The soil is extremely various, but mostly fertile; the absence of trees and the scarcity of water are the causes of frequent and severe distress. Climate very hot, but tempered by the sea-breezes; mean temperature of May and August, 70°·9, April to September 70°, during the other months 65° Fahrenheit; the mornings and evenings are cool, and dews abundant. Chief vegetable products, maize, rice, and French beans. Coffee, introduced in 1790, has completely succeeded; the cotton shrub is indigenous; indigo grows wild, and tobacco is cultivated in some of the islands; little sugar is grown, and wine of inferior quality; tropical fruits are abundant.—*See* PORTUGAL.

Capital, in political economy, is that portion of the produce of industry existing in a country which may be made directly available, either for the support of human existence or the facilitating of production. But in commerce, and as applied to individuals, capital is understood to mean the sum of money which a merchant, banker, or trader, adventures in any undertaking, or which he contributes to the common stock of a partnership. It signifies likewise the fund of a trading company or corporation; in which sense the word *stock* is generally added to it. Thus we say the *capital stock* of the bank, etc. The profit derived from any undertaking is estimated by the *rate* which it bears to the capital that was employed.

A desire to accumulate some portion of the produce of industry being natural to mankind, and nearly universal, the growth of capital may be expected wherever the means of accumulation exist; or, in other words, wherever men are not obliged to consume the whole products of their labor in their own subsistence. From the moment at which a man produces more than he consumes, he is creating a capital; and the accumulated surplus of production over the consumption of a whole community is the capital of a country.—KNIGHT'S *Cyclopedia.* Public credit and public order are essentially bound up with each other, and with the maintenance of general prosperity. An infringement of either, or both, is the first and surest signal of derangement in commerce, and lessened employment. At the present moment, when the state of Europe furnishes so many sad examples of the misery and ruin which have resulted to the commercial and working classes, it is of the greatest importance that we should form a just estimate of the consequences which would result, in this country, to the various classes of society from any important interruption of that peace and order for which it has been generally so much distinguished; and under which, in comparison with those countries which have been exposed to continual outbreaks, it has risen to so much social and general prosperity.

Capoc, a sort of cotton, so short and fine, that it can not be spun. It is used in the East Indies to line palanquins, to make beds, mattresses, etc.

Capricorn, Tropic of, a lesser circle of the sphere, which is parallel to the equinoctial and at 23° 30′ distance from it southward, passing through the beginning of Capricorn.

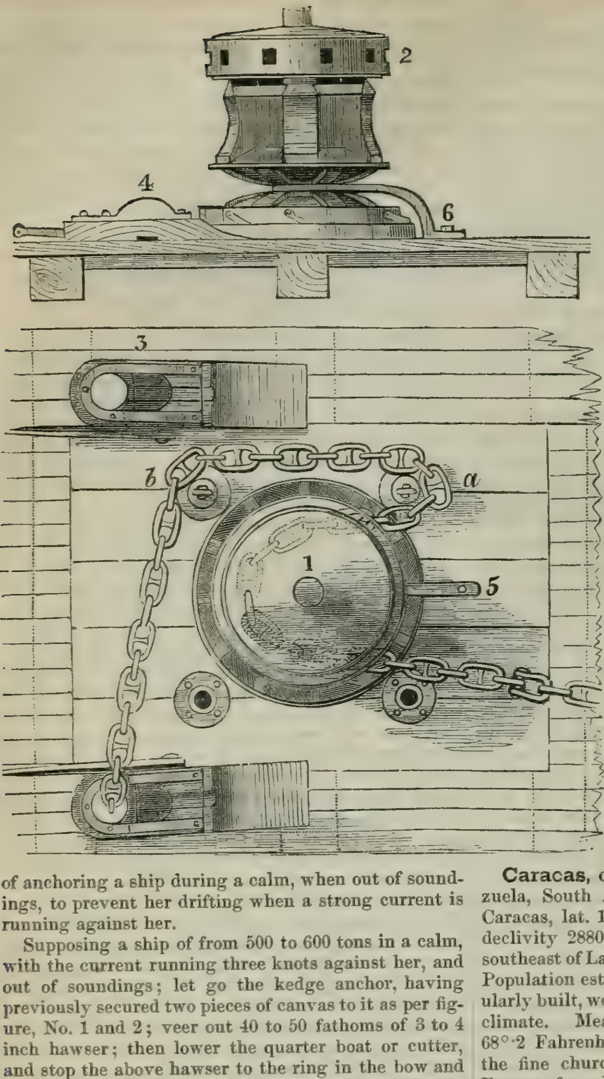
Capsicum. *See* PEPPER.

Capstan, or **Capstern,** a strong massive column of timber, formed like a truncated cone, and having its upper extremity pierced with a number of holes to receive the bars or levers. It is let perpendicularly down through the decks of a ship, and is fixed in such a manner that the men, by turning it horizontally with their bars, may perform any work which requires an extraordinary effort.

Considerable improvements have of late years been made in Phillips' capstans, which in their original form are not now much used in her majesty's service. A part of Phillips' plan, however, is retained, that, namely, of connecting the upper and lower capstan together. A French plan was recently devised, in which, instead of the wheel, an iron flange is fitted to take the three cables (the one above and the other below the class, or rate, for ships), and by this means a messenger is not required. Messengers are generally of chain; but rope ones are also supplied to each ship, in case the chain ones should become defective. The chain-messenger is made with a large link and a small one. This latter the spikes of the wheel enter as the wheel revolves. This messenger is passed half round the capstan, taken forward round the rollers in the bow, and the two parts of the messenger shackled together. Rope-messengers are passed three times round the capstan, and with an eye at each end lashed together. The rope-messengers in all ships are cut from five to eight fathoms longer than the distance between the capstan and the bow, in order that the men may hold on when the cable is hove in. Nippers, made of rope, from four to five fathoms long are used to attach the cables to the messenger. These are taken off when the cable is hove in, and come aft to the chain locker (or, if the cable is hempen, to the hatchway near the tier).

A patent has lately been taken out by Mr. Thomas Brown, of London, in which various improvements are introduced. The principal of these are illustrated in the following wood-cuts. The numbers 1 and 2 represent the plan and elevation of the capstan flange, for working various sizes of chain cable; 3 and 4 are the plan and elevation of the deck-pipe stopper, to be used for checking the cable when bringing the ship to, and for riding by when at anchor; 5 and 6 are the plan and elevation of the clearing guide.

The annexed wood-cut represents Mr. Aylen's mode



of anchoring a ship during a calm, when out of soundings, to prevent her drifting when a strong current is running against her.

Supposing a ship of from 500 to 600 tons in a calm, with the current running three knots against her, and out of soundings; let go the kedge anchor, having previously secured two pieces of canvas to it as per figure, No. 1 and 2; veer out 40 to 50 fathoms of 3 to 4 inch hawser; then lower the quarter boat or cutter, and stop the above hawser to the ring in the bow and stern of the boat; then veer from the ship 70 to 80 fathoms on the hawser, between the boat and ship; put on a snatch-block to traverse, with one or two pigs of ballast, to be used according to the strength of the current.

Supposing that the current at from 40 to 50 fathoms deep is running in a different direction from that of the surface—as has been frequently observed in clear water at sea—it is plain that a great strain is taken off the anchor by using the boat, inasmuch as the whole strain would be on the hawser *b c*, the greater part of which is borne by hawser *a b;* that if the ship rode immediate at *b*, the whole of the strain being at *b c*, would naturally require a greater weight to hold her; in fact, a bower anchor with 60 fathoms of cable would not be sufficient, besides the difficulty of again recovering the anchor.

If the surface and deep current should happen to run in the same direction, the ship would not then separate from the boat; all would drift together. This plan for anchoring, there is every reason to suppose, will answer near the equator, or at any place at a distance from the main land, but it is not intended for a tide way.—E. B.

Captain (Fr. *capitaine ;* It. *capitano*, from the Latin *caput*), literally a head, or chief officer; but the term is used in particular to denote an officer holding a certain rank in the army or the navy. In the army, a captain is the officer who commands a troop of cavalry, or a company of infantry, or of artillery. His full pay in British cavalry regiments is 14*s.* 7*d.* a day; in the infantry 11*s.* 7*d.* Captains in the Life and Foot Guards rank with the colonels of other regiments, and their full pay is 15*s.* a day. *Captain General*, the commander-in-chief of an army, or of the militia. *Captain Lieutenant* is an officer who, with the rank of captain, but the pay of lieutenant, commands a troop or company in the name and place of some other person. Thus the colonel of a regiment being usually captain of the first company, that company is commanded by his deputy under the title of captain lieutenant. *Captain of a ship of war*, the officer who commands a ship of the line or a frigate. Officers who command smaller vessels are called commanders. In ships of the line a commander is also appointed with the captain; the former is therefore second captain. The charge of a captain in the navy is very comprehensive, inasmuch as he is not only answerable for any bad conduct in the military government, navigation, and equipment of the ship he commands, but also for any neglect of duty or mismanagement on the part of his inferior officers, whose several charges he is appointed to superintend and regulate. *Captain of a merchant ship*, he who has the direction of the ship, crew, lading, etc.

Caracas, or **Caraccas**, the capital city of Venezuela, South America, department and province of Caracas, lat. 10° 30′ 13″ N., long. 67° 4′ 45′ W., on a declivity 2880 feet in elevation, and 16 miles south-southeast of La Guayra, its port, on the Caribbean Sea. Population estimated from 35,000 to 50,000. It is regularly built, well supplied with water, and has a healthy climate. Mean temperature of June 72°, February 68°·2 Fahrenheit. Principal buildings, a cathedral, the fine church of Alta Gracia, and three hospitals. Exports from La Guayra consist principally of cacao, cotton, indigo, tobacco, coffee, hides, and live cattle. By the earthquake of 1812, 12,000 persons perished; since which time most of its houses have been constructed of sun-dried bricks. It is the seat of a university, and the residence of the principal merchants, on whose account the trade of La Guayra is conducted. It is the birth-place of Bolivar. The province lies between lat. 7° 38′ and 10° 26′ N., and long. 65° 30′ and 68° W. Area, 2842 square leagues. Population, 242,888. Surface partly mountainous and partly flat; the former toward the sea-coast, where several deep indentations occur, and form good harbors; the latter in the interior, and on the south, where the country stretches out into vast plains. It produces the best cacao, and all tropical fruits are grown in perfection. It is divided into 16 cantons.

Carat, the weight which expresses the degree of fineness of gold. The word is also written *carract*, *carrat*, *karract*, and *karrat*. Its origin is contested; but the most probable opinion is that of Kennet, who derives it from *carecta*, a term which anciently denoted any weight, and came afterward to be appropriated to that which expresses the fineness of gold and the gravity of diamonds. Carats are not real determinate weights, but only imaginary. The whole mass, whatever be the weight, is conceived to be divided into twenty-four carats; and as many twenty-fourth parts as it contains of pure gold, it is called *gold of so many carats*, or *so many carats fine*. Thus, gold of eighteen carats is a mixture, of which eighteen parts are pure gold, and the other six of inferior metal. Carat is also a certain weight which goldsmiths and jewelers use for weighing precious stones and pearls. In this sense the word is supposed by some to be derived from the Greek *κεράτιον*, a fruit which in Latin is called *siliqua*, the *carob bean*, each of which may weigh above four grains of wheat; and hence the Latin *siliqua* has been used for the weight of four grains. This carat weighs four grains; but they are sometimes lighter than the grains of other weights. Each of these grains is subdivided into $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, etc. *See* WEIGHTS and MEASURES.—E. B.

Caravan, an organized company of merchants, or pilgrims, or both, who associate together in many parts of Asia and Africa, that they may travel with greater security through the deserts and other places infested with robbers; or where the road is naturally dangerous. The word is derived from the Persian *kervan*, or *cârvân*, a trader or dealer.—SHAW'S *Travels in the Levant*, p. 9, 4to ed.

Every caravan is under the command of a chief or aga (*caravan-bachi*), who has frequently at his disposal such a number of troops or forces as is deemed sufficient for its defense. When it is practicable, they encamp near wells or rivulets, and observe a regular discipline. Camels are used as a means of conveyance, almost uniformly, in preference to the horse or any other animal, on account of their wonderful patience of fatigue, eating little, and subsisting three or four days or more without water. There are generally more camels in a caravan than men.—*See* CAMEL.

The commercial intercourse of Eastern and African nations has been principally carried on, from the remotest period, by means of caravans. During antiquity, the products of India and China were conveyed either from Suez to Rhinoculura, or from Bussorah, near the head of the Persian Gulf, by the Euphrates, to Babylon, and thence by Palmyra, in the Syrian desert, to the ports of Phœnicia, on the Mediterranean; where they were exchanged for the European productions in demand in the East. Sometimes, however, caravans set out directly from China, and, occupying about 250 days in the journey, arrived on the shores of the Levant, after traversing the whole extent of Asia.—GIBBON, vol. vii. p. 93. The formation of caravans is, in fact, the only way in which it has ever been possible to carry on any considerable internal commerce with Asia or Africa. The governments that have grown up in those continents have seldom been able, and seldomer indeed have they attempted, to render traveling practicable or safe for individuals. The wandering tribes of Arabs have always infested the immense deserts by which they are intersected; and those only who are sufficiently powerful to protect themselves, or sufficiently rich to purchase an exemption from the predatory attacks of these freebooters, can expect to pass through territories subject to their incursions, without being exposed to the risk of robbery and murder.

Since the establishment of the Mohammedan faith, religious motives, conspiring with those of a less exalted character, have tended to augment the intercourse between different parts of the Eastern world.

The numerous camels of each caravan are loaded with those commodities of every country which are of easiest carriage and readiest sale. The holy city is crowded during the month of Dhalhajja, corresponding to the latter part of June and the beginning of July, not only with zealous devotees, but with opulent merchants. A fair or market is held in Mecca and its vicinity on the twelve days that the pilgrims are allowed to remain in that city, which used to be one of the best frequented in the world, and continues to be well attended. "Few pilgrims," says Burckhardt, "except the mendicants, arrive without bringing some productions of their respective countries for sale; and this remark is applicable as well to the merchants, with whom commercial pursuits are the main object, as to those who are actuated by religious zeal; for, to the latter, the profits derived from selling a few articles at Mecca diminish, in some degree, the heavy expenses of the journey. The Moggrebyns (pilgrims from Morocco and the north coast of Africa) bring their red bonnets and woolen cloaks; the European Turks, shoes and slippers, hardware, embroidered stuffs, sweetmeats, amber, trinkets of European manufacture, knit silk purses, etc.; the Turks of Anatolia bring carpets, silks, and Angora shawls; the Persians, Cashmere shawls and large silk handkerchiefs; the Afghans, tooth-brushes, called Mesouak Kattary, made of the spongy boughs of a tree growing in Bokhara, beads of a yellow soap-stone, and plain coarse shawls manufactured in their own country; the Indians, the numerous productions of their rich and extensive region; the people of Yemen, snakes for the Persian pipes, sandals and various other works in leather; and the Africans bring various articles adapted to the slave-trade. The pilgrims are, however, often disappointed in their expectations of gain; want of money makes them hastily sell their little adventures at the public auctions, and often obliges them to accept very low prices."—*Travels in Arabia*, vol. ii. p. 21.

The two principal caravans which yearly rendezvous at Mecca are those of Damascus and Cairo. The first is composed of pilgrims from Europe and Western Asia; the second of Mohammedans from all parts of Africa. The Syrian caravan is said by Burckhardt to be very well regulated. It is always accompanied by the pacha of Damascus, or one of his principal officers, who gives the signal for encamping and starting by firing a musket. On the route, a troop of horsemen ride in the front, and another in the rear to bring up the stragglers. The different parties of pilgrims, distinguished by their provinces or towns, keep close together. At night torches are lighted, and the daily distance is usually performed between three o'clock in the afternoon and an hour or two after sunrise on the following day. The Bedouins or Arabs, who carry provisions for the troops, travel by day only, and in advance of the caravans; the encampment of which they pass in the morning, and are overtaken in turn and passed by the caravan on the following night, at their own resting-place. The journey with these Bedouins is less fatiguing than with the great body of the caravan, as a regular night's rest is obtained; but their bad character deters most pilgrims from joining them.

At every watering-place on the route is a small castle and a large tank, at which the camels water. The castles are garrisoned by a few persons, who remain the whole year to guard the provisions deposited there. It is at these watering-places, which belong to the Bedouins, that the sheikhs of the tribe meet the caravan, and receive the accustomed tribute for allowing it to pass. Water is plentiful on the route; the stations are nowhere more distant than 11 or 12 hours' march; and in winter pools of rain-water are frequently found. Those pilgrims who can travel with a litter, or on commodious camel-saddles, may sleep at night, and perform the journey with little inconvenience; but of those whom poverty, or the desire of speedily acquiring a large sum of money, induces to follow the caravan on foot, or to hire themselves as servants, many die on the road from fatigue.—*Travels in Arabia*, vol. ii. p. 3–9. The caravan which sets out from Cairo for Mecca is not generally so large as that of Damascus; and its route along the shores of the Red Sea is more dangerous and fatiguing. But many of the African and Egyptian merchants and pilgrims sail from Suez, Cosseir, and other ports on the western shore of the Red Sea, for Djidda, whence the journey to Mecca is short and easy. The Persian caravan for Mecca sets out from Bagdad; but many of the Persian pilgrims are now in the habit of embarking at Bussorah, and coming to Djidda by sea. Caravans from Bagdad and Bussorah proceed to Aleppo, Damascus, and Diarbeker, laden with all sorts of Indian, Arabian, and Persian commodities; and large quantities of European goods, principally of English cottons, imported at Bussorah, are now distributed throughout all the eastern parts of the Turkish empire by the same means. The intercourse carried on in this way is, indeed, every day becoming of more importance.

The commerce carried on by caravans in the interior of Africa is widely extended, and of considerable value. Besides the great caravan which proceeds from Nubia to Cairo, and is joined by Mohammedan pilgrims from every part of Africa, there are caravans which have no object but commerce, which set out from Fez, Algiers, Tunis, Tripoli, and other states on the sea-coast, and penetrate far into the interior. Some of them take as many as 50 days to reach the place of their destination; and as their rate of traveling may be estimated at about 18 miles a day at an average, the extent of their journeys may easily be computed. As both the time of their outset and their route is known, they are met by the people of the countries through which they travel, who trade with them. Indian goods of every kind form a considerable article in this traffic; in exchange for which the chief commodity the inhabitants have to give is slaves. Three distinct caravans are employed in bringing slaves and other commodities from Central Africa to Cairo. One of them comes direct from Mourzouk, the capital of Fezzan, across the Libyan desert; another from Senaar; and the third from Darfur. They do not arrive at stated periods, but after a greater or less interval, according to the success they have had in procuring slaves, ivory, gold dust, drugs, and such other articles as are fitted for the Egyptian markets. The Mourzouk caravan is said to be under the best regulations. It is generally about 50 days on its passage; and seldom consists of less than 100, or of more than 300, travelers. The caravans from Senaar and Darfur used formerly to be very irregular, and were sometimes not seen in Egypt for two or three years together; but since the occupation of the former by the troops of Mohammed Ali, the intercourse between it and Egypt has become comparatively frequent and regular. The number of slaves imported into Egypt by these caravans is said to amount at present to about 10,000 a year. The departure of a caravan from Darfur is looked upon as a most important event; it engages for a while the attention of the whole country, and even forms a kind of era.—BROWNE'S *Travels in Africa*, 2d ed. p. 78. A caravan from Darfur is considered large if it has 2000 camels and 1000 slaves. Many of the Moorish pilgrims to Mecca cross the sea from Souakin and Massouah to the opposite coast of Arabia, and then travel by land to Mecca; and Burckhardt states, that of all the poor pilgrims who arrive in the Hedjaz, none bear a more respectable character for industry than those from Central Africa.

Caravans are distinguished into *heavy* and *light*. Camels loaded with from 500 to 750 lbs. form a heavy caravan; light caravans being the term applied to designate those formed of camels under a more moderate load, or perhaps only half loaded. The mean daily rate at which heavy caravans travel is about 18½ miles, and that of light caravans 22 miles.

The safety of a caravan depends materially on the conduct of the *caravan-bachi*, or leader. Niebuhr says, that when the latter is intelligent and honest, and the traveler understands the language, and is accustomed to the Oriental method of traveling, an excursion through the desert is rarely either disagreeable or dangerous. But it is not unusual for the Turkish pachas to realize considerable sums by selling the privilege of conducting caravans; and it is generally believed in the East that leaders so appointed, in order to indemnify themselves, not unfrequently arrange with the Arabian sheikhs as to the attack of the caravans, and share with them in the booty. At all events, a leader who has paid a large sum for the situation, even if he should be honest, must impose proportionally heavy charges on the association. Hence the best way in traveling with caravans is, to attach one's self to one conducted by an active and experienced merchant, who has a considerable property embarked in the expedition. With ordinary precaution, the danger is then very trifling. It would be easy, indeed, were there any thing like proper arrangements made by government, to render traveling by caravans, at least on all the great routes, abundantly secure.—NIEBUHR, *Voyage en Arabie*, tome ii. p. 194, ed. Amst. 1780.

No particular formalities are required in the formation of a caravan. Those that start at fixed periods are mostly under the control of government, by whom the leaders are appointed. But, generally speaking, any dealer is at liberty to form a company and make one. The individual in whose name it is raised is considered as the leader, or *caravan-bachi*, unless he appoint some one else in his place. When a number of merchants associate together in the design, they elect a chief, and appoint officers to decide whatever controversies may arise during the journey.—For further details with respect to caravans, see the *Modern Part of the Universal History*, vol. xiv. p. 214–243; ROBERTSON'S *Disquisition on Ancient India*, Note 54; REES' *Cyclopedia*, art. *Caravan*, most of which is copied from Robertson, though without a single word of acknowledgment; BURCKHARDT'S *Travels in Arabia*, vol. ii. *passim;* URQUHART *on Turkey and its Resources*, p. 137, 151, etc.

Caravanserai, a large public building or inn appropriated for the reception and lodgment of the caravans. Though serving in lieu of inns, there is this radical difference between them—that, generally speaking, the traveler finds nothing in a caravanserai for the use either of himself or his cattle. He must carry all his provisions and necessaries with him. They are chiefly built in dry, barren, desert places; and are mostly furnished with water brought from a great distance and at a vast expense. A well of water is, indeed, indispensable to a caravanserai. Caravanserais are also numerous in cities; where they serve not only as inns, but as shops, warehouses, and even exchanges.

Caraway-seed (Fr. *Carvi*, *Cumin des prés;* Ger. *Keummel*, *Brodkümmel;* It. *Carvi*), a small seed, of an oblong and slender figure, pointed at both ends, and thickest in the middle. It is the produce of a biennial plant (*Carum carui*), with a taper root like a parsnip, but much smaller. It should be chosen large, new, of a good color, not dusty, and of a strong agreeable smell. It is principally used by confectioners. The stem rises from two to three feet in height, and produces numerous umbels of small whitish or reddish flowers; and each flower is succeeded by two single-seeded capsules, which are the caraway-seeds of commerce. These have a strong peculiar odor, with an aromatic bitter taste, and yield, on distillation, about 4 per cent. of a volatile oil, on which their properties depend.

Carboy, a large globular bottle of green glass, protected by wicker-work; used chiefly for holding acids and highly corrosive liquids. The average capacity of these bottles is 12 gallons.

Carbuncle (Ger. *Karfunkel;* Fr. *Escarboucle;* It. *Carbonchio;* Sp. *Carbunculo;* Lat. *Carbunculus*), a precious stone of the ruby kind, of a very rich glowing blood-red color, highly esteemed by the ancients.—*See* RUBY.

Card (Fr. *Cardes;* Ger. *Kardätschen*, *Karden*, *Wollkratzen;* It. *Cardi;* Russ. *Bardü;* Sp. *Cardas*), an instrument, or comb, for arranging or sorting the hairs of wool, cotton, etc. Cards are either fastened to a flat piece of wood, and wrought by the hand; or to a cylinder, wrought by machinery.—*See* PLAYING CARDS.

Cardamoms (Fr. *Cardamomes*; Ger. *Kardamom*; It. *Cardamomi*; Sp. *Kardamomos*; Hind. *Gujarati elachi*), seed capsules produced by a plant, of which there are different species growing in India, Cochin China, Siam, and Ceylon. The capsules are gathered as they ripen; and when dried in the sun, are fit for sale. The small capsules, or lesser cardamoms, are produced by a particular species of the plant, and are the most valuable. They should be chosen full, plump, and difficult to be broken; of a bright yellow color; a piercing smell; with an acrid, bitterish, though not very unpleasant taste; and particular care should be taken that they are properly dried. They are reckoned to keep best in a body, and are therefore packed in large chests, well jointed, pitched at the seams, and otherwise properly secured, as the least damp greatly reduces their value. The best cardamoms are brought from the Malabar coast. They are produced in the recesses of the mountains by felling trees, and afterward burning them; for wherever the ashes fall in the openings or fissures of the rocks, the cardamom plant naturally springs up. In Soonda Balagat, and other places where cardamoms are planted, the fruit or berry is very inferior to that produced in the way now mentioned. The Malabar cardamom is described as a species of bulbous plant, growing 3 or 4 feet high. The growers are obliged to sell all their produce to the agents of government at prices fixed by the latter, varying from 550 to 700 rupees the candy of 600 lbs. avoirdupois; and it is stated that the contractor often puts an *enhanced value on the coins* with which he pays the mountaineers; or makes them take in exchange tobacco, cloths, salt, oil, betel-nut, and such necessary articles, at prices which are frequently, no doubt, estimated above their proper level. Such a system ought assuredly to be put an immediate end to. Not more than *one hundredth* part of the cardamoms raised in Malabar are used in the country. They are sent in large quantities to the ports on the Red Sea and the Persian Gulf, to Sind, up the Indus, to Bengal, Bombay, etc. They form a universal ingredient in curries, pillaus, etc. The market price, at the places of exportation on the Malabar coast, varies from 800 to 1200 rupees the candy.—MILBURN's *Orient. Commerce*, and the valuable evidence of T. H. Baber, Esq., before Parliament, 1830.

Cardinal Points, in *Cosmography*, are the four intersections of the horizon with the meridian and the prime vertical circle, or *North* and *South*, *East* and *West*. The cardinal points, therefore, coincide with the four cardinal regions of the heavens, and are 90° distant from each other. The intermediate points are called *collateral points*.

Cards, or **Playing Cards** (Du. *Kaarten*, *Speelkarden*; Fr. *Cartes à jouer*; Ger. *Karten*, *Spiel Karten*: It. *Carte da giuoco*; Russ. *Kartu*; Sp. *Carras*, *Naipes*; Sw. *Kort*), manufactured of pieces of paste-board, having various devices, and arranged in packs, generally of 52 pieces in a pack and used for playing numerous games.—*See* PLAYING CARDS.

Careening (French *Faire àbbattre carèner*), heaving a vessel down on one side, by applying a strong purchase to the masts, so that the vessel may be cleared from any *filth* that adheres to it by breaming. A *half careen* takes place when it is not possible to come at the bottom of the ship, so that only half of it can be careened.

Caribbean Sea, that part of the Atlantic Ocean lying between the coasts of Central and South America and the islands of Cuba, Hayti, Porto Rico, and the Leeward and Windward Islands.

Caribbee Islands, in its more extended sense, is applied to the whole of the West Indies; but strictly it only comprehends that cluster of islands stretching from Porto Rico to the coast of South America, and known as the Leeward and Windward Islands.

Carline, or **Caroline**, a silver coin current at Naples, worth about 4*d.* sterling.

Carlines, or **Carlings**, in a ship, two pieces of timber ranging fore and aft from one beam to another directly over the keel. On these rest the ledges to which the planks of the deck are fixed. Carline knees are timbers lying athwart the ship, from the sides to the hatchway, and serving to sustain the deck.

Carmine (Ger. *Karmin*; Du. *Karmyn*; Fr. *Carmine*; It. *Carminio*; Lat. *Carminum*), a powder of a very beautiful red color, bordering upon purple, and used by painters in miniature. It is a species of *lake*, and is formed of finely pulverized cochineal. It is very high priced.

Carnelian. *See* AGATE.

Carpet, Carpets (Ger. *Teppiche*; Du. *Tapyten*, *Vloer-tapyten*; Fr. *Tapis*; It. *Tappeti*; Sp. *Alfombras*, *Alcatifas*, *Tapetes*; Russ. *Kourrü*, *Kilimi*), is supposed to be derived from Cairo (whence also the French *Cairan*, a Turkey carpet), and from the Latin *tapes*, tapestry, corresponding to the Italian *carpetta* and the Dutch *karpet*. It is legitimately applied to an article of manufacture used for covering the floors of chambers or spreading on the ground, although, while it was a novelty in Europe, tables also were covered with it. Carpets and rugs were manufactured at a very remote period in Egypt, India, and China; but those of Persia and Turkey are the most celebrated. They were originally used for sitting and reclining upon, as may still be observed in Eastern countries, where they constitute the entire furniture of the people. In Egypt they were first applied to religious purposes by the priests of Heliopolis, and were also used to garnish the palaces of the Pharaohs. It was also a custom of antiquity to place them under the couches of guests at banquets. Sardinian carpets are mentioned by Plato, the comic poet, as being disposed in this manner—"beneath the ivory feet of purple-cushioned couches." The carpets of the Homeric Age were generally white or plain cloths; but they were also sometimes produced with various colors and embroidered designs. At the supper of Iphicrates, purple carpets were spread on the floor; and at the magnificent banquet of Ptolemy Philadelphus (an account of which is given by Callixenus of Rhodes) we learn that underneath 200 golden couches "were strewed purple carpets of the finest wool, with the carpet pattern on both sides; and there were handsomely embroidered rugs, very beautifully elaborated with figures. Besides this," he adds, "thin Persian cloths covered all the centre space where the guests walked, having most accurate representations of animals embroidered on them."—*Athenæus*, v. 26. The Babylonians, who were very skillful in weaving cloths of divers colors (PLINY, viii. 48), delineated upon their carpets entire groups of human figures, together with such fabulous animals as the dragon, the sphinx, and the griffin. These were numbered among the luxuries of Heliogabalus. On the tomb of Cyrus was spread a purple Babylonian carpet, and another covered the bed whereon his body was placed.—ARRIAN, vi. 29. These carpets were exported in considerable quantities to Greece and Rome, where they were highly esteemed. Carthage was also noted by Hermippus, Antiphanes, and others, for its magnificent carpets.

"Carpets were in use, at least in some kind, as early as the days of Amos, about 800 B.C.—AMOS, ii. 8. Carpets were spread on the ground, on which persons sat who dwelt in tents; but when first used in houses, even in the East, we have no record. In the twelfth century carpets were articles of luxury; and in England, it is mentioned as an instance of Becket's splendid style of living, that his sumptuous apartments were every day in winter strewn with clean straw or hay; about A.D. 1160. The manufacture of woolen carpets was introduced into France from Persia, in the reign of Henry IV., between 1589 and 1610. Some artisans who had quitted France in disgust went to England, and established the carpet manufacture about 1750. There, as with most nations, Persian and Turkey carpets, especially the former, are most prized. The famous Axminster, Wilton, and Kidderminster manufacture is the growth of the last hundred years. The manufacture of Kidderminster and Brussels carpets has much advanced within fifteen years, at Lowell, Massachusetts, and Thomsonville, Connecticut."—Haydn.

Sir J. Gardiner Wilkinson gives us an account of an ancient carpet-rug of Egyptian manufacture. "This rug," he tells us, "is made, like many cloths of the present day, with woolen threads on linen strings. In the centre is the figure of a boy in white, with a goose above, the hieroglyphic of a 'child,' upon a green ground, around which is a border composed of red and blue lines," etc.—*Manners and Customs of the Ancient Egyptians*, vol. iii. p. 141–2. He further informs us that there are in the Turin Museum some specimens of worked worsted upon linen, "in which the linen threads of the weft had been picked out, and colored worsted sewed on the warp." In these two examples we have evidence of the existence, at a very early time, of a system of tapestry-weaving. The ancient carpet manufacture of the Asiatic countries may resolve itself under the appellation of needle-work. Of this, the present process of carpet-weaving in Persia and Turkey, and the tapestry manufacture of France, may be considered as fitting examples. The tapestry, as is well known, consists of woolen or other threads sewed on the strings of the warp by means of small shuttle-needles. The Persian carpet is formed by knotting into the warp tuft after tuft of woolen yarn, over each row of which a woof shot is passed, the fingers being here employed instead of the shuttle-needles, as the fabric is of a coarser description. In both methods the principle is the same. Both are formed in looms of very simple construction, the warp threads are arranged in parallel order, whether upright or horizontal, and the fabric and pattern are produced by colored threads, hand-wrought upon the warp. This may be designated the hand-wrought or needle-work method, which only makes one stitch or loop at a time, in contradistinction to the machine-wrought process, the result of mechanical appliances, whereby a thousand stitches are effected at once. Herein lies the essential difference between the ancient and modern, the simple and complex carpet manufacture.

Persia.—In Persia there are entire tribes and families whose only occupation is that of carpet-weaving. These dispose of their productions at the bazars to native merchants, who remove them to Smyrna or Constantinople, where they meet with European purchasers. The trade in real Persian carpets is, however, very limited, owing to their small size. They are seldom larger than hearth-rugs, long and narrow. Very many of them, moreover, are considerably tarnished by exposure in bazars, if they have not indeed been already used. To render them more salable they are cleaned. This is done by cropping the surface, which in some cases is shaved quite close to the knot; hence a great proportion of those brought to this country have not their original richness and depth of pile. Felted carpets or *nurmuds* are also made in Persia, but do not constitute an export commodity. Sir Henry Bethune, late Persian embassador, had in his possession a very singular specimen of this felt carpeting, in which colored tufts of worsted had been inserted during the process of manufacture, producing a regular pattern when finished.

Turkey.—The greater part of those Turkey carpets imported into Western Europe are manufactured at Ushak or Ouchak, in the province of Aïdin, about six days' journey from Smyrna, and rugs principally at Kulah or Koula, an adjacent village. In the provinces of Hoodavendigniar, Adana, and Nish, numerous households are employed in their production, as also in the districts of Bozah, the city of Aleppo, and the villages of Trebizond. Here and there, throughout Caramania, such carpets are also made. The Turcomans of Tripoli, the women of Candia, and the peasantry of Tunis and Algiers, are likewise engaged in their fabrication. In none of these places, however, does any large manufactory exist; the carpets are the work of families and households. These carpets are woven in one piece, and there is this notable peculiarity in their manufacture, that the same pattern is never again exactly reproduced; no two carpets are quite alike. The patterns are very remarkable, and their origin is unknown even to Mussulmans. The Turkey carpet pattern represents inlaid jeweled work, which accords with Eastern tales of jewels and diamonds. If this were rightly understood, it would prevent such speculations as those of Mr. Redgrave in his Great Exhibition Report on Design, where he remarks, that "the Turkish carpets are generally designed with a *flat* border of flowers of the natural size, and with a centre of larger forms conventionalized in some cases even to the extent of obscuring the forms—a fault to be avoided." This is doubtless a very ingenious mode of accounting for the curious forms of a Turkey carpet; but these, however fantastic, are never obscured, nor are there any flowers, *flat* or otherwise, in the borders or elsewhere. The great beauty of these carpets lies in the equal balance of color, of dull neutral shades, somewhat sombre in effect.

India.—Generally throughout British India the carpet manufacture is carried on. At Benares and Moorshedebad are produced velvet carpets with gold embroidery. A very elaborate carpet, sent from Cashmere to the Great Exhibition by Maharajah Goolab Singh, was composed entirely of silk, and excited great admiration. In every square foot of this carpet, we are informed, there were at least 10,000 ties or knots. Silk embroidered hookah carpets are made at Lahore, Mooltan, Khyrpoor, Tanjore, and Bengal; cotton carpets, or *satrunjees* at Rungpore, Agra, and Sasseram; printed cotton carpets at Ahmedabad; printed floor-cloth at Mooltan. Woolen carpets are far more extensively manufactured; some of which come from Ellore, Mirzapore, and Goruckpore; but the principal manufacture is at Masulipatam, 292 miles north from Madras. There the capital and enterprise of Great Britain have lent their aid to the rather tardy movements of the natives, and this article is now in general demand. Of late years linen warp has been introduced instead of cotton, and the fabric is thereby much improved. The designs of the Indian carpets have more regularity than those of Turkey, and the colors are mostly warm negatives, enlivened with brilliant hues interspersed. For the introduction of Masulipatam carpets, as of many others, the English are indebted to the firm of Watson, Bell, & Co., whose Indian connection is the sole means of obtaining these beautiful fabrics.—E. B.

The total value of Persian, Turkey, and Indian carpets imported into England may be computed at about £20,000 per annum.

Oriental carpets were first introduced into Spain by the Moors; and at a later date the Venetians imported them into Italy, and supplied Western Europe with this luxurious manufacture. We have frequent mention of them during the Middle Ages, and their costliness and magnificence are celebrated in the illuminated pages of fabliaux and romances. They were spread in the presence-chambers of royalty, before the high altars of chapels and cathedrals, in the bowers of "ladyes faire," and on the summer grass. Many articles of furniture were also covered with them—beds, couches, tables, and regal faldestols; but here it becomes difficult to distinguish between carpet and tapestry, both being used promiscuously. Tapestry of Baldekine or Baldachine (from Baldak, ancient name of Bagdad), was a carpet inwrought with gold and silver threads. Such were carried on poles, and uplifted as a canopy over the host, and over great personages in procession. The troubadours had carpets of gold embroidery which they laid upon the grass beneath them. Hearth-rugs and throne carpets, gorgeously emblazoned with heraldic centre-pieces, were the handiwork of high-born dames during the romance period. To some of these were attached fringes, but such were more usually composed of the fag-ends of the warp, like those of Persia, India, and Turkey. A black velvet carpet, "fringed with silver and gold, and lined with taffeta," is enumerated in the inventory of Archbishop Parke's household furniture in 1577. Rushes were strewn on the floor of Queen Mary's presence-chamber, and that of Elizabeth had the additional covering of a Turkey carpet. Long prior to this, however, Eastern carpets had been introduced. In the reign of Edward VI. we read that before communion-tables were placed

"Carpets full gay,
That wrought were in the Orient."

Checkered matting appears to have been very generally used about the fifteenth century. The same article is produced in many parts of Asia from the grassy fibres of the ratan. A superior description is now made from cocoa-nut fibre and Manillan flax. In Lydgate's metrical life of St. Edmund (MS. Harl. No. 2278) is a representation of the room wherein that saint was born; the floor is covered with checkered matting, and a fringed hearth-rug of Gothic design is before the fire-place. Carpets composed entirely of leather strips interlaced together may be seen in our antiquarian museums. A sample of this description was lately prepared for the inspection of the new houses of Parliament, and offered as a covering for their halls and passages, but was rejected.

France.—In the reign of Henry IV. the carpet manufacture appears to have been introduced from Persia into France. Colbert, the minister of Louis XIV., established the manufactory at Beauvais in 1664, which is now in the hands of the French government, and produces very artistic specimens. A variety of these, "in Turkish, Peruvian, and Chinese styles," was exhibited in London in 1851. The national manufactory of Gobelins, which likewise sent its beautiful carpets and tapestry to the great exhibition, was established shortly after that of Beauvais. It was purchased in 1677 by Colbert from the Gobelin family, whose progenitors, a century ago (Gilles and Jean Gobelin), brought their art, as was supposed, from Flanders. An attempt was made, in the time of Henry VIII., by William Sheldon, to start this manufacture in England; but under the patronage of James I. it was more successfully established, with the superintendence of Sir Francis Crane, at Mortlake, in Surrey, where both carpets and tapestry were produced. Toward this object the sum of £2676 sterling was contributed by its royal patron, and French weavers were brought over to assist. But it does not appear that any thing considerable was effected until after the revocation of the edict of Nantes in 1685, when artisans of every trade fled to England, among whom were tapestry and carpet weavers, who settled in various parts. About the year 1750, Mr. Moore was awarded a premium by the Society of Arts for the best imitation Turkey carpets; and Parisot conducted an establishment for their manufacture at Paddington, under the patronage of the Duke of Cumberland. Subsequently, carpets were wrought on the same principle at Axminster, in Devonshire, whence the name; and afterward at Wilton, where they are still manufactured. The board of trustees for the encouragement of arts and manufactures in Scotland offered prizes for the best Persian and Turkey carpets. About ninety years previously they had been made in the vicinity of Holyrood Palace. These expensive and magnificent carpets are now made in many parts of Europe, but more particularly at the Gobelins manufactory, at Aubusson and Fellitin, in the department of Creuse, at the manufacture royal de tapis de tournai in Belgium, and at Deventer in the Netherlands. They are also made in London and Kidderminster.

Hitherto we have been treating of the simple hand-wrought or needle-work process, which implies great expense and waste of time and labor, and is therefore not calculated to supply a general demand. The machine-wrought fabric now claims our attention; and first in order, the common ingrain, Kidderminster, or Scotch carpet, which is made in many parts of Scotland, the north of England, and in the United States. This consists of worsted warp traversed by woolen weft, and is woven in pieces about a yard wide. It is composed of two distinct webs interlaced together at one operation, and is therefore a double or two-ply carpet, similar on either side. In this article only two colors can with propriety be introduced, as otherwise it has a striped or mixed appearance. A pure or plain color can only be obtained where the weft traverses the warp of the same color. Suppose a crimson figure on a maroon ground; the one web is maroon, the other is crimson, and the pattern is produced by these intersecting and decussating each other at points predetermined; thus what is crimson on one side is maroon on the other, and *vice versa.* One beam contains the warp of both plies, arranged in two tiers, which is passed through the *mails* or metallic eyes of the harness—two threads through each eye—and thence through the reed. The harness draws up certain warp threads, to admit of the passage of the shuttle with the weft, the pattern depending upon such warp threads as are so drawn up. This was formerly effected by means of a revolving barrel, whose surface was studded with pins, which by rotation acted upon the warp threads. These studs being arranged so as to produce one pattern, a separate barrel, or a new arrangement of the studs, was requisite for every other pattern. But this machine is now superseded by the more efficient Jacquard apparatus, which produces the pattern by means of an endless chain of perforated cards working against parallel rows of needles. This double fabric is also made in France, and sprigs of divers colors inserted. A detailed account of this process, with elaborate diagrams, is given by M. Roland de la Platière, in the *Encyclopédie Méthodique.* An improvement upon the Kidderminster carpet is the triple or three-ply fabric, the invention of Mr. Thomas Morton, of Kilmarnock. This is composed of three distinct webs, which, by interchanging their threads, produce the pattern on both sides. A variety of color is thus obtained, and the texture is of great thickness and durability. Figured Venetian carpeting is of similar description; here the woof is completely covered by a heavy body of warp. Dutch carpeting is much inferior in quality, and was originally made of cow-hair, but now of the coarsest wool. Neither fabric has great capabilities of design: simple diced patterns are wrought in the Venetian, stripes and checkers in the Dutch.

The Brussels carpet is a very superior texture. It is composed of worsted and linen, and has a rich corded appearance. The figures are raised entirely from the warp, by inserting a series of wires between the linen foundation and the superficial yarn. These wires are afterward withdrawn, leaving a looped surface. In this manufacture there is a great waste of material, and the colors are usually limited to five. Each color has its continuous layer of thread, running from end to end of the web, which rises to the surface at intervals indicated by the design, and then sinks into the body of the fabric. Thus there are five layers or covers, only a fifth part of which is visible; and owing to the irregularity of their ascent to the surface, they can not be placed upon one beam, but each thread is wound on a separate bobbin, with a weight attached to give a proper tension. These bobbins are arranged in five frames jutting out behind the loom, two hundred and sixty bobbins in each frame for the ordinary width. Additional frames are requisité for additional colors introduced; but where more than five are engaged the pattern is rather indistinct. The threads of all the bobbins are then drawn through the harness, heddles, and reed, to unite with the linen yarn in the compound fabric, the Jacquard machine being employed to produce the pattern. Brussels carpets were first introduced into Wilton about a century ago, from Tournai, in Belgium. Kidderminster is now the chief seat of this manufacture, where upward of 2000 looms are in operation.

Moquette or Wilton carpets are woven in the same manner, and differ only in this, that the loops are cut open into an elastic velvet pile. To effect this, the wires are not circular as in the Brussels fabric, but flat, and furnished with a groove in the upper edge, wherein the sharp point of a knife is inserted and drawn across the yarn, cutting the pile. These carpets, besides being manufactured in many parts of England and Scotland, are also made in France.

Recent Improvements.—We now proceed to describe a very ingenious improvement in this branch of carpet manufacture, the invention of Mr. Richard Whytock, of Edinburgh. This is a combination of the arts of printing and weaving, at the same time simplifying both. These arts may be said to be combined when any *woven* fabric is *printed;* but here the process is reversed, the threads being printed before they are in cloth. This, to be sure, is the case when warps are printed and then woven; but the grand novelty of this invention is that the *threads* are printed before even the *warp* is formed. One thread, or two treated as one, in some cases miles in length, are colored by steps of half an inch, faster than a swift runner would make the distance. When these threads have been all particolored in this manner, they form the elements, as it were, of the intended design or fabric. Singly, they exhibit no regular figure or pattern; but when arranged in their proper order, ready for the weaver's beam, the figure comes into view, much elongated of course, inasmuch as eighteen feet of the warp will sometimes be gathered into four feet of cloth, in order to secure the due proportions of the intended object. It has been said that the two combined arts of printing and weaving are simplified by this contrivance. With regard to the weaving: *First.* The loom occupies only one-third of the space in length that the Brussels loom requires. *Second.* The latter must have 1300 little beams or bobbins, from which the worsted pile has to be gathered; whereas this loom requires only one beam for the whole of the worsted threads. *Third.* While the Brussels or Wilton, on a web of twenty-seven inches, requires for the best fabric 2860 threads, only 780 are here requisite—one layer instead of five—to produce as good or a better surface. *Lastly.* While the number of colors in succession lengthwise, on the old principle, must not exceed six or seven, upward of twenty or thirty can be introduced by the new method. Then, again, as a simplification of the printing process: whereas formerly a change of blocks was required for every change of pattern, in this new process the same blocks serve for all patterns, as the pen serves for every form of type. Many of those manufacturers who are now availing themselves of this invention do not see wherein its true economy consists. If an object, say a rosebud, recurs a thousand times in the length of a web, at intervals of four feet, the block printer must apply his block a thousand times to point the opening bud; but here the buds are congregated, so that one stroke may dye them all. If it be desired to have a thousand buds in the length of the web, let a thread be wound round a hollow cylinder a thousand times, and a traversing wheel charged with color be passed across the coil. The thread, when uncoiled, will be found to be marked in a thousand places, exactly where it is wanted to tip the opening bud with red from end to end of the web. Design-paper, whereon the pattern is indicated in small squares, serves as a guide to the printer; each square being one stroke of the color-pulley. After the threads are thus streaked across with color, they are removed from the cylinder or drum, and the dyes are fixed by the action of steam. The threads are then arranged in setting-frames, according to the squares of the design-paper, to constitute the warp of the projected web. The Jacquard is nów so far at a discount, and the loom restored to nearly the same simplicity as of old, when

> "Between two trees the web was hung."

The principle here referred to is only in its infancy. The works of the first masters may yet be multiplied by this process, if they will condescend to furnish the cartoons. Already flowers are produced which the botanist can classify without mistake.

Like every other improvement, this invention met with considerable opposition, particularly on the part of manufacturers and dealers. During the first fourteen years, the number of looms employed gradually increased from one to fifty-six, the greatest number in operation at Lasswade in 1847. Now, so extensive is the manufacture in England, that one house produces to the extent of half a million sterling per annum, having upward of three hundred looms at work by steam-power. It is gratifying to learn that these power-looms, instead of throwing out of employment, engage more operatives with better wages and easier work. Messrs. Henderson and Widnell of Lasswade, John Crossley and Sons of Halifax, Pardoe, Hoomans, and Pardoe of Kidderminster, and Sutherland and Tod of Lanark, are the principal manufacturers engaged upon this patent. An extraordinary consequence upon the introduction of this article is that it has not interfered with other branches of the carpet manufacture, not one of which appears to have been diminished. There is, therefore, an addition to the trade of the country, to the whole amount of its produce, itself no mean result; the whole trade being at least doubled, as far as fine carpets are concerned. Whytock's carpets are known under the designation of Patent Tapestry and Velvet Pile Carpets. Rugs, table-covers, fine velvets, and tapestry hangings, are wrought on the same principle.

Another great improvement in carpet-making, which originated also in Scotland, was patented by Mr. James Templeton, of Glasgow. It is on the chenille principle, and consists of a process of double weaving. First a thin striped fabric is made; and this, when cut up, is again woven into a denser fabric for carpets, rugs, and table-covers. The chenille stripes, like the parti-colored threads in Whytock's invention, form the elements of the second fabric, only those elements go to compose the woof instead of the warp, as in the former case. Extremely beautiful carpets have been made on this principle, and these being woven in large squares, have interfered much with the Tournai or Axminster carpets, having the same depth of pile, without being so expensive. Hitherto, however, the manufacture has been confined to the place where it originated.

Patent wool mosaic is another novelty. This manufacture was introduced into England from Germany. It is produced by cementing with caoutchouc a close velvet pile on a plain cloth. Messrs. John Crossley and Sons of Halifax have brought out some admirable specimens of this mosaic-work, in carpets, rugs, and hangings for walls; but as yet this method has been more extensively applied to the manufacture of small articles. A very cheap description of carpet is now made near Manchester. It is first woven in plain colors by steam-power, under Seivier's patent, by Bright & Co. It is then printed with colored blocks by machinery patented by Burch & Co. This article has a large export sale. The carpet manufacture is rapidly increasing in Great Britain. Upward of 5000 looms, it is computed, are now in operation, upon every description.

It remains to speak of carpet design. This matter is regulated by prevailing fashion and caprice, under the ever-varying semblance of good taste. There are revolutions in decorative art as in all things else, and in these carpet design is involved. An acute observer can discover here symptomatic indications of national or individual character. The supremacy of Gothic architecture, in our day, implies the revival of mediæval art. Simple ornamental designs, in quiet and subdued coloring, are now about to take the place of their more brilliant predecessors. Many colors will only be tolerated in Moorish and Arabesque ornament, or in the *bizarra* Turkey carpet.—E. B.

The production of carpets is carried on extensively in the United States, especially in Massachusetts, Rhode Island, Connecticut, New York, and New Jersey. In Massachusetts alone, in 1850, the capital invested in this branch of business amounted to $2,264,000, and the annual product about $1,400,000, in which 1600 persons were employed. Our manufacture of carpets is increasing, and will probably equal the demand when the production of wool shall supply the wants of our manufacturers. Of the imports into this country fully nine-tenths come from Great Britain.

IMPORTS OF CARPETS INTO THE UNITED STATES.

	Year ending June 30, 1853.		Year ending June 30, 1854.		Year ending June 30, 1855.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
Wilton, Saxony, and Aubusson.......	73,879	$92,571	63,627	$93,230	1,492,953	$1,327,707
Brussels, Turkey, and treble ingrained	735,402	752,487	2,236,268	1,313,107		
Venetian and other ingrained........	239,157	142,817	353,725	165,391		
Not specified..........................	....	229,404	....	697,087	....	178,870
Total....................	....	$1,217,279	....	$2,268,815	....	$1,506,577

The duty on carpets and carpeting, and carpet-bags and oil-cloth imported into the United States is 30 per cent. *ad valorem.* On straw matting, worsted carpet-bags, and carpet binding, 25 per cent.

Carriages. The invention of them is ascribed to Ericthonius of Athens, who produced the first chariot about 1486, B.C. Carriages were known in France in the reign of Henry II. A.D. 1547; but they were of very rude construction, and rare. They seem to have been known in England in 1555; but not the art of making them. Close carriages of good workmanship began to be used by persons of the highest quality at the close of the sixteenth century. Henry IV. had one, but without straps or springs. Their construction was various: they were first made in England in the reign of Elizabeth, and were then called whirlicotes. The Duke of Buckingham, in 1619, drove six horses; and the Duke of Northumberland, in rivalry, drove eight. They were first let for hire in Paris, in 1650, at the Hôtel Fiacre; and hence their name.—HAYDN. Premiums at the World's Fair held in London were given to the makers of carriages in the United States, as they were superior in lightness and strength, with an equal finish. New York carriages are very celebrated.

Carriers are persons undertaking for hire to carry goods from one place to another. Proprietors of carts and wagons, masters and owners of ships, hoymen, lightermen, bargemen, ferrymen, etc., are denominated common carriers. The master of a stage-coach who *only carries passengers for hire* is not liable for goods; but if he undertake to carry *goods and passengers*, then he is liable for both as a common carrier. The postmaster-general is not a carrier in the common acceptation of the term, nor is he subjected to his liabilities.

Duties and Liabilities of Carriers.—Carriers are bound to receive and carry the goods of all persons for a reasonable hire or reward; to take proper care of them in their passage; to deliver them safely, and in the same condition as when they were received (excepting only such losses as may arise from *the act of God*); or, in default thereof, to make compensation to the owner for whatever loss or damage the goods may have received while in their custody, that might have been prevented. Hence a carrier is liable, though he be robbed of the goods or they be taken from him by irresistible force; and though this may seem a hard rule, yet it is the only one that could be safely adopted; for if a carrier were not liable for losses unless it could be shown that he had conducted himself dishonestly or negligently, a door would be opened for every species of fraud and collusion, inasmuch as it would be impossible, in most cases, to ascertain whether the facts were such as the carrier represented. On the same principle a carrier has been held accountable for goods accidentally consumed by fire while in his warehouse. In delivering the opinion of the Court of King's Bench on a case of this sort, Lord Mansfield said: "A carrier, by the nature of his contract, obliges himself to use all due care and diligence, and is answerable for any neglect. But there is something more imposed upon him by custom, that is, by the common law. *A common carrier is in the nature of an insurer.* All the cases show him to be so. This makes him liable for every thing except the act of God and the king's enemies; that is, even for *inevitable accidents*, with those exceptions. The question then is, *What is the act of God?* I consider it to be laid down in opposition to the act of *man;* such as lightning, storms, tempests, and the like, which could not happen by *any human intervention.* To prevent litigation and collusion, the law presumes negligence except in those circumstances. An armed force, though ever so great and irresistible, does not excuse; the reason is, for fear it may give room for collusion, which can never happen with respect to the act of God. We all, therefore, are of opinion that there should be judgment for the plaintiff."—*Forward* v. *Pittard*, 1 *T. R.* 27. A carrier is not obliged to have a new carriage for every journey; it is sufficient if he provide one that, without any extraordinary accident, may be fairly presumed capable of performing the journey. A carrier may be discharged from his liability by any fraud or concealment on the part of the individual employing him, or of the bailer; as if the latter represent a parcel as containing things of little or no value, when, in fact, it contains things of great value. But when the carrier has not given a notice limiting his responsibility, and when he puts no questions with respect to the parcel to the bailer, the latter need not say any thing with respect to it; and though the bailer should represent the thing delivered to the carrier as of no value, yet, *if the latter know it to be otherwise*, he will be responsible in the event of its being lost or damaged. If the bailer deliver goods imperfectly packed, and the carrier *does not perceive it*, he is not liable in the event of a loss occurring; but if the defect in the package were such that the carrier could not but perceive it, he would be liable. On this principle a carrier was made to answer for the loss of a greyhound that had been improperly secured when given to him. A carrier may refuse to admit goods into his warehouse at an unseasonable time, or before he is ready to take his journey; but he can not refuse to do the ordinary duties incumbent on a person in his situation. It is felony if a carrier open a parcel and take goods out of it with intent to steal them; and it has been decided that if goods be delivered to a carrier to be carried to a specified place, and he carry them to a different place, and dispose of them for his own profit, he is guilty of felony; but the embezzlement of goods by a carrier without a felonious taking merely exposes to a civil action.

A carrier is always, unless there be an express agreement to the contrary, entitled to a reward for his care and trouble. In some cases his reward is regulated by the Legislature, and in others by a special stipulation between the parties; but though there be no legislative provision or express agreement, he can not claim more than a *reasonable* compensation.

Commencement and Termination of Liability.—A carrier's liability commences from the time the goods are actually delivered to him in the character of carrier. A delivery to a carrier's servant is a delivery to himself, and he will be responsible. The delivery of goods at an inn yard or warehouse, at which other carriers put up, is not a delivery so as to charge a carrier, unless a special notice be given him of their having been so delivered, or some previous intimation to that effect.

"In New York it was held that placing goods on the wharf without notice to the consignee is not a delivery to the consignee, so as to discharge the carrier, even though there was a usage to deliver goods in that manner. The carrier must not leave or abandon the goods on the wharf, even though there be an inability or refusal of the consignee to receive them."—KENT'S *Commentaries.*

A carrier's liability ceases when he vests the property committed to his charge in the hands of the consignee or his agents, by actual delivery; or when the property is resumed by the consigner, in pursuance of his right of stopping it *in transitu.* It is in all cases the duty of the carrier to deliver the goods. The leaving goods at an inn is not a sufficient delivery. The rule in such cases, in deciding upon the carrier's liability, is to consider whether any thing remains to be done by the carrier, as such; and if nothing remains to be done, his liability ceases, and conversely.

A carrier has a lien upon goods for his hire. Even if the goods be stolen, the rightful owner is not to have them without paying the carriage.

For further details as to this subject, *see* JEREMY *on the Law of Carriers*, passim; CHITTY'S *Commercial Law*, vol. iii. p. 369–386; BURNS' *Justice of the Peace*, title *Carriers;* and KENT'S *Commentaries*, Lect. XL. There are some excellent observations with respect to it in *Sir* WILLIAM JONES'S *Essay on the Law of Bailments.*—For an account of the regulations as to the conveyance of passengers in stage-coaches in England, *see* M'CULLOCH'S *Dictionary.*

Carrot (*Daucus carota*, Linn.), a biennial plant, a native of Britain. Though long known as a garden plant, its introduction into agriculture has been comparatively recent. The uses of the carrot in domestic economy are well known.

Cart, a carriage with two wheels, drawn commonly by horses, and used to carry heavy goods, etc. The word seems formed from the French *charrette*, or the Latin *carreta*, a diminutive of *carrus. Carts of War*, a peculiar kind of artillery anciently in use among the Scotch. In an act of Parliament, passed in 1456, they are thus described: "It is thought speidfull, that the king may requeist to certain of the great burrous of the land that are of ony myght, to mak carts of weir, and in ilk cart twa gunnis, and ilk ane to have twa chalmers, with the remnant of the graith that effeirs thereto, and an cunnand man to shute thame." By another act passed in 1471, the prelates and barons are commanded to provide such carts of war against their old enemies the English.—E. B.

Cartagena (*Carthago Nova*, or "New Carthage," it having been a principal colony of the Carthaginians), a celebrated city and sea-port, and the chief naval arsenal of Spain, on a noble bay of the Mediterranean, province, and 27 miles south-southeast of Murcia. Lat. 37° 36′ 5″ N., long. 0° 56′ 36″ W. Population 27,727; in 1786 it contained 60,000 inhabitants. It occupies the declivity of a hill, and a small plain extending to the harbor, which is one of the best in the Mediterranean, and protected from all winds by surrounding heights, and by an island on the south, which, as well as the city, is strongly fortified. The city, though dull, dilapidated, and unhealthy, owing to an adjacent swamp, has some good streets and houses, numerous churches and convents, a marine school, large royal hospital, foundling hospital, town-hall and custom-house, observatory, theatre, circus, etc. In its western division, an arsenal, docks for building men-of-war, and a *bagne* for galley-slaves. Its port communicates with the Segura River, by the Lorca Canal. Its manufactures of cordage and canvas, with trade in barilla and agricultural produce, have decayed, but it still has a valuable tunny fishery, and a glass factory recently established by an English house; and in 1843, 14 new smelting works had been set up here. The mines of Cartagena, originally wrought by the Carthaginians, were re-discovered a few years ago; and in 1839 the new mine of *La Carmen* was opened successfully by a joint-stock company. Since then, drainages and mining have proceeded vigorously. Cartagena was taken by Scipio B.C. 208, at which period Livy states that it was one of the richest cities in the world. It was ruined by the Goths; and its modern importance dates only from the time of Philip II.

Cartagena, or **Carthagena,** a strongly fortified city and sea-port of New Granada, South America, of which republic it is the chief naval arsenal, capital of the province, on a sandy peninsula in the Caribbean Sea. Lat. of the dome 10° 25′ 36″ N., long. 75° 34′ W. Population 10,000, nine-tenths of whom are a mixed black race. It is well laid out, and built mostly of stone. It has a massive citadel, several churches, a college with about 200 pupils, various seminaries, and two hospitals. The temperature is very high, from 80° to 86° Fahrenheit, but the air dry and healthy. Its excellent port is defended by two forts, and is the only harbor on the north coast of New Granada adapted for repairing vessels. Cartagena is the principal dépôt for the produce of the provinces watered by the Cauca and Magdalena Rivers, and is connected with the Magdalena by a canal. It exports sugar, cotton, coffee, tobacco, hides, specie, bullion, etc. Under the Spaniards, this city was the seat of a captain general, and of one of the three tribunals of the Inquisition in America. It was the first town that proclaimed independence, and in 1815 endured a most vigorous siege, and was subdued only by famine. Population of the province, 103,783.

Cartridge, in the military art a case of pasteboard or parchment, holding the exact charge of a fire-arm. The cartridges for muskets, carabines, and pistols, contain both the powder and ball. Those made for cannon and mortars are cases of pasteboard or tin, sometimes of wood; and simple flannel bags have been found convenient in practice. *Cartridge-box*, a case of wood or turned iron, covered with leather, with cells for holding a dozen or more cartridges. It is worn upon a belt thrown over the left shoulder, and hangs a little below the pocket-hole on the right side.—E. B.

Carving. We have Scriptural authority for its early introduction.—*See* Exodus xxxi. The art of carving is first mentioned in profane history 772 B.C., and is referred to the Egyptians. It was first in wood, next in stone, and afterward in marble and brass. Dipœnus and Scyllis were eminent carvers and sculptors, and opened a school of statuary, 568 B.C.—PLINY. *See article* WOOD. Carvers of meat were called by the Greeks *deribitares*, as mentioned by Homer.—HAYDN.

Case, in *Printing*, a large, flat, oblong frame or box, placed aslope, and divided into numerous little square compartments, each containing a number of types of the same kind, whence the compositor takes the particular letters he requires in composing his matter.

Case-hardening, the process of converting the superficies or outer part of iron into steel. This is effected by placing the article in a box with some animal or vegetable charcoal, and exposing it to a red heat. It differs only from the making of steel in the shorter duration of the process. Iron tools, etc., when thus treated, combine the toughness of iron with the hardness of steel.

Cash, in *Commerce*, means the coin, bank bills, drafts, bonds, and all immediately negotiable paper in an individual's possession.

Cash Account, in *Book-keeping*, an account to which nothing but cash is carried on the one hand, and from which all the disbursements of the concern are drawn on the other. The balance is *the cash in hand*. When the credit side more than balances the debit or disbursement side, the account is said to be *in cash;* when the contrary, to be *out of cash*. *Cash account*, in *Banking*, is the name given to the account of the advances made by a banker in Scotland to an individual who has given security for their repayment.

Cashew-nuts (Ger. *Akajunüsse*, *Westindische Anakarden;* Du. *Catsjoenooten;* Fr. *Noix d'acajou;* It. *Acaju;* Sp. *Nueces d'acaju;* Port. *Nozes d'acaju*), the produce of the *Anarcardium occidentale*. They are externally of a grayish or brownish color, of the shape of a kidney, somewhat convex on the one side, and depressed on the other. The shell is very hard; and the kernel, which is sweet and of a very fine flavor, is covered with a thin film. Between this and the shell is lodged a thick, blackish, inflammable oil, of such a caustic nature in the fresh nuts, that if the lips chance to touch it, blisters immediately follow. The kernels are used in cooking, and in the preparation of chocolate.

Cashier, a cash-keeper; he who receives and pays the debts of a society. In the generality of foundations the cashier is called *treasurer*. In a banking institution the cashier is the officer who superintends the books, payments, and receipts of the bank. He also signs or countersigns the notes, and superintends all the transactions under the order of the directors.

Cashmere, a kingdom in Northern India, so called from its principal division, the celebrated valley of that name, and comprehending within its limits the various territories which constitute the dominions of Gholab Singh. Its boundaries are, the Karakorum Mountains on the north; Thibet on the east; the British possessions of Spiti, Lahoul, and the Punjaub on the south; and the Huzareh country on the west. It extends from lat. 32° 17′ to lat. 36°, and from long. 73° 20′ to long. 79° 40′; its extreme length from east to west being 350 miles, and its breadth about 270. Area about 25,000 square miles. The population has been estimated at 750,000. Within its limits are included the valley of Cashmere, and the provinces of Jamoo, Ladahk, Bulti or Iskardoh, Chamba, and some others. Cashmere has been long famed for the manufacture of shawls, which are distributed all over northern and western Asia, and are exported in great quantities to Europe. These shawls owe their peculiar beauty and fine texture to the wool which is brought from Thibet, lying at a distance of a month's journey to the northeast. The wool forms the inner coat with which the goat is covered, and the breed is peculiar to Thibet; all attempts to introduce it into India or Persia having invariably failed. The wool, which is originally of a dark gray color, is bleached in Cashmere by a preparation of rice flour. The process of manufacture is very slow, not more than one inch being added to the finest shawls in the course of a day. It is estimated that about 16,000 looms were at one time employed in this manufacture; but of late years the demand has declined, owing to the decay of the Persian and Ottoman empires, and the desolation and poverty of the Eastern countries. When Cashmere was tributary to Afghanistan, a great portion of the public revenue was exacted in shawls. The yarn into which the wool is spun is dyed with various colors, and, after being woven, the piece is once washed, and the border, in which is displayed a variety of figures and colors, is attached to the shawls in so dexterous a manner that it is hardly possible to discover the junction. The price varies in proportion to the quality. A species of writing-paper is also made in Cashmere, which is highly praised throughout the East, and was formerly a great article of traffic; as were also its lacquered ware, cutlery, and sugar. A wine resembling Madeira is manufactured, and a spirituous liquor is distilled from the grape. The internal intercourse of the country is chiefly maintained by means of the numerous streams which intersect it, and which are navigated in long and narrow boats moved by paddles.—E. B.

Cashmere Shawls. The district from whence come these costly shawls is described as being "the happy valley, and a paradise in perpetual spring." The true Cashmere shawls can be manufactured of no other wool than that of Thibet. They were first brought to England in 1666; but they were well imitated by the spinning at Bradford, and the looms of Huddersfield. Shawls for the omrahs, of the Thibetian wool, cost 150 rupees each, about the year 1650.—BERNIER.

Caspian Sea, the *Mare Hyrcanum* of the ancients, derives its name from the Caspii, a tribe who settled on its shores. Among the Orientals it is known under a variety of names; by the Russians it is called the Sea of Astracan, and by the Turks Bahri-Ghong. It is situated between 36° 35′ and 47° 25′ N. lat., and 46° 15′ and 55° 10′ E. long., is the largest inland lake in the world, and has no outlet to the ocean. It is surrounded by the Russian governments of Astracan and Orenberg, the Caucasian countries, Persia, and Tartary; its greatest length is about 760 miles, and its greatest breadth about 400 from east to west; generally, however, only half that breadth, and where narrowest not more than 120 miles across. Its estimated area is from 120,000 to 140,000 square miles. There are no tides in this sea, nor are there any regular currents; but the high winds which occasionally blow over its large surface cause considerable and irregular agitations in its motions. The mean depth of the Caspian Sea is from 400 to 600 feet, and in some places is found to be 2700 feet; but its waters are every where very shallow near the shore, especially toward the west. Vessels drawing 9 or 10 feet water are thus compelled to unload far from the shore, excepting near Bakou and some other parts of the lake. Navigation is, in general, dangerous, owing to the frequency and violence of the east and west winds; and the contracted space forces the navigator to beat about in order to avoid the sand banks concealed near its shores. The waters of the Caspian have a slightly bitter taste, communicated by the naphtha which abounds in the surrounding countries, and is carried into it by the streams which it receives; but they are not so salt as those of the ocean, in consequence of the great volume of water poured into it by the Volga and its other tributaries. Horses do not refuse to drink along the shores and near the mouths of the rivers.—E. B.

Cassia. There are four species of cassia in the market; viz., *Cassia Lignea*, or *Cassia Bark; Cassia Fistula; Cassia Buds;* and *Cassia Senna*.

1. *Cassia Lignea*, or *Cassia Bark* (Fr. *Casse;* Ger. *Cassia;* Port. *Cassia lenhosa;* Arab. *Selekh;* Hind. *Tuj;* Malay, *Kayu-legi*), the bark of a tree (*Laurus Cassia*, Linn.) growing in Sumatra, Borneo, the Malabar coast, Philippine Islands, etc.; but chiefly in the provinces of Quantong and Kingsi, in China, which furnish the greatest part of the cassia met with in the markets. The tree grows to the height of 50 or 60

feet, with large, spreading, horizontal branches. The bark resembles that of cinnamon in appearance, smell, and taste, and is very often substituted for it; but it may be readily distinguished; it is thicker in substance, less quilled, breaks shorter, and is more pungent. It should be chosen in thin pieces; the best being that which approaches nearest to cinnamon in flavor: that which is small and broken should be rejected. A good deal of the cassia in the Indian markets is brought from Borneo, Sumatra, and Ceylon. Malabar cassia is thicker and darker-colored than that of China, and more subject to foul packing; each bundle should be separately inspected.—AINSLIE'S *Materia Indica*, MILBURN'S *Orient. Com.*, *etc.* *See* CINNAMON.

2. *Cassia Buds*, the dried fruit or berry of the tree (*Laurus Cassia*) which yields the bark described in the previous article. They bear some resemblance to a clove, but are smaller, and, when fresh, have a rich cinnamon flavor. They should be chosen round, fresh, and free from stalk and dirt. Cassia buds are the produce of China.—MILBURN'S *Orient. Com.*; *Anglo-Chinese Kalendar*; and *Parl. Paper*, No. 257, Sess. 1843.

3. *Cassia Fistula* (Fr. *Casse;* Ger. *Rhonkasie;* It. *Polpa di cassia;* Lat. *Cassiæ pulpa;* Arab. *Khyar sheber*) is a tree which grows in the East and West Indies, and Egypt (*Cassia fistula*, Linn.). The fruit is a woody, dark-brown pod, about the thickness of the thumb, and nearly two feet in length. It is exported principally from the West Indies, packed in casks and cases; but a superior kind is brought from the East Indies, and is easily distinguished by its smaller smooth pod, and by the greater blackness of the pulp.

Castanet (Spanish *Castaneta*, or rather *Castañuela*, probably from *Castaña*, a chestnut), an instrument much used by the Spaniards and Moors as an accompaniment to their dances and guitars. It is composed of two small pieces of ebony, or other well-dried hard wood, shaped like spoons, which are placed together with the concavities inward, fastened by a string to the thumb, and beat with the middle finger, so as to produce a rattling sound. This instrument is very similar to the ancient *crotalum*, which appears to have consisted, in its original form, of two pieces of reed, which made a clattering noise when shaken with the hand.—E. B.

Casting, the running of liquid metal into a mould prepared for that purpose. *Casting in Sand or Earth*, is the running of metals between two frames or moulds filled with sand or earth, in which the figure that the metal is to take has been impressed *en creux*, by means of the pattern. *Casting*, among sculptors, implies the taking of casts and impressions of figures, busts, medals, leaves, or the like. The method of taking casts of figures and busts is most generally by the use of plaster of Paris, that is, alabaster calcined by a gentle heat. The advantage of using this substance in preference to others is, that notwithstanding a slight calcination reduces it to a pulverized state, it becomes again a tenacious and cohering body by being moistened with water, and afterward suffered to dry. By this means either a concave or a convex figure may be given by a proper mould or model to it when wet, and retained by the hardness it acquires when dry; and, from these qualities, it is fitted for the double purpose of making casts, and moulds for forming casts. The particular manner of making casts depends on the form of the subject to be taken. Where there are no projecting parts it is very simple and easy, as likewise where there are such as form only a right or any greater angle with the principal surface of the body; but where parts project in lesser angles, or form a curve inclined toward the principal surface of the body, the work is more difficult.—E. B.

Castor (Fr. *Castoreum;* Ger. *Kastoreunt;* It. *Castoro;* Sp. *Castoreo*), the produce of the beaver. In the inguinal region of this animal are found four bags, a large and a small one on each side: in the two large ones there is contained a softish, grayish-yellow, or light-brown substance, which, on exposure to the air, becomes dry and brittle, and of a brown color. This is castor. It has a heavy but somewhat aromatic smell, not unlike musk; and a bitter, nauseous, and subacrid taste. The best comes from Russia; but of late years it has been very scarce; and all that is now found in the shops is the produce of Canada. The goodness of castor is determined by its sensible qualities; that which is black is insipid, inodorous, oily, and unfit for use. Castor is said to be sometimes counterfeited by a mixture of some gummy and resinous substances; but the fraud is easily detected by comparing the smell and taste with those of real castor.—THOMSON'S *Dispensatory.*

Castor-oil (Fr. *Huile du Ricin;* Ger. *Rizinusohl;* It. *Olio di Ricino;* Sp. *Ricinsoel*) is obtained from the seeds of the *Ricinus communis*, or *Palma Christi*, an annual plant found in most tropical countries, and in Greece, the south of Spain, etc. The oil is separated from the seeds either by boiling them in water, or by subjecting them to the action of the press. It is said that though the largest quantity of oil may be procured by the first method, it is less sweet, and more apt to become rancid, than that procured by expression, which, in consequence, is the process now most commonly followed. Good expressed castor-oil is nearly inodorous and insipid; but the best leaves a slight sensation of acrimony in the throat after it is swallowed. It is thicker and heavier than the fat oils, being viscid, transparent, and colorless, or of a very pale straw color. That which is obtained by boiling the seeds has a brownish hue; and both kinds, when they become rancid, thicken, deepen in color to a reddish-brown, and acquire a hot, nauseous taste. It is very extensively employed in the materia medica as a cathartic.—THOMSON'S *Dispensatory.*

Culture and Manufacture of Castor-oil.—Southern Illinois is the source whence all the castor beans are brought that are sold or manufactured in St. Louis. The ground is prepared as for other crops, and when there is no longer any danger from the spring frosts the seeds are planted in hills and rows, much in the manner of planting Indian corn, with the exception that there is but one seed put into each hill, and that at every fourth row a space is left sufficiently wide to admit of the passage of a team for the purpose of gathering the crop. Unlike the cereal grains, the *ricinus* bears at the same time flowers and fruit, and the severity of our climate, which renders it in this latitude an annual plant, destroys its vitality while yet decked with bloom. The ripening commences in August, and the crop is gathered at intervals from this date until the plants are destroyed by frost.

The yield, of course, varies with the quality of the soil and the care of the culture. Twenty-five bushels from an acre of ground is considered a very large crop, and is but seldom obtained. From sixteen to twenty bushels per acre is a very fair yield in a season not marked by drought or other unfavorable feature.

The primitive mode of making castor-oil was by putting the (bruised) beans in a bag, and placing the same in a kettle of water, and as the beans were boiled the oil came to the surface and was skimmed off. Subsequently there were adopted the screw and lever presses, and other devices for pressing the beans, and many mills sprang up throughout the southern part of Illinois, some of which remain in use until this time. The beans are first kiln-dried, and then pressed without grinding, the oil thus obtained being called "cold pressed," to distinguish it from the boiled oil (that obtained by boiling the beans in water).

About ten years ago, the St. Louis manufacturers commenced using the ordinary hydraulic press, increasing the yield from the raw material, and working the beans with greater rapidity and economy. About two years since there was introduced a new press, which has brought the business to a greater state of perfection, by increasing the product of oil from the bean 37½ per cent. over the ordinary hydraulic press, and securing other advantages in the economy of labor and fuel. One of these presses will work 150,000 bushels of beans per annum, producing as much as 400,000 gallons of oil. It is said that one of these presses worked on castor-oil, in connection with others on linseed-oil, furnishes sufficient combustible refuse from the castor bean to supply fuel for the works; and in this way the fuel from the bean is of sufficient value to pay all the expenses of manufacturing the oil. The amount saved in Latourette's establishment by burning the above refuse, when in full operation, is about fifty dollars per week. After the oil is pressed from the beans, it is clarified by boiling in large kettles with a small portion of water, and when perfectly clear is allowed to cool, and is then drawn off into barrels ready for market. During the months of July, August, and September, 1854, there were manufactured thirty-two thousand gallons of castor-oil at this establishment alone. The manufacture of the oil, which, in 1850, was largely carried on in Illinois, is now mostly effected in the city of St. Louis.

	1850.	1851.	1852.	1853.
Crop in bushels.......	250,000	160,000	90,000	65,000
Factories in St. Louis..	2	2	2	3
Factories in Illinois...	18	7	5	3
Barrels of oil made ...	9,900	7,000	5,500	4,200
Equivalent in gallons .	350,000	255,000	192,500	147,000

The estimated crop of beans for 1854 was but 10,000 bushels, being almost a total failure; arising from the excessive drought that prevailed during the summer over that part of the country. The number of mills in operation in 1854 was only five, and those only employed part of the time. These statements exhibit a gradual decline in the amount of oil produced, which arises partly from the decreased crops, and partly, probably, from a limitation in the demand. The price of oil in 1852–'53 was as low as 60 to 80 cents per gallon, and is at present about $1 25 by the barrel, which, with the short crop of the past year, will probably prove an inducement to the farmers to again turn their attention to raising the beans. It has been stated that castor-oil had been used on one of the Western railroads for oiling the axles of cars, and probably also on the locomotives. Since the rise in the price of whale oil, the attention of machinists has been turned to various substitutes, and it is probable that the non-drying quality of the castor-oil, when pure, will render it very valuable for lubricating purposes, if it can be produced at a sufficiently low price.—*American Journal of Pharmacy*, 1855.

Catechu (Fr. *Cachou*; Ger. *Kaschu*; Hind. *Cut*, *Gambir*), a brown astringent substance, formerly known by the name of *Terra Japonica*, because supposed to be a kind of earth. It is, however, a vegetable substance obtained from two plants; viz. the *Mimosa*, or more correctly the *Acacia catechu*, and the *Uncaria gambir*. The first of these is a tree from 20 to 30 feet high, found in abundance in many of the forests of India, from 16° of lat. up to 30°. The places most remarkable for its production are the Burmese territories; a large province on the Malabar coast called the Concan; and the forests skirting the northern part of Bengal, under the hills which divide it from Nepaul. The catechu is obtained from this tree by the simple process of boiling the heart of the wood for a few hours, when it assumes the look and consistency of tar. The substance hardens by cooling; is formed into small balls or squares; and being dried in the sun, is fit for the market. Johnson, in his "*Chemistry of Common Life*," says, "In the most relaxing climates of the East this strongly astringent substance acts beneficially upon the system." Perron, the traveler, states that he preserved his health during a long and difficult voyage by the habitual use of betel, while his companions, who did not use it, died, mostly of dysentery.

Cat-head, a strong timber projecting from either bow of a ship, to which the anchor is raised and secured.

Cat's Eye, a mineral of a beautiful appearance, brought from Ceylon. Its colors are gray, green, brown, red, of various shades. Its internal lustre is shining, its fracture imperfectly conchoidal, and it is translucent. From a peculiar play of light, arising from white fibres interspersed, it has derived its name. The French call the appearance *chatoyant*. It scratches quartz, is easily broken, and resists the blow-pipe. It is set by the jewelers as a precious stone.

Cat Skins. The skin or fur of the cat is used for a variety of purposes, but is principally dyed and sold as false sable. It appears from evidence taken before a late Committee of the House of Commons, that it is a common practice in London to decoy the animal and kill it for the sake of its skin. The fur of the wild-cat is, however, far more valuable than that of the domestic cat. The wild-cat skins imported into Europe are brought almost wholly from the territories of the Hudson's Bay Company. The animal from which they are taken is a good deal larger than the English wild-cat, and is sometimes called the *loup servier*, or Canadian lynx.

Cattle, a collective term applied to designate all those quadrupeds that are used either as food for man or in tilling the ground. By *neat* or *horned cattle* is meant the two species included under the names of the ox (*bos*) and the buffalo (*bubulus*); but as the latter is principally confined to Asiatic countries, it is the former only that we have here in view. The raising and feeding of cattle, and the preparation of the various products which they yield, have formed, in all countries emerged from the savage state, an important branch of industry. It would be quite inconsistent with the objects and limits of this work to enter into any details with respect to the different breeds of cattle raised in this or other countries. They are exceedingly various. In Great Britain and in this country they have been vastly improved, both in the weight of carcass, the quality of the beef, and the abundance of the milk, by the extraordinary attention that has been given to the selection and crossing of the best breeds, according to the objects in view. This sort of improvement began about the middle of last century, or rather later, and was excited and very much forwarded by the skill and enterprise of two individuals—Mr. Bakewell, of Dishley; and Mr. Culley, of Northumberland, England. The success by which their efforts were attended roused a spirit of emulation in others; and the rapid growth of commerce and manufactures since 1760 having occasioned a corresponding increase in the demand for butcher's meat, improved systems of breeding, and improved breeds, have been very generally introduced. But the improvement in the size and condition of cattle has not been alone owing to the circumstances now mentioned. Much of it is certainly to be ascribed to the great improvement that has been made in their feeding. The introduction and universal extension of the turnip and clover cultivation has had, in this respect, a most astonishing influence, and has wonderfully increased the food of cattle, and consequently the supply of butcher's meat.

Among the various races of cattle existing among us, where strict regard is paid to breeding with a definite object in view, a preference is given to the Durhams or short horns, the Herefords, the Ayrshires, and the Devons. The Durhams, from their rapid growth, early maturity, and capability of taking on fat, are adapted only for high keeping, or to the richest pastures of the Middle and Northern States, and those of Ohio, Kentucky, and other parts of the West. The males, when judiciously crossed with the other breeds, or with the common cows of the country, often beget the best of milkers, and for this purpose they have been especially recommended. The Herefords, on the contrary, from their peculiar organization, are better adapted for poor or indifferent pastures, and regions subject to continued drought; and for this reason they are well suited for California, New Mexico, Texas, and other parts of the South. The oxen of this breed are good in the yoke, and the cows, when properly fed, give an abundance of milk. The Ayrshires are best suited for a cool, mountainous region, or a cold, rigorous climate. They succeed well in Massachusetts, New Hampshire, and Vermont, and are highly prized for their tameness, docile tempers, and rich milk. The Devons, from their hardihood, comparatively small size, and peculiar structure, appear to be adapted to almost every climate, and to all kinds of pasturage. From their stoutness, good tempers, honesty, and quickness of action, they make the best teams, and in this respect their chief excellency consists. The cows make fair milkers, and their flesh very good beef. They also possess great aptitude to take on fat.—*See* ABATTOIR.

Caulking, or **Cauking,** the driving of oakum or old rope untwisted into the seams between the planks in a ship's deck or sides, to prevent the entrance of water or leakage. The seams are then covered with melted pitch or rosin, to keep the oakum from rotting.

Cavendish, Thomas, was the son of a gentleman of good estate in Suffolk, England, but having impoverished himself by early extravagances, with a view to retrieve his affairs he fitted out three vessels for a predatory expedition against the Spanish American colonies, for which he sailed in July, 1585. After ravaging the western coasts, and taking a Spanish vessel richly ladened, he sailed across the South Sea, and returned to England by way of the Cape of Good Hope, in September, 1588, having circumnavigated the globe in a shorter time than any preceding adventurer. The great wealth which he acquired from this undertaking prompted him to engage in another voyage, on which he embarked in August, 1591. Tempestuous weather, sickness, and other causes contributed to render this scheme unfortunate; and Cavendish himself died on the coast of Brazil on his passage home, in 1592.

Caviar (Fr. *Caviar, Cavial;* Ger. *Kaviar;* It. *Caviario, Caviale;* Sp. *Caviario;* Russ. *Ikra;* Lat. *Caviarium*), a substance prepared in Russia, consisting of the salted roes of large fish. The best, which is made of the roe of the sturgeon, appears to consist entirely of the eggs, and does not easily become fetid. It is packed in small casks or kegs, the inferior sort being in the form of dry cakes. Caviar is highly esteemed in Russia, and considerable quantities are exported to other countries. It is principally made of the roe of the sturgeon caught in the Wolga, in the neighborhood of Astrachan, as many as 30,000 barrels of caviar having been exported from that city in a single season.—See *Geog. Dict.* art. ASTRACHAN.

Cayenne, a sea-port town, and the capital of French Guiana, on the west point of the island of same name, at the mouth of the Cayenne or Oyaque River, in the Atlantic. Lat. 4° 56′ 5″ N., long. 52° 30′ W. Population 6000. It is built mostly of wood, and consists of an old town, with the government-house and Jesuits' college, and the new town, with wide and clean streets, large warehouses, and good residences, between which two divisions is a large open space planted with orange-trees. Harbor shallow: it has two quays, and is protected by a fort and several batteries. Cayenne is the seat of a court of assize, and the centre of all the trade of French Guiana. Exports to France amount to 6,000,000 francs, and imports thence to 5,000,000 francs. The island of Cayenne, in the Atlantic, separated from the continent of South America by a narrow channel, is 30 miles in circumference; chief products, sugar, cotton, coffee, and fruits. Population (exclusive of the town of Cayenne) 3000. First settled by the French in 1625, but they left it in 1654. It was afterward successively in the hands of the English, French, and Dutch. These last were expelled by the French in 1677. Cayenne was taken by the British, January 12, 1809, but was restored to the French at the peace in 1814. In this settlement is produced the *capsicum baccatum*, or Cayenne pepper, so esteemed in Europe. —HAYDN.

Cayenne Pepper is prepared from several varieties of capsicum, a genus of solanaceous plants which produce a fleshy-colored fruit. This fruit contains an extremely pungent principle, that exists in greatest activity in the seed. The capsicum from which the Cayenne is procured is a native of the East Indies and America. The principal Indian species is *C. frutescens*, and the American *C. annuum.* The capsicum enters largely into the seasoning of food and the preparation of pickles; and is also used in medicine, both internally and externally. The pods may be preserved in vinegar, or in a dry state in salt. The strongest variety of Cayenne pepper comes from the West Indies, and is prepared from the *capsicum baccatum* (bird pepper).

Cedar (Germ. *Zeder;* Du. *Ceder;* Fr. *Cedre;* It. and Sp. *Cedro;* Russ. *Kedr;* Lat. *Cedrus*). The Cedar of Lebanon, or great cedar (*Pinus cedrus*), is famous in Scripture: it is a tall, majestic-looking tree. "Behold," says the inspired writer, "the Assyrian was a cedar in Lebanon with fair branches, and with a shadowing shroud, and of a high stature; and his top was among the thick boughs. His height was exalted above all the trees of the field, and his boughs were multiplied, and his branches became long. The fir-trees were not like his boughs, and the chestnut-trees were not like his branches, nor any tree in the garden of God was like unto him in beauty."—*Ezekiel*, xxxi. 3, 5, 8. The cedar grows to a very great size. The timber is resinous, has a peculiar and powerful odor, a slightly bitter taste, a rich yellowish brown color, and is not subject to the worm. Its durability is very great; and it was on this account (*propter æternitatem*, Vitruvius, lib. ii. § 9) employed in the construction of temples and other public buildings, in the formation of the statues of the gods, and as tablets for writing upon. In the time of Vitruvius, cedars were principally produced in Crete, Africa, and some parts of Syria.—*Loc. cit.* Very few are now found on Lebanon; but some of those that still remain are of immense bulk, and in the highest preservation. Cedar exceeds the oak in toughness, but is very inferior to it in strength and stiffness. Some very fine cedars have been produced in England.

There are several other kinds of timber that are usually called cedar: thus a species of cypress is called white cedar in America; and the cedar used by the Japanese for building bridges, ships, houses, etc., is a kind of cypress, which Thunberg describes as a beautiful wood, that lasts long without decay. The *Juniperus oxycedrus* is a native of Spain, the south of France, and the Levant; it is usually called the brown-berried cedar. The Bermudian cedar (*Juniperus Bermudiana*), a native of the Bermuda and Bahama islands, is another species that produces valuable timber for many purposes; such as internal joiners' work, furniture, and the like. The red cedar, so well known from its being used in making black-lead pencils, is produced by the Virginian cedar (*Juniperus Virginiana*), a native of North America, the West India islands, and Japan. The tree seldom exceeds 45 feet in height. The wood is very durable, and, like the Cedar of Lebanon, is not attacked by worms. It is employed in various ways, but principally in the manufacture of drawers, wardrobes, etc., and as a cover to pencils. The internal wood is of a dark red color, and has a very strong odor. It is of a nearly uniform texture, brittle, and light.—*See* TREDGOLD'S *Principles of Carpentry.*

Cements. The substances used for producing cohesion between different materials are very various. They are mostly, however, soft, or semi-fluid, and harden in the course of time. The number employed is very great. We can mention only a few. The joints of iron pipes and the flanges of steam-engines are cemented with a mixture composed of sulphur and muriate of ammonia, together with a large quantity of iron chippings. The putty of glaziers is a mixture of linseed oil and powdered chalk. Plaster of Paris, dried by heat, and mixed with water, or with resin and wax, is used for uniting pieces of marble. A cement composed of brick-dust and resin, or pitch, is employed by turners, and some other mechanics, to confine the material on which they are working. Common paint, made of white-lead and oil, is used to cement China ware. So also are resinous substances, such as mastic and shellac, or isinglass dissolved in proof-spirit or water. The paste of book-binders and paper-hangers is made by boiling flour. Rice-glue is made by boiling ground rice in soft water to the consistence of a thin jelly. Wafers are made of flour, isinglass, yeast, and white of eggs, dried in thin layers upon tin plates, and cut by a circular instrument. They are colored by red-lead, etc. Sealing-wax is composed of shellac and rosin, and is commonly colored with vermilion. Common glue is mostly employed for uniting wood, and similar porous substances. It does not answer for surfaces not porous, such as those of metals, and is not durable if exposed to water. The cements mostly used in building are composed of lime and sand. Lime is procured by burning substances in which it exists in combination with carbonic acid, such as limestone, marbles, chalk, and shells. By this process, the carbonic acid is driven off, and quicklime is obtained. The quicklime is slaked by mixture with water, after which it swells and cracks, becomes hot, and assumes the form of a white and impalpable powder. This is a hydrate of lime, and contains about three parts of lime to one of water. When intended for mortar, it should immediately be mixed with sand, and used without delay, before it imbibes carbonic acid anew from the atmosphere. The lime adheres to and unites the particles of sand. Cements thus made increase in strength and solidity for an indefinite period. Fresh sand, wholly silicious and sharp, is the best. That taken from the sea-shore is unfit for making mortar, as the salt is apt to deliquesce and weaken the mortar. The amount of sand is always greater than that of the lime. From two to four parts of sand are used, according to the quality of the lime and the labor bestowed on it. Water cements, called also *Roman cements*, harden under water, and consolidate almost immediately on being mixed. Common mortar dissolves or crumbles away if laid under water before it has had time to harden; but certain rocks, which have an argillaceous as well as a silicious character, communicate to lime or mortar the property of hardening in a very few minutes, both in and out of water. The ancient Romans, in making their water cements, employed a peculiar earth, obtained at the town of Puteoli. This they called *pulvis Puteolanus*. It is the same as is now called *Puzzolana*, and is evidently of volcanic origin. The Dutch, in their great aquatic structures, have mostly employed a substance denominated *tarras*, *terras*, or *trass*, found near Andernach, in the vicinity of the Rhine. It is said to be a kind of decomposed basalt, but resembles puzzolana. It is very durable in water, but inferior to the other kinds in the open air. Baked clay and the common greenstone afford the basis of very tolerable water cements, when mixed with lime. Some of the ores of manganese may be used for the same purpose. Some limestones calcined, and mixed with sand and water, also afford water cements, usually in consequence of containing some argillaceous earth. Some cements, of great hardness and permanency, have been obtained from mixtures into which animal and vegetable substances enter, such as oil, milk, mucilage, etc. The name of *maltha* or *mastic* is given them. They are not much used. The principal manufacturing places of cement in the United States are in the State of New York, along the Delaware and Hudson Canal.

Census is now almost solely used to denote that enumeration of the people made at intervals in most European countries, and in Britain decennially. The term had its origin in Rome, where a group of the many functions performed by the high officer called censor received the name of *census*. An enumeration of the people was only one of them, but they were chiefly of a statistical character. They were especially directed to fiscal objects; and it does not appear that the enumeration of the people was then deemed of value as a source of statistical knowledge which might influence morals and legislation. It was connected with the Servian constitution, which apportioned the rights and duties of citizens to the amount of property, dividing them into six classes, which were subdivided into centuries by a mixed ratio of wealth and numbers.

The Roman census must have been minute and full. It indicated not only the number and respective classes of all free persons, but their domestic position as husbands and wives, fathers and mothers, and sons and daughters. The slaves and freedmen were indicated in connection with the possessions of the head of the house, and landed property was analyzed into several classes, according to its character and produce. The important practical effect of the census caused it to be conducted at intervals generally so frequent as every fifth year. It was followed by a sacrifice of purification or lustration, whence the term of five years came to be denoted a lustrum.

While the word census was thus applied to the taxation of the Middle Ages, it will readily be understood that in its modern sense it received no practical application, since neither taxation nor the adjustment of social rank required a numbering of the people; and the statistic or economic ends of such a process were as little known as they had been to the Romans. Under the despotic governments of the Continent, however, the tendency to central organization for purposes of administration and police prepared the way for statistical inquiries into the numbers of the inhabitants of particular areas whenever there should occur an occasion for enumerating them. It was in Britain, with its abstinent government and unrestrained people, that the want of population statistics became most flagrantly conspicuous. It is difficult at present to realize the idea that, long after Adam Smith's day, the number of the inhabitants of the British empire could only be guessed at, as the populousness of China is at the present day; and, as in all matters of statistics, which have their own simple solution through specific inquiry, the guesses about the population of the empire were not only vague but extravagantly contradictory. During the eighteenth century, the most trust-worthy geographers were generally those who did not venture on an estimate of the population even in those European states which had the best means of enumeration at their command.

The first effort to take a census of the population of Great Britain was made in 1801; it did not then extend to Ireland. The success which attended this and the two succeeding efforts was mainly owing to the zeal and ability of Mr. Rickman, the assistant clerk of the House of Commons. Where there is an organization like that in many of the European states for preserving a constant official record of all the fluctuations of the population, not only in their absolute numbers throughout a whole territory but in the relative numbers in its respective parts as they may be affected by fluctuations, systematic arrangements are thus prepared not only for obtaining a general census at any one moment, but for checking its accuracy and classifying its elements. But to deal at once with the raw material in the self-governed British empire, required great ingenuity and sagacity. A census, to be accurate, must be taken on a uniform system, and must be taken simultaneously.

The enumerations of 1841 and 1851 in England were much facilitated by the uniform system of registration of births, marriages, and deaths, established in 1836, which not only afforded the means of checking the accuracy of the returns, but provided a prompt and skilled machinery accustomed to statistical work. Far more dependence could now be placed on the discretion and skill of the officers to whom the local duties were committed; and the returns were made more minute and complete. Scotland and Ireland are perhaps the only considerable countries in Christian Europe where there is no uniform system of registration. In Scotland it was necessary to adopt the clumsy method of employing the parish schoolmasters to perform the local duty in the country districts. In Ireland the first attempt at a general census was made in 1811, but it was decidedly unsuccessful. It was repeated in 1821, but went no further than a bare enumeration of doubtful accuracy. The census there taken in 1831 was subject to correction in 1834, to make it the basis of the new system of national education. In the two subsequent enumerations the aid of the admirable constabulary force, and the use of an ordnance survey, nearly complete in 1841, have gone far to supply the want of permanent local statistical machinery. The census of 1851 was taken on the 31st day of March, the previously-distributed schedules being then collected.

POPULATION AND NUMBER OF INHABITANTS TO THE SQUARE MILE OF VARIOUS AMERICAN AND EUROPEAN COUNTRIES.

Countries.	Population.	Density.
United States	23,191,876	7·90
Canada	1,842,265	5·31
Mexico	7,661,919	7·37
Central America	2,049,950	10·07
Brazil	6,065,000	2·19
Peru	2,106,492	3·63
Russia in Europe	60,315,350	28·44
Austria	36,514,466	141·88
France	35,783,170	172·74
England	16,921,888	332·00
Great Britain and Ireland	27,475,271	225·19
Prussia	16,331,187	151·32
Spain	14,216,219	78·03
Turkey in Europe	15,500,000	73·06
Sweden and Norway	4,645,007	15·83
Belgium	4,426,202	388·60
Portugal	3,473,758	95·14
Holland	3,267,638	259·31
Denmark	2,296,597	101·92
Switzerland	2,392,740	160·65
Greece	998,266	55·70

The United States.—There have been seven enumerations of the inhabitants of the United States, the periods and aggregate results of which are as follows:

Census of 1790	3,929,827
Census of 1800	5,305,925
Census of 1810	7,239,814
Census of 1820	9,638,131
Census of 1830	12,866,020
Census of 1840	17,069,453
Census of 1850	23,191,876

At the close of 1857, the total population of the United States, upon the supposition that its average ratio of increase has been maintained, or nearly so, may be stated in round numbers at 28,600,000.

The present population of the Union may be said to consist of, *first*, the number who were in the country on the formation of the government in 1789, and their descendants; *second*, of those who have come into the country since that period by immigration, and their descendants (of this class much will be said under the head of NATIVITIES); *third*, of those who have been brought in by annexation, as in Louisiana, Florida, New Mexico, etc., and their descendants. It is sufficient to say of the last class, that Louisiana, when purchased, had 77,000 inhabitants, including 53,000 slaves; Florida about 10,000; California and New Mexico about 60,000; and that Texas and Oregon only brought back into the Union citizens who had emigrated thither but a short time before. The number of Indians (taxed) domesticated and absorbed in the population can not be ascertained. The colonial population was swelled, in 1765, by the extension of the boundary to the Mississippi, and the introduction of 2000 French residents of the territory incorporated.

Cent, a contraction of the Latin *centum*, a hundred, is used in commerce to denote a certain rate by the hundred; thus 10 per cent. profit or 10 per cent. loss upon the sale of any merchandise implies that the seller has gained or lost $10 on every $100 of the price at which he bought that merchandise. The rate is termed *percentage*.—*See* DOLLAR.

Cent is also the name of a copper coin of the United States, equal to the hundredth part of a dollar, or rather more than a halfpenny English money. The copper coinage of the United States to the end of 1853 amounted to $1,513,937. We have of that ponderous currency about 1590 *tons* of 2000 pounds avoirdupois. This circulation is almost entirely confined to the Northern and Middle States, as it is rejected by the South and West. According to the laws establishing the Mint of the United States, "of the copper coins, the weight of the cent shall be one hundred and sixty-eight grains, and the weight of the half cent eighty-four grains; and the cent shall be considered of the value of one hundredth part of a dollar, and the half cent of the value of one two-hundredth part of a dollar. Copper bullion shall be purchased for the Mint, from time to time, by the treasurer, under instructions from the director; the cost shall be paid from the fund hereinafter provided for; and the copper bullion shall be of good quality, and in the form of planchets fit for passing at once into the hands of the chief coiner. The copper planchets shall be delivered, from time to time, by the treasurer to the chief coiner, to be by him coined; and all such copper shall be returned to the treasurer by the chief coiner, weight for weight, without allowance for waste. It shall be the duty of the treasurer of the Mint to deliver the copper coins, in exchange for their legal equivalent in other money, to any person who shall apply for them: *Provided*, That the sum asked for be not less than a certain amount, to be determined by the director, and that it be not so great as in his judgment to interfere with the capacity of the Mint to supply other applicants. The copper coins may, at the discretion of the director, be delivered in any of the principal cities and towns of the United States, at the cost of the Mint for transportation. The money received by the treasurer in exchange for copper coins shall form a fund in his hands, which shall be used to purchase copper planchets, and to pay the expense of transportation of copper coins; and if there be a surplus, the same shall be appropriated to defray the contingent expenses of the Mint. No copper coins or pieces whatsoever, except cents and half cents, shall pass current as money, or shall be paid, or offered to be paid, or received in payment for any debt, demand, claim, matter, or thing whatsoever; and all copper coins or pieces, except the cents and half cents, which shall be paid, or offered to be paid, or received in payment, contrary to the prohibition aforesaid, shall be forfeited, and every person by whom any of them shall have been so paid, or offered to be paid, or received in payment, shall also forfeit the sum of ten dollars, and the said forfeiture and penalty shall and may be recovered, with costs of suit, for the benefit of any person or persons by whom information of the incurring thereof shall have been given."—*See* COINS, COINAGE.

According to the acts of Congress prior to 1850, the gold and silver coins of the United States were legal tender to any extent, but by the law of 1853, authorizing the debased silver coins, the latter are receivable in small sums only. Copper coins are not by statute legal tender to any amount. Frequent suggestions in Congress have been recently made to reduce the weight of the copper coins, but thus far without effect.

Cereal Grasses (Lat. *ceres*, corn), grasses which produce the bread corns; such as wheat, rye, barley, oats, maize, rice, and millet.

Cette, a commercial and fortified sea-port town of France, department of Hérault, capital of the canton, at the head of the railroad from Beaucaire, between the Mediterranean and the lagoon of Thau, 17 miles southwest of Montpellier. Lat. of light-house, 43° 23′ 48″ N., long. 3° 42′ 16″ E. Population 16,613. It is a fortress of the first class, defended by a citadel; principal edifices, Church of St. Louis, public baths, and library. Its harbor is spacious and secure, from 16 to 19 feet in depth, formed by two piers with a breakwater in front, defended by two forts, one on either pier. A broad and deep canal, bordered with quays and warehouses, connects the port with the lagoon of Thau and the canal du Midi, and with canals leading to the Rhone, by which means Cette has an extensive traffic with the interior. Imports comprise Benicarlo wine from Spain, for mixing with French wines for the English and other markets. It has a large establishment where is manufactured sulphate of soda, magnesia, and potash, from sea-water. The exports consist of about 36,000 tuns of wine, and 4000 ditto of brandy annually, with almonds, Montpellier verdigris, salt from adjacent salt-works, and sirups, liquors, soap, perfumery, and glass-wares, the products of its own factories. Cette is the entrepôt for an extensive coasting-trade, and possesses much foreign commerce. It has ship-building yards, and an active oyster and anchovy fishery, and is the residence of various European consuls. It is wholly of modern origin, having been founded by Louis XIV. at the base of the ancient *Mons Setius* (whence its name). Steamboats to Marseilles daily.

Ceylon, an island in the Indian Ocean, situated at the southern extremity of the Coromandel coast, from which it is separated by the Gulf of Manaar. It lies between lat. 5° 54′ and 9° 50′ N., and long. 79° 50′ and 82° 10′ E. Its length is 270 miles, and its greatest breadth 145 miles. It is of an oval form, pointing north and south; its broadest part being at its southern extremity, where also is to be found the great mass of its high lands. It is distant from Cape Comorin, the southernmost point of the Indian peninsula, about 175 miles. The most important cultivation is that of coffee, a branch of industry which, since the year 1841, has assumed a position of great and growing prominence. Coffee was an article of growth and export from Ceylon so far back as the time of the Portuguese, but like the cinnamon it grew wild without any attempt at cultivation. Patches of it were to be seen around the Kandian villages in wild luxuriance, and the berry gathered before ripe, and imperfectly cured, seldom possessed much flavor, and was lightly esteemed as an article of European commerce. Coffee cultivation on the West Indian plan was first commenced by Sir E. Barnes, the then governor of Ceylon, in 1824, who hoped by his example to introduce coffee-planting by Europeans into the island.

The *Cocos nucifera*, or cocoa-nut palm, is a native of the island, and may justly be considered the most valuable of its trees. It grows in vast numbers along the entire sea-coast of the west and south sides of the island, and furnishes almost all that a Singhalese villager requires. Its fruit, when green, supplies food and drink; when ripe, it yields oil. Its sap gives him toddy and arrack. The fibrous casing of the fruit, when woven, makes him ropes, nets, and matting. The nut-shells form drinking-vessels, spoons, etc. The plaited leaves serve as plates and dishes, and as thatch for his cottage. The dried flower-stalks are used as torches, the large leaf-stalks as garden fences. The trunk of the tree sawn up is employed for every possible purpose, from knife-handles to door-posts; hollowed out, it forms alike a canoe or a coffin. There are four kinds of this palm; the common, the king cocoa-nut, the dwarf, and the Maldive sorts. The Palmyra and Areca palms grow luxuriantly and abundantly, the former in the northern, the latter in the western and central districts. The one is valuable chiefly for its timber, of which large quantities are exported to the Indian coasts; the other supplies the betel-nut, in such common use among natives of the Eastern tropics as a masticatory. The export trade in this latter to India and Eastern ports is very considerable, amounting in some years to £12,000. Next in importance to the cocoa-nut palm among the indigenous products of Ceylon is the cinnamon-plant, yielding the well-known spice of that name.—*See* CINNAMON. The fruits indigenous to Ceylon are few and insignificant. Others of more value have been introduced with success from various tropical and extra-tropical countries; among these are the citron, orange, lime, shaddock, banana, pomegranate, custard apple, guava, grape, rambatam, alligator-pear, etc.

Pearl Fishery.—Although the once far-famed and lucrative pearl fishery of this island has ceased since the year 1837, it will be well to give in this place a passing notice of the pearl-oyster, especially as a survey of the "banks" or beds off Aripo, made in 1852, holds out promise of a good fishing at no distant date. The banks on which these oysters are usually found lie off the northern part of the west coast of Ceylon, at a distance of from 16 to 20 miles from the shore. They extend for many miles north and south, varying considerably in their size and productiveness. The oyster arrives at maturity in its seventh year; the pearl within is then of full growth, and if the fish be not then taken up, it will shortly die, and the pearl be lost. The fishery, which is in the hands of the local government, took place in the month of March, when the water was perfectly calm, and most favorable for the work of the divers. It was formerly rented to native speculators, who paid a certain sum for the privilege of fishing with a fixed number of divers during a given period. In 1797 and the following year, the rental of the fishery realized £123,982 and £142,780 respectively. Since that time the government have fished on their own account, selling the produce of each boat by auction on the beach before the fish could be examined. This mode, however, had not proved so lucrative as the old method; the annual returns never having exceeded £87,000, and frequently falling as low as £12,000; in some cases, indeed, amounting to but a few hundred pounds sterling. Various causes have been assigned for the failure of these fisheries. It may, however, be properly attributed to the mismanagement of an inspector of the pearl banks, who in 1836 took charge of them, and, from neglecting to attend to the instructions given him by his predecessors, caused the wrong beds to be fished. The result was a complete failure of the fishery; the oysters which should have been brought up were left to die; young beds were disturbed, and from that time this large source of revenue has been lost to the island. A survey of the pearl banks made in March, 1853, induced the local government to look for a fishery of some extent in 1855 or the following year.—E. B.

However, the pearl fishery of Ceylon continues to engross a large share of public attention. The importance of any discovery which would enable us to preserve and fish the mature oysters is evident from the statement made by Captain Stuart, that from the fifth to the sixth year the pearl-oyster doubles in value, and again doubles should he survive the seventh year. The pearl-oyster, though called the mother-of-pearl shell, and though its interior surface is beautifully lined with the pearly secretion, is valueless as "mother-of-pearl." The latest intelligence from the scene of the fisheries is as follows:

17th Sale.—205,000 oysters brought on shore on the 7th (by 42 boats) were sold at rates varying from 15 to

18 rupees per 1000, and produced £315. Total receipts £9930.—*Overland Colombo Observer*, April 16th, 1855.

The trade of Ceylon has been greatly augmented since the opening of the cinnamon trade and the commencement of coffee planting. In 1832 the imports amounted to £351,222; the exports to £163,587. In 1842 the imports and exports amounted to £622,447 and £421,413 respectively. In 1852 those amounts were £1,000,474 and £948,400. The largest increase in exported produce has been in coffee, which from 17,287 cwts. in 1831 grew to 77,475 cwts. in 1841, and to 287,910 cwts. in 1851. In 1854 the crops of native and plantation kinds are expected to amount to 500,000 cwts. The cinnamon trade of Ceylon forms a remarkable exception to the rule that by the removal of fiscal restrictions the consumption of articles will be increased. Cinnamon is now exported from Ceylon duty free, yet the annual demand for the spice is found to be no greater than when burdened with an export duty of 3*s.* the lb. When the island was transferred from the administration of the East India Company to that of the crown in 1802, the government entered into a contract with the company by which the latter acquired the exclusive privilege of exporting cinnamon from the colony. It was agreed that the Ceylon government should deliver annually 400,000 pounds of cinnamon, for which the company was to grant a credit of £60,000, making the price of the cinnamon 3*s.* per pound. In 1814 the company agreed to allow to the Ceylon government a sum of £200,000 sterling for surplus profits on their sales of cinnamon; and to give in future £101,000 sterling annually, instead of £60,000, for a supply of 400,000 pounds of that commodity. This contract was entered into for seven years, and it does not appear that during this period the stipulated quantity of cinnamon was ever delivered. In 1821 the exclusive privilege of exporting cinnamon was given up by the company; and in 1833 the government abandoned their monopoly of the trade, throwing it open to the public, but levying a duty of 3*s.* per pound on its exportation.

In 1835 an inferior or third sort was allowed to be shipped on payment of 2*s.* the pound. Two years later, the duty on the best sorts was lowered to 2*s.* 5*d.*; and in 1843 the duty on all kinds was fixed at 1*s.* It was since reduced to 4*d.*; and in 1853 the article was declared duty free. These periodical reductions of duty were in all cases followed by heavy shipments of the spice; the sole effect of which has been to overstock the European markets, and reduce its price beyond the reduction of duty. The annual European consumption is at the present time precisely what it was fifty years ago; thus proving that articles of mere luxury are not affected by the laws which govern the consumption of the necessaries of life. Of the exports, four-fifths are to Great Britain; of the imports, one-third is from the United Kingdom, and the remainder chiefly from India. The imported goods from Great Britain consist of cotton manufacture, glass-ware, hardware, millinery, hosiery, metals, tools, beer, wines, etc.; those from India are mainly rice and coarse cotton cloth. The exports to Europe being larger than the imports thence, the balance of value is drawn for by bills of exchange, a part of which are negotiated in India to pay for rice, the rest for rupees sent down to Ceylon to pay the Malabar coolies on the coffee estates, who carry three-fourths of their earnings out of the island. The trade of Ceylon is carried on by upward of twenty European firms, and eight or nine native houses; the latter confining their transactions to British India. Besides these, there are nearly a dozen European estate agents in Kandy, and a great number of small native dealers, called "Chitters," in connection with Madras and Bombay firms. There are no export duties, and the duty on imports is 5 per cent. on the declared value, with some few exceptions, such as arms, wines, spirits, and grain. In 1852 the revenue derived from customs duties was £121,354.

The coasting and Indian trade is carried on by country-built brigs and *dhomies*, a craft peculiar to Ceylon. Of the former there are 56, of 3176 tons in the aggregate, and 559 dhomies, of a tonnage equal to 24,270 tons, belonging to the island. The value of the former is £6 per ton, and of the latter £1 per ton. In 1836 the custom-house shipping entries gave 1331 vessels inward, and 1200 outward; in 1852 they gave 3140 inward, and 3074 outward. The banking business of the island is conducted by branches of the Oriental Bank Corporation of London, and the Mercantile Bank of Bombay, in Colombo and Kandy. The former establishment possesses the privilege of issuing notes of 10*s.* and upward.—E. B.

Chaff. The husk or withered calyx of grasses, and more especially of the bread corns. The term is also applied to straw or hay cut into very short lengths, and used for mixing with corn, roots, or other food for horses or cattle. This kind of chaff, in greater lengths, is also used for mixing with mortar on some parts of the Continent, more particularly in Germany and Russia; and it is used as a substitute for hair in making plaster for rooms. Both stubble and cut hay were used by the ancient Egyptians in making bricks.

Chain, in *Surveying*, a measure of length, composed of a certain number of links made of iron wire, serving to take the distance between two or more places. Gunter's chain contains 100 such links, each measuring 7 92-100 inches, consequently equal to 66 feet, or four poles.

Chaldron, a dry English measure of 36 coal bushels; 21 chaldrons make a score. The coal bushel is 19½ inches wide from the outside, and 8 inches deep. It contains 2217·6 cubic inches; but when heaped, 2815·5, making the chaldron 58·65 cubic feet. There are 12 sacks of coal in a chaldron; and if 5 chaldrons be purchased at the same time, the seller must deliver 63 sacks: the 3 sacks additional are called the *ingrain.* But coals are now sold in London and almost every where else by the ton of 20 cwt. avoirdupois. The Newcastle chaldron of coals is 53 cwt., and is exactly double the London chaldron.

Chaleurs, Bay of, an inlet of the Gulf of St. Lawrence, in North America. Lat. 48° N., long. 65° W. Length from east to west about 90 miles; breadth varies from 12 to 20 miles. It separates Canada East from New Brunswick, and at its western extremity receives the Ristigouche River. This bay possesses great advantages for the prosecution of the fisheries. The entire bay may be considered one great harbor, as throughout its entire breadth and extent there is not a single rock, reef, or shoal. During the summer it literally swarms with fish of every description known on the shores of this portion of America; and its ancient name of "*Ecketaun Nemaachi*"—the sea of fish—well denotes its character.

Chalk (from *calx*), in Latin called *creta*, a species of carbonate of lime, found abundantly in Britain, France, Norway, and other parts of Europe. The island of Candia is said to have received its ancient name of *Creta* from the quantity of chalk found there. Chalk is used as an anti-acid; and from the readiness with which it imbibes liquids, it is much employed as an absorbent. When powdered and freed from gritty particles by washing, it forms the substance called *whitening*, or Spanish white, used to polish metalline utensils and glass. It is prepared as follows: mix chalk that has been well triturated with a large quantity of water, allow the silicious and ferruginous particles to subside, and then decant the supernatant fluid into a very fine sieve or linen bag, where the whitening will be deposited.—*Black Chalk*, a mineral used by artists for drawing. It is a variety of bituminous shale, the *schiste-graphique* of Haüy.—*French Chalk*, steatite or soapstone, a hydrated silicate of magnesia and alumina. It occurs of several colors, as white, brown, green, etc.; and is used in the preparation of crayons, the manufacture of porcelain, for polishing marble, and as the basis of certain cosmetic powders.—*Red Chalk* is an indurated clayey ochre used for similar purposes. It is *reddle*, or earthy clay-ironstone of the mineralogist.—E. B.

Chamber of Assurance, in France, denotes a society of merchants and others for carrying on the business of insurance; but in Holland it signifies a court of justice, where causes relating to assurances are tried.

Chamber of Commerce. An assembly of merchants and traders, where affairs relating to trade are treated of. There are several establishments of this sort in most of the chief cities.—*See* BOARD OF TRADE.

Chamomile Flowers. The flower-heads of the *Anthemis nobilis*, or common chamomile. They are used in medicine in consequence of their bitter extract, which is strengthening, and of their essential oil, which is aromatic and stimulant.

Champagne, one of the most esteemed and celebrated of the French wines. An official report, made by the directors of the indirect taxes for the department of Marne, furnishes the following information as to the trade in champagne between the 1st of April, 1846, and the 1st of April, 1847. The produce is distributed among the arrondissements of Chalons, Epernay, and Rheims. On the 1st of April last there were in the cellars of the wholesale dealers 18,815,367 bottles of this wine; viz. at Chalons, 4,404,237 bottles; at Epernay, 5,710,753; and at Rheims, 8,500,377. The number of bottles sold and delivered between the 1st of April, 1846, and the 1st of April, 1847, were, at Chalons, 2,497,355; at Epernay, 2,187,553; at Rheims, 4,090,577; making a total of 8,775,485 bottles. These quantities were thus distributed:

Places.	To go Abroad.	To other Depots.	Within the Depot.
	Bottles.	Bottles.	Bottles.
From Chalons........	1,074,214	753,175	669,066
From Epernay........	806,663	386,425	994,465
From Rheims.........	2,831,038	1,215,766	43,773
Total.......	4,711,915	2,355,366	1,707,304

Champlain Lake lies between the States of New York and Vermont. It extends from Whitehall, New York, to the 45th degree of north latitude 102 miles, and thence about 24 miles to St. John's, in Canada, to which point it is navigable, making its whole length 126 miles. Its breadth is from one-fourth of a mile to 13 miles; but, including the expanse which contains its large islands, it is 15 miles wide. Its broadest part, unobstructed by islands, is opposite Burlington, Vermont. Its chief islands are North Hero, South Hero, and La Motte, which, with some smaller islands, and the peninsula of Alburg, constitute Grand Isle county, Vermont. This lake was discovered by Samuel Champlain, a French nobleman, in 1609. It was the theatre of many important military operations, in the French, Revolutionary, and the war of 1812. The scenery along its shores is highly picturesque, and rendered grand by the lofty mountains at a little distance from it on both sides. It forms an important medium of commerce, and is navigated by steamboats, and by many sloops, generally from 80 to 100 tons burden. It receives a number of considerable rivers. Its outlet is Sorelle or Richelieu River, the navigation of which has been improved by the works of the Chambly Canal (Canada), so as to afford an easy communication for large vessels with the St. Lawrence River. The Champlain Canal, 64 miles long, connects it with the Hudson River on the south, and cost $1,079,872. It abounds with fish, among which are salmon, lake shad, pike, and other fish. It is generally frozen entirely over, and is passed on the ice, in winter. The broad lake closes in January or February, and opens early in March. The narrow parts continue frozen considerably longer. It has three light-houses on its coasts. It comprises the collection districts of Burlington and Champlain. Aggregate tonnage in 1853, 1,461,749. The aggregate shipping in 1851 measured 197,500 tons, and employed 11,850 men. The commerce of the lake in the same year amounted to $26,390,895; and the enrolled tonnage was, of steam, 4157 tons, and 3983 tons of sailing vessels.

Chanks, or **Chank Shells,** common conch shells (*Voluta pyrum*), are fished up by divers in the Gulf of Manaar, on the coast opposite Jaffnapatam, in Ceylon, in about two fathoms water; and at Travancore, Tuticoreen, and other places. Large fossil beds of chanks have also been found. They are of a spiral form, and constitute a considerable article of trade in India, where they are in extensive demand all over the country. They are sawn into narrow rings or bracelets, and are worn as ornaments on the arms, legs, fingers, etc., by the Hindoo women; many of them are also buried with the bodies of opulent and distinguished persons. Those which, from being taken with the fish, are called *green chanks*, are most in demand. The *white chank*, which is the shell thrown upon the beach by strong tides, having lost its gloss and consistency, is not worth the freight up to Calcutta. The value of the green chank depends upon its size. A chank opening to the right, called in Calcutta the right-handed chank, is so highly prized as sometimes to sell for 400 or 500, or even 1000 rupees.—BELL'S *Commerce of Bengal*, and private communications.

The fishery of chanks used to be monopolized by government, who formerly let the banks for from £3000 to £4000 a year. But of late years the fishery, partly from the poaching of the fishermen of the contiguous coasts, and partly from a decrease in the supply of chanks, declined so that the rental of the banks fell off to from £300 to £400 a year. And this smaller sum was not paid, as formerly, for a license to dive for live chanks, but for permission to dig up the dead shells along the shores of the Gulf of Manaar. Under these circumstances government have wisely abandoned the chank monopoly, which, without being of any value in a financial point of view, obstructed the employment of the inhabitants on the shores of the Gulf.—See the valuable Report of Sir J. E. TENNENT, p. 55, of *Papers on Ceylon*, presented to Parliament in 1848.

Charcoal (Fr. *Charbon de bois*; Ger. *Reine Kohle*; It. *Carbone di legna*: Sp. *Carbon de lena*; Lat. *Carbo ligni*), a sort of artificial coal, consisting of wood burned with as little exposure to the action of the air as possible. "It was customary among the ancients to *char* the outside of those stakes which were to be driven into the ground or placed in water, in order to preserve the wood from spoiling. New-made charcoal, by being rolled up in clothes which have contracted a disagreeable odor, effectually destroys it. When boiled with meat beginning to putrefy, it takes away the bad taint; it is, perhaps, the best tooth-powder known. When putrid water at sea is mixed with about one-ninth of its weight of charcoal powder, it is rendered quite fresh; and a much smaller quantity of charcoal will serve, if the precaution be taken to add a little sulphuric acid previously to the water. If the water casks be charred before they are filled with water, the liquor remains good in them for years; this precaution ought always to be taken for long sea voyages. The same precaution, when attended to for wine-casks, will be found very much to improve the quality of the wine."—THOMSON'S *Chemistry*. Common charcoal intended merely for fuel is prepared by cutting pieces of wood from one to three inches in diameter into lengths of from one to three feet, forming them into a conical pile, and covering them with turf or clay; leaving two or three small holes close to the ground for lighting the wood, and boring through the turf in the upper part of the cone, a few other small holes for the escape of the smoke. The pile being lighted at the several holes along the bottom, continues burning with a slow smouldering flame for a week or two, and is allowed to cool before the turf is removed. In the case of very high winds, the holes to the windward are stopped, to prevent combustion from going on with too great rapidity. Charcoal obtained by distilling beach-wood, log-wood, willow, and other woods which are free from resin, is called *cylinder charcoal.* The charcoal employed in the manufacture of gunpowder is now always so prepared.

Charge d'Affaires. The third or lowest class of foreign ministers, according to the regulations adopted at the Congress of Vienna.

Chariots. The invention of chariots and the manner of harnessing horses to draw them, is ascribed to Erichthonius of Athens, 1486 B.C. Chariot-racing was one of the exercises of Greece. The chariot of the Ethiopian officer, mentioned in *Acts* vii. 27, 28, 31, was, it is supposed, something in the form of our modern chaise with four wheels. Cæsar relates that Cassibelanus, after dismissing all his other forces, retained no fewer than 4000 war chariots. Those of the ancients were like the modern phaetons, and drawn by one horse. —HAYDN.

Charleston, city, port of entry, and capital of Charleston district, South Carolina. It is the metropolis of the State, and the twelfth city in population in the United States. Situated in 32° 46′ 33″ N. lat., and 79° 55′ 38″ W. long. from Greenwich, England; 2° 56′ 3″ W. long. from Washington; 124 miles south-southeast from Columbia; 110 miles from Savannah, Georgia; 165 miles from Wilmington, North Carolina; 547 miles from Washington; 587 miles from Baltimore; 684 miles from Philadelphia; 773 miles from New York, and 989 miles from Boston. The population in 1790 was 16,359; in 1800, 18,712; in 1810, 24,711; in 1820, 24,780; in 1830, 30,289; in 1840, 29,261; and in 1850, 42,985; to which may be properly added the inhabitants of the Neck, north of the city, but lying without the charter limits, which contains about 15,000 inhabitants. Charleston is on a peninsula, formed by the confluence of Ashley and Cooper Rivers, which unite immediately below the city, and form a spacious and convenient harbor, communicating with the ocean at Sullivan's Island, seven miles southeast of the city. The city is defended by Fort Pinckney, two miles below, and Fort Johnson, four miles; and by Fort Moultrie on Sullivan's Island. The city is divided into eight wards, and is built on ground but slightly elevated, being only about nine feet above the level of the harbor at high tides. It extends from Battery Point on the south to the city limits on the north, a distance of three miles, and at an average width of one and a quarter mile. Meeting Street, the principal street, is sixty feet wide, and extends for a distance of three miles nearly in a direct line north; the cross-streets run nearly parallel to each other, and at right angles to Meeting Street, and extend from east to west, and from Ashley to Cooper Rivers. The houses built within a few years are of brick; none are now allowed to be constructed but of this material or of stone. The wooden houses are generally kept well painted, and most of them have piazzas extending to the roof, tastefully arranged with vines and creepers. Those in the suburbs are surrounded by gardens, planted with orange, peach, and other ornamental and useful trees, and a profusion of vines and shrubbery.

Charleston is a great mart for cotton, rice, and tobacco; and rice especially, as it is the heart of the rice-growing region, forms the great staple, of which it exports 125,000 tierces annually. There is a line of steamers with New York weekly, a line with Baltimore and Philadelphia, and also with Havana and Cuba. Tonnage of the port in 1852, 42,658 tons. The light-house at the entrance of Charleston harbor is on Light-house Island, and west of the ship channel. Lat. 32° 41′ 54″ N., long. 79° 32′ 30″ W. from Greenwich. The tower is 102 feet high, shows a revolving light elevated 125 feet above the surface of the sea, and is visible for a distance of 16½ nautical miles. There is also a beacon, which with the light is used as a range to cross the main bar, and two others, the Morris Island and Sullivan's Island beacons. By its being the port of an extensive system of railroads, it drains supplies from a wide range of territory; besides almost the entire State of South Carolina, it comprises a large portion of North Carolina, Georgia, and of East Tennessee. Charleston was first settled in 1680. A colony of French refugees, exiled in 1690, in consequence of the revocation of the edict of Nantes, fled to South Carolina, and a portion of them settled in Charleston, from whom some of its most respectable inhabitants have descended. At the close of the year 1779 the city was captured by the British, who held it until the following May.

EXPORT TRADE OF CHARLESTON.

EXPORTS OF COTTON.

Places.	1854.		1855.	
	Sea Island.	Upland.	Sea Island.	Upland.
	Bales.	Bales.	Bales.	Bales.
To Great Britain	14,186	148,784	14,530	189,572
To France.............	3,966	37,279	4,150	66,506
To North of Europe....	2	12,639	....	13,700
To South of Europe....	....	18,901	....	27,020
Total to foreign ports ..	18,154	217,603	18,680	296,798
To Boston.............	391	16,321	120	12,065
To Rhode Island, etc. ..	....	493	....	911
To New York..........	6,140	148,438	5.651	157,106
To Philadelphia	81	12,934	....	19,118
To Baltimore & Norfolk	....	12,387	....	9,151
To other U. States ports	....	102	....	102
Total to coastwise ports	6.612	190,675	5,771	198,453
Total to foreign ports ..	18,154	217,603	18,680	296,798
Grand total	24,766	408,278	24,451	495,251

EXPORTS OF RICE.

Places.			Rough Rice.	
	1854.	1855.	1854.	1855.
	Bushels.	Bushels.	Bushels.	Bushels.
To British ports	7,204	2,691	96,539	41,740
To France.............	7,182	2.247	13.122	....
To North of Europe....	9,740	3,365	154,284	24,326
To West Indies........	22,152	17.657	100	....
Total foreign ports.....	46,278	25,960	264,045	66,066
To Boston.............	6,766	4.383	....	....
To New York..........	41,050	32,545	43,385	6,502
To Philadelphia	4,785	5,767	....	....
To Baltimore & Norfolk	10,197	7,512	....	....
To New Orleans	16.176	17,142	....	....
To other U. States ports	547	236	15,634	500
Total to coastwise ports	79,521	67,585	59,019	7,002
Total to foreign ports ..	46,278	25,960	264,045	66.066
Grand total............	125,799	93,545	323.064	73,068

EXPORTS OF LUMBER.

Places.	1854.	1855.
	Feet.	Feet.
To Great Britain......	959,404	663.542
To France	330,716	1.143,382
To North of Europe............	648.472	467,305
To South of Europe............	1,265,402	3,038,771
To West Indies, etc............	3,526,651	2,025,653
Total to foreign ports..........	6,730,645	7,338,653
To Boston	4,190,779	1,633,466
To Rhode Island, etc...........	4,846,103	6,405.655
To New York	1,428,361	1,135,198
To Philadelphia...............	2,993,416	3,525.205
To Baltimore and Norfolk	2,799,369	2,577.531
To other United States ports ...	855,977	1,236,709
Total to coastwise ports........	17,114,005	16,513.764
Total to foreign ports..........	6,730.645	7.338.653
Grand total..................	23,844,650	23,852,417

—HUNT'S *Merchants' Magazine.*

Port.—Charleston harbor is spacious and convenient; but the entrance to it is incommoded by a range of sand banks, stretching from Sullivan's Island on the north to Folly Island on the south, about 2½ leagues. There are several channels through these banks, but only three, the middle or direct channel, the ship channel, and Lawford channel, between the latter and the main land, that ought to be attempted by ships of considerable burden. The entrance to the ship channel is in lat. 32° 40′. The depth of water on the shallowest part of the bar at ebb-tide is 12 feet, and at flood-tide from

17 to 18 feet; while the depth in the middle channel at low water does not exceed 9 feet, and in Lawford channel it does not exceed 10 or 11 feet. A light-house has been erected on the south point of Light-house Island, bearing from the middle of the bar of the ship channel northwest by west half west. It is 80 feet high, having a revolving light, alternately brilliant and obscure, the period of obscuration being double that of brilliancy; but on approaching the light, the latter gains upon the former, and within 1½ league it is never wholly dark. The light may be seen in fine weather at from 3 to 4 leagues off. After getting into the channel, which is marked by the breakers and buoys on each side, the proper course for a ship to steer is to bring the light-house to bear northwest by west, and stand direct for it till you get within the banks, when the course is north by west. But it is unnecessary to enter into further details on these points, as all ships entering Charleston harbor are bound, provided they are hailed by a licensed pilot off the bar, to pay him full pilotage fees, whether they accept his services or not. In point of fact, however, they are always accepted; for the shifting of the sands, the influence of the tides, etc., render the entrance so difficult to those not perfectly familiar with it, that even the packet ships that sail regularly to and from New York uniformly heave to without the bar for a pilot.—See *Plan of Charleston Harbor*, reduced from the original survey of Major H. Bache.

Ships usually moor alongside quays or wharfs, where they are in perfect safety.

Shipping Charges.—The charges of a public nature paid by ships entering this port differ but little in amount on a native and a foreign ship. On a vessel supposed to be of 300 tons burden, entering, unloading, taking on board a mixed cargo and clearing out, they would be as under:

	$	*Cts.*		£	*s.*	*d.*
Fee on entry at the custom-house.......	2	60	or	0	11	1¼
Surveyor's fee on a foreign ship........	5	00	"	1	1	4¼
Surveyor's fee on a native ship.........	3	00	"	0	12	9¾
Harbor-master's fee.....................	2	00	"	0	8	6½
Portwarden's survey, when required.....	10	00	"	2	2	8¼
Fees, on clearance at the custom-house, of a native ship....................	3	50	"	0	14	11¼
Ditto, of a foreign ship.................	2	70	"	0	11	6¼
Pilotage inward and outward, supposing the ship to draw 14 feet of water.....	50	00	"	10	13	6½
Wharfage per diem......................	1	00	"	0	4	3¼

The difference in the fees on the clearance at the custom-house of a native and a foreign ship is owing to the former being obliged to give certain bonds which are not required of the latter.

The greater or smaller tonnage of the ship makes no difference on any of the above charges except that of pilotage, which is in proportion to her draught of water, and is the same whether for a foreign or a native ship.

Rates of Commission.—The rates of commission or factorage usually charged and allowed at Charleston on transacting different sorts of business, are as follows, viz.:

For selling domestic produce, 2½ per cent.

For selling foreign merchandise, 5 per cent.

For guaranteeing either of these sales, 2½ per cent. additional is commonly allowed.

For purchasing with funds in hand, or drawing domestic bills for reimbursement, 2½ per cent.

For purchasing goods and drawing foreign bills for reimbursement, 5 per cent. is charged.

For the sale of real or personal estate the regular charge is 5 per cent.; but where the property to be sold is of any considerable value, the parties in general enter into an agreement beforehand, and a much lower rate of commission is allowed.—*See* South Carolina.

Chart, or **Sea-chart**, a hydrographical map, or a projection of some part of the earth's superficies *in plano*, for the use of navigators. Charts differ very considerably from geographical or land-maps, which are of no use in navigation. Nor are sea-charts all of the same kind; some being what are called plane charts, others Mercator charts, and others globular charts. *Plane Chart* is a representation of some part of the superficies of the terraqueous globe, in which the meridians are supposed parallel to each other, the parallels of latitude at equal distances, and consequently the degrees of latitude and longitude every where equal to each other. *Mercator's Chart* is that where the meridians are straight lines, parallel to each other, and equidistant; the parallels also straight lines, and parallel to each other; but the distance between them increasing from the equinoctial toward either pole, in the ratio of the secant of the latitude to the radius. *Globular Chart*, a meridional projection, in which the distance of the eye from the plane of the meridian, upon which the projection is made, is supposed to be equal to the sine of the angle 45°. This projection comes the nearest of all to the nature of the globe, because the meridians are placed at equal distances; the parallels also are nearly equidistant, and consequently the several parts of the earth have their proper proportion of magnitude, distance, and situation, nearly the same indeed as on the globe itself. *Hydrographic Charts*, sheets of large paper on which several parts of the land and sea are described, with their respective coasts, harbors, sounds, flats, rocks, shelves, sands, etc., together with the longitude and latitude of each place, and the points of the compass. *Selenographic Charts* represent the spots, appearances, and maculæ of the moon. *Topographic Charts*, draughts of small parts of the earth, or of particular places. Anaximander, of Miletus, was the inventor of geographical and celestial charts, about 750 B.C. Modern sea-charts were brought to England by Bartholomew Columbus, with a view to illustrate his brother's theory respecting a Western Continent, 1489. Mercator's chart, in which the world is taken as a plane, was drawn 1556.—E. B.

Charter-party, the name given to a contract in writing between the owner or master of a ship and the freighter, by which the former hires or lets the ship, or a part of the ship, under certain specified conditions, for the conveyance of the goods of the freighter to some particular place or places. Generally, however, a charter-party is a contract for the use of the whole ship: it is in commercial law what an indenture is at common law.—*See* Affreightment.

No precise form of words, or set of stipulations, is requisite in a charter-party. The forms subjoined to this article are those most commonly in use; but these may, and, indeed, in many cases must, be varied, to suit the views and intentions of the parties. A charter-party is generally under seal; but sometimes a printed or written instrument is signed by the parties, called a *memorandum of a charter-party;* and this, if a formal charter-party be not afterward executed, is binding. The stamp in either case is the same. Charter-parties, when ships are let or hired at the place of the owners' residence, are generally executed by them, or some of them; but when the ship is in a foreign port, it must necessarily be executed by the master, and the merchant or his agent, unless the owners have an agent in such port, having proper authority to act for them in such matters. A charter-party made by the master in his name, when he is in a foreign port in the usual course of the ship's employment, and therefore under circumstances which do not afford evidence of fraud; or when it is made by him at home, under circumstances which afford evidence of the expressed or implied assent of the owners, is binding upon the latter. But according to the law of England, no *direct* action can be maintained upon the instrument itself against the owners, unless it be signed and sealed by them, or unless they authorize the master (or agent, as the case may be) to enter into the contract, and unless it be distinctly expressed in the charter-party that he acts only as agent. When a ship is chartered by several owners to several persons, the charter-party should be executed by each, or they will not be liable to an action for non-performance. But if the charter-party be not expressed to be made between the parties, but runs thus: "This charter-party indented, witnesseth, that C., master of the ship W., with consent of A. and B., the owners thereof, lets the ship to freight to E. and F.," and the instrument contains covenants by E. and F. to and with A. and B.; in this case A. and B. may bring an action upon the covenants expressed to be made with them; but unless they seal the deed, they can not be sued upon it. This, therefore, is a very proper form. The general rule of law adopted in the construction of this, as of other mercantile instruments, is, that the interpretation should be liberal, agreeable to the real intention of the parties, and conformable to the usage of trade in general, and of the particular trade to which the contract relates. The charter-party usually expresses the burden of the ship; and by the famous French Ordinance of 1681, it is required to do so. According to Molloy (book ii. c. 4, § 8), if a ship be freighted by the ton, and found of less burden than expressed, the payment shall be only for the real burden; and if a ship be freighted for 200 tons, or *thereabout*, the addition of thereabout (says the same author) is commonly reduced to *five* tons, more or less; but it is now usual to say so many tons "register measurement." The usual covenant that the ship shall be seaworthy, and in a condition to carry the goods, binds the owners to prepare and complete every thing to commence and fulfill the voyage. But though the charter-party contained no such covenant, the owner of the vessel would be, at common law, bound, as a *carrier*, to take care that the ship should be fit to perform the voyage; and even though he should give notice, limiting his responsibility from losses occasioned to any cargo put on board his vessel, unless such loss should arise from want of ordinary care, etc., he would be liable if his ship were not sea-worthy.—*See* Sea-worthy.

In all maritime transactions expedition is of the utmost consequence; for even by a short delay the object or season of a voyage may be lost; and therefore, if either party be not ready by the time appointed for the loading of the ship, the other may seek another ship or cargo, and bring an action to recover the damages he has sustained. The manner in which the owner is to lade the cargo is, for the most part, regulated by the custom and usage of the place where he is to lade it, unless there be any express stipulation in the charter-party with respect to it. Generally, however, the owner is bound to arrange the different articles of the cargo in the most proper manner, and to take the greatest care of them. If a cask be accidentally staved in letting it down into the hold of the ship, the master must answer for the loss. If the owner covenants to load a full and complete cargo, the master must take as much on board as he can do with safety, and without injury to the vessel. The master must not take on board any contraband goods, whereby the ship or cargo may be liable to forfeiture and detention; nor must he take on board any false or colorable papers; but he must take and keep on board all the papers and documents required for the protection and manifestation of the ship and cargo by the law of the countries from and to which the ship is bound, by the law of nations in general, or by any treaties between particular states. If the master receive goods at the quay or beach, or send his boat for them, his responsibility commences with the *receipt* in the port of London. With respects to goods intended to be sent coastwise, it has been held that the chief responsibility of the wharfinger ceases by the delivery of them to the mate of the vessel *upon the wharf*. As soon as he receives the goods, the master must provide adequate means for their protection and security; for even if the crew be overpowered by a superior force, and the goods taken while the ship is in a port or river within the country, the master and owners are liable for the loss, though they may have committed neither fraud nor fault. This may seem a harsh rule; but it is necessary, to put down attempts at collusive or fraudulent combinations. The master must, according to the terms of the charter-party, commence the voyage without delay, as soon as the weather is favorable, but not otherwise.

Sometimes it is covenanted and agreed upon between the parties that a specified number of days shall be allowed for loading and unloading, and that it shall be lawful for the freighter to detain the vessel a further specified time, on payment of a daily sum as *demurrage*.—*See* Demurrage. If the vessel be detained beyond both periods, the freighter is liable to an action on the contract. The rate of demurrage mentioned in the charter-party will, in general, be the measure of the damages to be paid; but it is not the absolute or necessary measure; more or less may be payable, as justice may require, regard being had to the expense and loss incurred by the owner. When the time is thus expressly ascertained and limited by the terms of the contract, the freighter is liable to an action for damages if the thing be not done within the time, *although this may not be attributable to any fault or omission on his part;* for he has engaged that it shall be done.—Abbott *on the Law of Shipping*, part iii. c. 1. If there has been any undertaking or warranty to sail with convoy, the vessel must repair to the place of rendezvous for that purpose; and if the master neglect to proceed with convoy, he will be answerable for all losses that may arise from the want of it. The owners or master should sail with the ship for the place of her destination with all due diligence, and by the usual or shortest course, unless in cases of convoy, which the master must follow as far as possible. Sometimes the course is pointed out in the charter-party. A *deviation* from the usual course may be justified for the purpose of repairs, or for avoiding an enemy or the perils of the seas, as well as by the sickness of the master or mariners, and the mutiny of the crew. By an exception in the charter-party, not to be liable for injuries arising from the act of God and the king's enemies, the owner or master is not responsible for any injury arising from the sea or the winds, unless it was in his power to prevent it, or it was occasioned by his imprudence or gross neglect. "The question," said Lord Mansfield, in an action brought by the East India Company, "is, whether the owners are to pay for the damage occasioned by the storm, the act of God; and this must be determined by the intention of the parties and the nature of the contract. It is a charter of freight. The owners let their ships to hire, and there never was an idea that they insure the cargo against the perils of the sea. What are the obligations of the owners which arise out of the fair construction of the charter-party? Why, that they shall be liable for damages incurred by their own fault or that of their servants, as from defects in the ship, or improper stowage, etc. If they were liable for damages occasioned by storms, they would become insurers." The House of Lords confirmed this doctrine by deciding (20th of May, 1788) that the owner is not liable to make satisfaction for damage done to goods by storm. The charterer of a ship may lade it either with his own goods, or, if he have not sufficient, may take in the goods of other persons, or (if not prevented by a clause to that effect in the charter-party) he may wholly underlet the ship to another.—For further details, *see* Abbot on the *Law of Shipping*, part iii. c. 1; Chitty's *Commercial Law*, vol. iii. c. 9, etc.; and the articles Bill of Lading, Freight, and Master.

Forms of Charter-parties.—The following is one of the most usual forms of a charter-party:

> This charter-party, indented, made, etc., between A. B., etc., mariner, master, and owner of the good ship or vessel, called, etc., now riding at anchor, etc., of the burden of 200 tons, or thereabout, of the one part, and C. D. of, etc., merchant, of the other part, witnesseth, that the said A. B., for the consid-

eration hereinafter mentioned, hath granted, and to freight letten, and by these presents doth grant, and to freight let, unto the said C. D., his executors, administrators, and assigns, the whole tonnage of the hold, stern-sheets, and half-deck of the said ship or vessel, called, etc., from the port of London, to, etc., in a voyage to be made by the said A. B. with the said ship, in manner hereinafter mentioned, (that is to say,) to sail with the first fair wind and weather that shall happen after, etc., next, from the port of London with the goods and merchandise of the said C. D., his factors or assigns, on board, to, etc., aforesaid (the act of God, the king's enemies, fire, and all and every other dangers and accidents of the seas, rivers, and navigation, of whatever nature and kind, in so far as ships are liable thereto, during the said voyage, always excepted), and there unlade and make discharge of the said goods and merchandises; and also shall there take into and on board the said ship again the goods and merchandises of the said C. D., his factors or assigns, and shall then return to the port of London with the said goods, in the space of, etc., limited for the end of the said voyage. In consideration whereof, the said C. D., for himself, his executors, and administrators, doth covenant, promise, and grant, to and with the said A. B., his executors, administrators, or assigns, by these presents, that the said C. D., his executors, administrators, factors, or assigns, shall and will well and truly pay, or cause to be paid, unto the said A. B., his executors, administrators, or assigns, for the freight of the said ship and goods, the sum of, etc. (or so much per ton), within twenty-one days after the said ship arrived, and goods returned, and discharged at the port of London aforesaid, for the end of the said voyage; and also shall and will pay for demurrage (if any shall be by default of him, the said C. D., his factors or assigns) the sum of, etc., per day, daily, and every day, as the same shall grow due. And the said A. B., for himself, his executors and administrators, doth covenant, promise, and grant, to and with the said C. D., his executors, administrators, and assigns, by these presents, that the said ship or vessel shall be ready at the port of London to take in goods by the said C. D., on or before, etc.. next coming. And the said C. D., for himself, his, etc., doth covenant and promise, within ten days after the said ship or vessel shall be thus ready, to have his goods on board the said ship, to proceed on in the said voyage; and also, on arrival of the said ship at, etc., within, etc., days to have his goods ready to put on board the said ship, to return on the said voyage. And the said A. B., for himself, his executors and administrators, doth further covenant and grant, to and with the said C. D., his executors, administrators, and assigns, that the said ship or vessel now is, and at all times during the voyage shall be, to the best endeavors of him, the said A. B., his executors and administrators, and at his and their own proper costs and charges, in all things made and kept stiff, staunch, strong, well-appareled, furnished, and provided, as well with men and mariners sufficient and able to sail, guide, and govern the said ship, as with all manner of rigging, boats, tackle, and apparel, furniture, provision, and appurtenances, fitting and necessary for the said men and mariners, and for the said ship during the voyage aforesaid. In witness, etc.

The great variety of circumstances under which different voyages are made produce a corresponding diversity in charter-parties. The charter-party of which the following is a copy affords a good example of the more complex species of these instruments.

It is this day mutually agreed between Mr. T. B. Rann, owner of the good ship or vessel called the *Mermaid*, William Henniker, master, of the measurement of 472 tons, or thereabout, now in the River Thames, and Mr. David Thomson, of the firm of Messrs. Thomson, Passmore, & Thomson, of Mauritius, merchants, that the said ship, being tight, staunch, and strong, and every way fitted for the voyage, shall, with all convenient speed, sail and proceed to Calcutta, with leave to take convicts out to New South Wales, and from thence troops, merchandise, or passengers, to the afore-mentioned port of Calcutta, with leave to touch at Madras on her way thither, if required on owner's account, or so near thereunto as she may safely get, and there load, from the factors of the said merchants at Calcutta, a full and complete cargo of rice, or any other lawful goods which the charterer engages to ship, and proceed with the same to Port Louis, in the Isle of France, and deliver the same free of freight; afterward load there a full and complete cargo of sugar in bags, or other lawful merchandise of as favorable tonnage, which the charterer engages to ship, not exceeding what she can reasonably stow and carry over and above her tackle, apparel, provisions, and furniture; and, being so loaded, shall therewith proceed to London, or so near thereunto as she may safely get, and deliver the same on being paid freight, viz., for such quantity of sugar equal to the actual quantity of rice, or other goods, that may be shipped at Calcutta, at the rate of £5 12*s.* 6*d.* per ton of 20 cwt. net, shipped there; and should the vessel deliver more net sugar in the port of London than the quantity of rice, or other goods, actually shipped in Calcutta, the owners to be paid on the excess at the regular current rate of freight for sugar which other vessels, loading at the same time at Port Louis, receive; the tonnage of the rice, wheat, or grain, to be reckoned at 20 cwt. net per ton; that of other goods at the usual measurement (the act of God, the king's enemies, fire, and all and every other dangers and accidents of the seas, rivers, and navigation, of whatever nature and kind soever, during the said voyage, always excepted). The freight to be paid on unloading and right delivery of the cargo, as is customary in the port of London. Ninety running days are to be allowed the said merchant (if the ship is not sooner dispatched) for loading the ship at Calcutta, discharging the cargo at Port Louis, and loading the cargo there; the said lay days to commence on the vessel being ready to receive cargo, the master giving notice in writing of the same at Calcutta, and to continue during the loading there; and from the time of her arrival at Port Louis, and being ready to discharge, till the final loading at that port, and to be discharged in the port of London with all possible dispatch; and 20 days on demurrage over and above the said laying days, at £12 per day. Penalty for non-performance of this agreement, £4000. The cargo to be brought to and taken from alongside at the expense and risk of the merchants. The necessary cash for the disbursements of the vessel at Calcutta, not exceeding £350, to be advanced by the charterer's agents; they taking the master's drafts on the owner for the same at the regular current rate of exchange, and at three months' sight; and if the said bills be not regularly accepted and paid when due, the same to be deducted from the freight payable by this charter-party. The vessel to be disbursed at Port Louis by the chartering agents; sum not to exceed £300, free of commission; and the amount to be deducted from the freight at the final settlement at the port of London. Captain not to ship goods without consent. In the event of the ship being prevented, by damage or any other cause, reaching the Mauritius on or before the 1st day of January, 1843, the charterer or his agents shall be at liberty to employ the vessel for one or two voyages to Calcutta, at the rate of £2 per ton of rice, or other goods, delivered at Mauritius. Fifty running days, to load and discharge, to be allowed on each voyage; it being understood that the charterer or his agents shall load the ship, as before agreed, either at the end of the first or second voyage, as the case may be. The freight on the intermediate voyages (if any) to be paid on delivery of the cargo, in cash, or by bills on London at usance, at the option of the master. The vessel to be addressed, both at Calcutta and Isle of France, to the agents of the charterer. In witness whereof, the said parties have hereunto set their hands and seals, at London, the 2d day of December, 1841.

Signed, sealed, and delivered, in the presence of } Thos. B. Rann, (L.S.)
D. Thomson, (L.S.)
(Signed) E. Forsyth.

Chase. In nautical language, pursuit; also the vessel pursued.

Chaser. The vessel pursuing; also guns at the head and stern for firing when in chase.

Chay, or **Choy Root**, the roots of a small biennial, rarely triennial, plant, growing spontaneously in light, dry, sandy ground near the sea; and extensively cultivated, especially on the coast of Coromandel. The cultivated roots are very slender, and from one to two feet in length, with a few lateral fibres; but the wild are shorter, and supposed to yield one-fourth part more of coloring matter, and of a better quality. The roots are employed to dye the durable reds for which the Indian cotton yarn and chintzes have been long famous, and which can only be equaled by the Turkey red.

Chay root forms a considerable article of export from Ceylon. Only a particular set of people are allowed to dig it. It used to be all bought up by government, who paid the diggers a fixed price of 75 or 80 rix-dollars a candy, and sold it for exportation at about 175 rix-dollars.—Bertolacci's *Ceylon*, p. 270.

This root has been imported into Europe, but with no success. Dr. Bancroft suspects it may be injured by the long voyage; but he adds, that it can produce no effect which may not be more cheaply produced from madder. It is a very bulky article, and is consequently burdened with a very heavy freight.—*Permanent Colors*, vol. ii. p. 282–303.

Checks, Cheques, or **Drafts**, are orders addressed to some person, generally a banker, directing him to pay the sum specified in the check to the person named in it, or bearer, on demand.

In point of form, checks nearly resemble bills of exchange. They are assignable by delivery only; and are payable instantly on presentment, without any days of grace being allowed. But by the custom of some places, a banker has until five of the afternoon of the day on which a check is presented for payment, to return it; so that where a check was returned before five, with a memorandum of "canceled by mistake" written under it, it was held a refusal to pay. If a check upon a banker be lodged with another banker, a presentment by the latter at the clearing-house is sufficient. Checks are usually taken conditionally as cash; for unless an express stipulation be made to the contrary, if they be presented in due time and not paid, they are not a payment. It is difficult to define what is the due or reasonable time within which checks, notes, or bills should be presented. A man, as Lord Ellenborough has observed, is not obliged to neglect all other business that he may immediately present them: nevertheless, it is the safest plan to present them without any avoidable delay; and if received in the place where payable, they had better be presented that day, or next at farthest. If a check be not presented within a reasonable time, the party on whom it is drawn will be justified in refusing to pay it; and the holder will lose his recourse upon the drawer.—CHITTY *on Commercial Law*, vol. iii. p. 591; WOOLRYCH *on Commercial Law*. *See* BILLS OF EXCHANGE.

Cheese (Germ. *Käse;* Du. *Kaas;* Fr. *Fromage;* It. *Formaggio*, *Cacio;* Sp. *Queso;* Russ. *Sur;* Lat. *Caseus*). The curd of milk compressed into solid masses of different sizes and shapes; and, when intended for keeping, salted and dried, and sometimes colored and flavored. It is almost always made from the milk of cows, but occasionally from that of ewes, and sometimes, though very rarely, from the milk of goats. The following are the principal British cheeses: *Brickbat*, formed of new milk and cream, chiefly in Wiltshire, in the autumn, and sold in little square pieces about the size of brickbats. *Cheddar*, round thick cheeses, weighing about 150 or 200 lbs., with a spongy appearance, and the eyes or vesicles filled with a rich oil. *Cheshire*, large, round, thick cheeses, commonly weighing from 100 to 200 pounds each; solid, homogeneous, and dry and friable rather than viscid. They are made from the whole of the milk and cream; the morning's milk being mixed with that of the preceding evening previously warmed. *Derbyshire* is a small, white, rich cheese. *Dunlop*, originally made in Ayrshire, but now general throughout Scotland, is large, round, white, buttery, and weighs from 30 to 60 pounds. This and the Derbyshire cheese are very much alike in form, color, and flavor. *Gloucester*, large, round, and mild; buttery rather than friable. There are two kinds, the single and double Gloucester; the single is made of the milk deprived of about half the cream, and the double of the milk with the whole of the cream. *Green* or *Sage* cheese may be made of any of the other kinds, by mixing the milk before it has curdled with a decoction of sage leaves, among which some put a few flowers of marigold and leaves of parsley. In the Highlands of Scotland the leaves or seeds of lovage are added to the sage, which communicate a very strong flavor. *Lincolnshire* is made of new milk and cream; it is quite soft, not above two inches thick, and will not keep more than two or three months. *Norfolk*, the weight is generally from 30 to 50 pounds; the curd is dyed yellow with arnotto or saffron; and though not a rich cheese, it is considered a good keeper. *Soft* or *Slip-coat* is a small, soft, rich cheese, which might almost be mistaken for butter, if it were not white, and which must be eaten in a week or two after making. *Stilton*, so named from the town in Huntingdonshire where it was first brought into notice, but which is made principally in Leicestershire. It is solid, rich, buttery, and white; and, unlike all the other cheeses which have been mentioned, it is twice as high as it is broad. It is much improved by keeping, and is seldom used before it is two years old. It is the dearest of all English cheeses, the price being generally to that of Chester as 2 to 1, or 2 to 1½. In order to induce premature decay, and the consequent appearance of age in these cheeses, it is said the makers sometimes bury them in masses of fermenting straw. *Cottenham*, so named from a town in Cambridgeshire: it differs chiefly from the cream cheese of Stilton in being flat, broader, and superiorly flavored. The flavor is said to be owing to the rich grasses which grow on the fens. *Suffolk*, or *skim-milk*, is round and thin, weighing from 25 to 30 pounds each, and is the best-keeping cheese made in England. *Wiltshire* resembles the Cheshire; but is poorer, and of inferior flavor. It is apt to become scurfy, to prevent which it is generally coated over with red paint. *Yorkshire*, or *Cream Cheese*, is the same as the slip-coat cheese, already mentioned.

European Cheeses.—The most remarkable of these are the following: *Parmesan* is chiefly made at Parma and other places in Lombardy, of the curd of skimmed milk hardened by heat. Its flavor is said to be owing to the rich pastures of that part of Italy, where all plants, from the greater quantity of bright sunshine than in Britain, have doubtless their aromatic properties greatly increased. *Swiss cheese* is of various kinds; but the chief sorts are the Gruyere or Jura cheese, and Schabzieger or green cheese; the last is flavored with the seeds and leaves of the melilot (*Melilotis officinalis*). *German cheeses* are of different kinds; but none are celebrated, unless we except that of Westphalia, which is made up into round balls or short cylinders, under a pound weight each. The peculiar flavor which this cheese acquires arises from the curd being allowed to become putrid before it is compressed. In Holland very good cheese is made, particularly the Edam and Gouda cheeses: the former is very salt, and keeps well at sea. In many parts of the Continent, and even in the interior of Poland and Russia, there are imitations of English cheese made; but what may be called the indigenous cheese of the Russian empire is nothing more than salted curd put into a bag and powerfully pressed, and taken to market as soon as it is made, in the same manner as butter is. In some places, instead of a press, the whey is forced out of the curd by putting it into a long cloth midway between the two ends, while a person at each end twists the cloth in an opposite direction, and thus wrings out the whey. In some miserable Russian villages the curd is exposed for sale in small lumps, retaining the marks of the fingers, which shows that no other pressure has been employed than what can be given with the hand. In France the Roquefort cheese is the most esteemed, and next that of Neufchatel. The former somewhat resembles Stilton, but is much inferior; and the latter is a cream cheese, seldom exceeding a quarter of a pound in weight.—*See* JOHNSTON'S *Lectures on Chemistry.*

Cheese, in the United States, except for local consumption, is manufactured principally in New York and Ohio. The New York Orange county cheese, when new, is equal to any of the mild cheeses; but it does not acquire by age that richness of flavor that English cheese does. The Ohio cheese is produced at a very low price, and is taking a rank among the important products of that agricultural State. The prairies of the West, affording wild grasses of great nutriment and fine flavor, are exceedingly well adapted for the production of cheese of good quality, and at a price that excludes foreign cheese from the market, except for epicurean tastes.

EXPORTS OF CHEESE FROM THE UNITED STATES.

Year ending June 30.	To Great Britain.	To other Places.	Total.
	Pounds.	Pounds.	Pounds.
1853	2,038,935	724,997	3,763,932
1854	5,322,864	1,681,110	7,003,974
1855	3,419,637 $354,154	1,426,637 $159,880	4,846,568 $514,034

IMPORTS OF CHEESE INTO THE UNITED STATES.

Year ending June 30.	Pounds.	Value.
1853	874,949	$70,528
1854	969,416	93,152
1855	1,526,942	146,269

Fully one-half of these imports came from France. —*See* BUTTER.

Chemistry and **Distilling.** Introduced into Europe by the Spanish Moors about A.D. 1150; they had learned them from the African Moors, and these from the Egyptians. In Egypt they had, in very early ages, extracted salts from their bases, separated oils, and prepared vinegar and wine; and embalming was a kind of chemical process. The Chinese also claim an early acquaintance with chemistry; but the fathers of true chemical philosophy were, Bacon, Boyle, Hooke, Mayow, Newton, etc. The modern character of chemistry was formed under Beecher and Stahl, who perceived the connection of the atmosphere and the gases with the production of phenomena. Bergman and Scheele were contemporary with Priestley in England, and Lavoisier in France; then followed Thomson, Davy, and other distinguished men.—HAYDN.

Cherbourg, a commercial and fortified sea-port town of France, and nearly opposite the western extremity of the Isle of Wight, 16 miles east-southeast of Cape la Hague. Latitude of Fort Royal, 49° 40′ 3″ N., longitude 1° 35′ W. Population, 22,460. Its climate is remarkably mild. Its naval docks are cut out of solid rock; and it has a commercial harbor lined with stone quays. Its roadstead, defended by several large forts and batteries, is now one of the best in the Channel, being sheltered by a *digue*, or breakwater, 411 yards in length (or considerably more than twice as long as the Plymouth breakwater), begun under Louis XVI., and completed in 1810. Cherbourg has a maritime tribunal, a national academic society, commercial college, naval school, and museums; sugar and soda refineries, and tanneries; and an active trade in eggs, cattle, lard, butter, wine, and other produce, exported to England and the Channel Islands. It was the last place in Normandy resigned by the English. Charles X. embarked here with his family, on quitting France, August 16, 1830. The first French transatlantic steamer arrived at New York from Cherbourg, 8th July, 1847.

Cherries. They were brought from Pontus, to Lucullus, to Rome, about 70 B.C. Apricots from Epirus; peaches from Persia; the finest plums from Damascus and Armenia; pears and figs from Greece and Egypt; citrons from Media; and pomegranates from Carthage, 114 B.C. The cherry-tree was first planted in Britain, it is said, about A.D. 100. Fine kinds were brought from Flanders, and planted in Kent, and with such success that an orchard of thirty-two acres produced in one year £1000, A.D. 1540.

Cherry-tree (*Cerasus Virginiana*). The wild-cherry tree is one of the largest productions of the American forest. In the Atlantic as well as the Western States, this tree is known only by the name which we have adopted. It is more or less abundant as the soil and climate are more or less favorable to its growth, to which the extremes of heat and cold in the seasons, and of dryness and humidity in the soil, are alike unpropitious. It abounds in Illinois, in New York, and in Upper Canada; but it is nowhere more profusely multiplied nor more fully developed than beyond the mountains in the States of Ohio, Kentucky, and Tennessee. The perfect wood is of a dull, light red tint, which deepens with age. It is compact, fine-grained, and brilliant, and not liable to warp when perfectly seasoned. It is extensively employed by cabinet-makers for every species of furniture, and when chosen near the ramification of the trunk it rivals mahogany in beauty. This wood is generally preferred to the black walnut, whose dim complexion with time becomes nearly black. On the banks of the Ohio it is employed in ship-building, and the French of Illinois use it for the felloes of wheels.—BROWNE'S *Sylva Amer.*

Chesapeake Bay (Maryland), is 190 miles long, and from 7 to 20 broad, and generally 9 fathoms deep, being the largest bay in the United States. Its entrance is wholly in the State of Virginia, between Cape Charles on the north and Cape Henry on the south, which are about 12 or 15 miles apart. But the bay lies mostly in Maryland, dividing the State into two parts, called the Eastern and the Western Shore. It has several commodious harbors, and a safe and easy navigation. It receives the waters of the Potomac, Rappahannoc, and James rivers, which are all large and navigable; also of the Susquehanna and York rivers.

Chestnut (*Fagus castanea*), a forest tree growing abundantly in most parts of the southern countries of Europe. It is long-lived, grows to an immense size, and is very ornamental. The wood is hard and compact; when young, it is tough and flexible; but when old, it is brittle, and often shaky. The chestnut contains only a very small proportion of sap-wood; and hence the wood of young trees is found to be superior to even the oak in durability. It is doubtful whether the roof of Westminster Hall be of oak or chestnut, the two woods being, when old, very like each other, and having been formerly used almost indifferently in the construction of buildings. A good deal of chestnut has been planted in England within the last thirty years.—TREDGOLD'S *Principles of Carpentry.*

Chestnut (*Castanea Vesta*). The American chestnut does not venture beyond the 44th degree of latitude. It is found in New Hampshire, between the 43d and 44th degrees; but such is the severity of the winter, that it is less common than in Connecticut, New Jersey, and Pennsylvania. It is the most multiplied in the mountainous districts of the Carolinas and of Georgia, and abounds in the Cumberland Mountains and in East Tennessee. The coolness of the summer and the mildness of the winter in these regions are favorable to the chestnut; the face of the country, also, is perfectly adapted to a tree which prefers the sides of mountains, or their immediate vicinity, where the soil in general is gravelly, though deep enough to sustain its perfect development. It is a stranger in Vermont, the State of Maine, and a great part of New York, to the maritime parts of Virginia, to the Carolinas, Georgia, the Floridas, Louisiana, and as far as the mouth of the Ohio. The American chestnut sometimes attains the height of 70 or 80 feet, with a circumference of 15 or 16 feet. The wood is strong, elastic, and capable of enduring the succession of dryness and moisture. Its durability renders it especially valuable for posts, which should be made of trees less than ten inches in diameter, and charred before they are set in the earth. It is also used for rails, and is said to last more than fifty years. For shingles this wood is superior to any kind of oak, though it has the same defect of warping. It is not extensively used for staves, and its pores, like those of the red-oak, are so open, that it is proper only for dry wares. The chestnut is little esteemed for fuel, and is not much used; it is filled with air, and snaps when it burns. The coal is excellent.—BROWNE'S *Sylva Americana.*

Chestnuts (Fr. *Châtaignes;* Ger. *Kastanien;* It. *Castagne;* Sp. *Castanas*), the fruit of the chestnut-tree. In some parts of Europe they are frequently used as a substitute for bread, and form a large proportion of the food of the inhabitants. This is particularly the case in the Limousin, in Corsica, and of several districts of Spain and Italy. The inhabitants of the Limousin are said to prepare them in a peculiar manner, which deprives them of their astringent and bitter properties. Chestnuts imported from Spain and Italy are frequently kiln-dried, to prevent their germination on the passage. In this country they are principally served up roasted at desserts.

Chetwert, or **Tschetwert,** a measure of corn in Russia, equal to 5·77 Imperial bushels; hence 100 chetwerts = 72·12 Imperial quarters.

Chicago, city and capital of Cook county, and the most commercial place in Illinois, 204 miles north-northeast from Springfield and 717 from Washington. The city was laid out in 1830, and lots first sold in 1831. Population in 1840, 4470; in 1850, 29,964; in 1852, 38,734; and in 1854, 55,000. It is beautifully situated at the terminus of the Michigan Central and Southern Railroad, on level ground, elevated about five feet above the lake, which secures it from ordinary floods, and extends on both sides of the river of the same name, between the junction of its north and south branches, and distant 1¾ mile from its entrance into Lake Michigan. The harbor has a depth of from twelve to fifteen feet of water, which makes it a commodious and safe haven; and it has been much improved artificially by the construction of piers which extend on each side of the entrance of the river for some distance into the lake, to prevent the accumulation of sand upon the bar. The light-house is on the south side of the harbor, and shows a fixed light on a tower 40 feet above the surface of the lake; and there is a beacon on the end of the pier. Numerous steamboats and vessels ply between this place and Buffalo, and the various intermediate places on the upper lakes. West of the city, toward the West Plains road, is a fertile prairie, which, for the first three or four miles, is elevated and dry. Along the north branch of the Chicago and the lake shore are extensive bodies of fine timber. White pine lumber is obtained from the regions about Green Bay and Grand River, in Michigan, and across the lake from St. Joseph's River. The city is a great shipping point for an immense and fertile region. The Illinois and Michigan Canal, which is 60 feet wide at the top, 6 feet deep, and 107 miles in length, including 5 miles of river navigation, through which is brought a large amount of produce from the south and southwest; and the railroads radiating from Chicago, add to the vast accumulation which is here shipped for the Atlantic sea-board. There are 10 steamers, 30 propellers, and 190 barks, brigs, schooners, and sloops, engaged in the Chicago trade. In 1836 the value of the exports was $1000; in 1840, $228,635; in 1845, $1,543,519; and in 1852, $12,000,000. The assessed value of real and personal estate in 1853 was $16,841,831. There are twelve trunk railroads now constructed and in process of construction, all centreing at Chicago, and measuring in the aggregate 2485 miles. Of this amount, 1725 miles will lie within the State of Illinois, and the remainder in Indiana, Michigan, and Wisconsin. Besides these trunk roads, there are several hundred miles of branches, all centreing toward Chicago. The trunk and branch roads reach the Mississippi River at ten different points from Galena south to Cairo. Chicago is supplied with the purest of water from the lake, is within a short distance of the most extensive coal fields to be found in Illinois, and is the natural outlet for the produce of one of the richest agricultural sections of the Union.—*See* LAKES, *commerce of.*

The lumber trade of Chicago is immense. During the year 1855 over *three hundred millions of feet* were received here. The following table will show the receipts for the past six years:

Years.	Feet received.	Years.	Feet received.
1850	100,346,779	1853	202,101,098
1851	125,056,437	1854	228,232,000
1852	147,816,232	1855	308,277,055

FLOUR AND GRAIN RECEIVED AT CHICAGO FOR THE YEARS 1854–'55.

Articles.	1854.	1855.
Flour, reduced to bushels of wheat	795,520	1,210,000
Wheat, bushels	3,070,880	7,660,326
Corn, bushels	7,478 443	8,489,036
Oats, bushels	4,194,188	2,890,922
Rye, bushels	85,600	68.520
Barley, bushels	200,000	150,000
Total	15,824,611	20,458,784
1854		15,824,611
Increase in 1855		4,634,173

The total value of articles of commerce received at Chicago in 1855 was nearly two hundred millions of dollars; viz.:

	Imports.	Exports.
By lake	$95,724,797 43	$34,783.726 32
By canal	7,417,769 80	80,913,167 07
By railroads	88,381,597 90	98,421,324 86
Total value	$191,524,165 13	$214,118,218 25

Chicago has grown more rapidly up to this time than any city in the world. In 1823, Major Long and party made a journey to examine the sources of the St. Peter's River, etc.; and in his account of the expedition writes as follows of Chicago:

"The village presents no cheering prospect, as, notwithstanding its antiquity, it consists of but few huts, inhabited by a miserable race of men, scarcely equal to the Indians from whom they are descended. Their log or bark houses are low, filthy, and disgusting, displaying not the least trace of comfort. Chicago is, perhaps, one of the oldest settlements in the Indian country; its name, derived from the Potawatomi language, signifies either a skunk or a wild onion; and either of these significations has occasionally been given for it. A fort is said to have formerly existed there. Mention is made of the place as having been visited in 1671 by Perot, who found 'Chicagou' to be the residence of a powerful chief of the Miamis. The number of trails centering all at this spot, and their apparent antiquity, indicate that this was probably for a long period the site of a large Indian village. As a place of business, it offers no inducement to the settler; for the whole annual amount of the trade of the lake did not exceed the cargo of five or six schooners, even at the time when the garrison received it supplies from Mackinaw. It is not impossible that at some distant day, when the banks of the Illinois shall have been covered with a dense population, and when the low prairies which extend between that river and Fort Wayne shall have acquired a population proportionate to the produce which they can yield, Chicago may become one of the points in the direct line of communication between the northern lakes and the Mississippi. But even the intercourse which will be carried on through this communication will, we think, at all times be a limited one; the dangers attending the navigation of the lake, and the scarcity of harbors along the shore, must ever prove a serious obstacle to the increase of the commercial importance of Chicago. The extent of the sand banks which are formed on the eastern and southern shores by the prevailing north and northwesterly winds, will likewise prevent any important works from being undertaken to improve the port of Chicago."

It is estimated that the city now (1857) contains 100,000 inhabitants, and does a larger trade in proportion to its size than any city in the Union. What better illustration can be given of the rapid growth of the West at this place?

The population for the years between 1850 and 1860 (the last four years being estimated) is as follows:

Years.	Population.	Years.	Population.
1851	33,000	1856	83,000
1852	40,000	1857	100,000
1853	48,000	1858	119,000
1854	58,000	1859	143,000
1855	69,000	1860	172,000

The following list embraces the trunk roads actually completed and in operation, with their branch and extension lines, centring in Chicago:

	Miles.
Chicago and Milwaukie	85
Racine and Mississippi	86
Chicago, St. Paul, and Fond du Lac	121
Milwaukie and Mississippi, Western Division	105
Galena and Chicago Union	121
Fox River Valley	33
Wisconsin Central	6
Beloit Branch	20
Beloit and Madison	17
Mineral Point	17
Galena (Fulton) Air Line	136
Chicago, Iowa, and Nebraska	13
Chicago, Burlington, and Quincy	210
Burlington and Missouri	30
Northern Cross	100
Hannibal and St. Joseph	30
Chicago and Rock Island	182
Mississippi and Missouri, 1st Division	55
" " 3d "	13
Peoria and Bureau Valley	47
Peoria and Oquawka	143
Chicago, Alton, and St. Louis	283
Illinois Central	704
Pittsburgh, Fort Wayne, and Chicago	383
Michigan Southern and Northern Indiana	242
Cincinnati, Peru, and Chicago	28
Michigan Central	282
New Albany and Salem	284
11 trunk and 17 branch and extension lines	3676

Taking the portions of the above lines which lie in the State of Illinois, and adding the length of the different roads completed in the central portions of the State, we find that Illinois now contains *two thousand seven hundred and sixty-one miles of completed railway.* Five years ago there were only ninety-five miles. These facts show a most gratifying progress, of which every citizen of Illinois may well be proud.

GENERAL SUMMARY OF RAILROADS.

Total number of miles of railway centring in Chicago February 20, 1852	40
Total number of miles now completed and in operation	3,676
Increase in 1856	915
Total number to be completed in from five to eight years	6,929
Total number of miles of railway in the State of Illinois now in operation	2,761
Increase in 1856	351
(Only 95 miles were completed five years ago.)	
Increase in the State in five years (over 500 miles per year)	2,666
Total earnings of all the railways centring in Chicago for the year 1856	$17,343,242
(Five years ago they were only $40,000.)	
Increase in five years	17,303,242
Increase of 1856 over 1855	4,045,041
Total number of trains arriving and departing daily (midwinter), 104; adding 15 per cent. as soon as navigation opens	120
Population of Chicago in 1852	38,783
" " Jan. 1, 1857, estimate (in June, 1855, it was 83,509)	110,000
Total receipts of grain in Chicago for the year 1855 bushels	20,487,953
Total receipts of grain for the year 1856 (increase in 1856 over 20 per cent.) bushels	24,674,824
Shipments of grain from the port of Chicago for the year 1856 bushels	21,583,221
Corn received in 1856 bushels	21,888,398
Wheat " " " bushels	9,392,365
Number of hogs alive and dressed received in Chicago for 1855–'56	308,539
Number shipped alive and dressed	170,831
Averaging the weight at only 200 lbs. and the price at $5 per hundred, the value of the hogs received would be	$3,585,880
Number of barrels of beef packed in 1856	33,058
Receipts of lumber at the port of Chicago for the year 1856 feet	456,673,000
Receipts of lead for the year 1856 lbs.	9,527,000
Now laid up in the port of Chicago, steamers and sail vessels	245
Total number of vessels arriving in Chicago for the year 1856	7,328
Total tonnage of vessels arriving in this port for the year 1856	1,545,379
Amount of imports received at the Chicago custom-house on foreign goods for the year 1856	$162,994
Capital invested in manufactures during the year 1856—showing an increase of $1,464,400 over 1855	$7,759,400
Number of hands employed—showing an increase over 1855 of 1833	10,573
Value of manufactured articles, showing an increase of $4,483,572	$15,515,000
Amount invested during the year 1856 in improvements, stores, dwellings, hotels, etc.	$5,708,000
Number of passengers carried west by four principal railways leading out of Chicago	659,666
Total number of passengers moved on all the roads centring in Chicago	3,350,000

The above facts and figures will be regarded with special satisfaction by the people of the Northwest generally. They show a healthy, but rapid and most astonishing progress. It may be doubted whether the history of the civilized world can furnish a parallel to the vigorous growth and rapid development of the country which has Chicago for its commercial metropolis. When it is remembered that twenty years ago it was not an incorporated city, and less than a quarter of a century since the Indians still had possession of the largest portion of this magnificent country, these facts, stubborn and incontestable though they be, seem more like the dreams of some vagrant imagination than sober matters of reality, which scores of men still among us have themselves seen and realized.

Twenty years ago Chicago was an insignificant town at the southern end of Lake Michigan, importing nearly all its produce from Western New York and Northern Ohio. Last year it shipped 21,583,221 bushels of grain, and the total receipts were over twenty-four and a half millions. Six years ago she had only a single railroad some twenty miles long entering the city; now there are 3676 miles completed and in operation, and the earnings of these lines for the last year amount to the enormous sum of $17,343,242. The increase of earnings during the year 1856 is over four millions of dollars. More than a hundred trains of cars arrive and depart daily. The trade in lumber exceeds by far that of any other city in the world, amounting to 456,673,169 feet. Ten years ago the manufactures were in their infancy, and were scarcely worthy of commendation. In 1856 the capital invested amounted to $7,759,400, and the value of manufactured articles to more than *fifteen millions and a half of dollars.* Six years ago Chicago was reproached as being a city of wooden shanties; last year she invested in magnificent stores, many of them with superb marble and iron fronts, elegant palatial residences and other improvements, $5,708,624. And wonderful as has been the progress of the city, it has not been able to keep pace with the improvements of the country by which it is surrounded.

The statistics of the movement of population westward show that people enough found their homes west of Chicago during the year 1857 to form two entire States. Nor is this a movement of mere human bone and muscle; it is a concentration upon the rich rolling prairies and amid the beautiful groves of a vast host of active, vigorous, intelligent men, who plant schools and churches wherever they settle, and bring with them all the elements of an enterprising Christian civilization—a deep, controlling, ever-abiding reverence for liberty and for law. They are laying the foundations for an empire of whose wealth, intelligence, and power, the sun in all his course has never seen the equal. Ere the next quarter of a century shall have rolled away, the beautiful valleys of the Upper Missouri, the Yellow Stone, the Platte, and the Kansas, ay, and even that of the Red River of the North, will all have been settled, and this ever-deepening current of emigration will meet an equally resistless stream from the Pacific coast, and roll back in mingling eddies from the summits of the Rocky Mountains. Fourteen States as large as Ohio, but on an average more wealthy and populous, will have grown up on the magnificent country between the lakes and the Rocky Mountains, and how many will repose upon the "Pacific slope" we dare not attempt to predict.

Chicory, or **Succory,** the wild endive, or *Cichorium Intybus* of Linnæus. This plant is found growing wild on calcareous soils in England, and in most countries of Europe. In its natural state the stem rises from one to three feet high, but when cultivated it shoots to the height of five or six feet. The root, which runs deep into the ground, is white, fleshy, and yields a milky juice. In Germany, the Netherlands, and France, chicory has long been extensively cultivated for the sake of its root, which is used as a substitute for coffee. When prepared on a large scale, the roots are partially dried, and sold to the manufacturers of the article, who wash them, cut them in pieces, kiln-dry them, and grind them between fluted rollers into a powder, which is packed up in papers containing from two ounces to three or four pounds. The powder has a striking resemblance to dark ground coffee, and a strong odor of liquorice. It is largely used in Prussia, Brunswick, and other parts of Germany; but as it wants the essential oil and the rich aromatic flavor of coffee, it has little in common with the latter except its color, and has nothing to recommend it except its cheapness. Chicory is now grown in Westchester county, New York.

Chili. The republic of Chili occupies that long strip of land which lies on the southwestern side of South America, extending from 24° to 55° 59′ S. lat.; and from 69° to 72° W. long. It is bounded west by the Pacific Ocean, and east by the Andes, by which it is separated from the Argentine Confederation. On the north, Chili is separated from Bolivia by the extensive desert of Atacama; and it extends southward to the extreme limits of that Archipelago which embraces all the islands between Chiloë and the Straits of Magellan. Reckoning its length from the desert of Atacama to Cape Horn, it comprehends 36 degrees of latitude. Its average breadth is only 150, and where greatest not more than 210 geographical miles. The superficial area of Chili is computed at 218,925 English square miles, which is about 3195 miles more extensive than that of France and Belgium together. Except where the Andes are intersected by ravines, which frequently change into vales or plains fit for cultivation, these mountains, with their parallel ranges and spurs, occupy a great part of its area. South of the Cuesta de Chacabuco there are extensive plains, broken only by a few ridges of hills; but the highlands are almost continuous from north to south along the coast of the Pacific.

Chili is rich in almost every class of metals; but the silver mines of late years have yielded enormous quantities of ore. The metals at present discovered are gold, silver, copper, lead, antimony, cobalt, zinc, nickel, bismuth, iron, molybdenum, and quicksilver; but the only ores which are worked are gold, silver, copper, and occasionally quicksilver. The latter will now be abandoned in consequence of the low price of mercury, caused by the quantity produced in California. The metals are found in all the series of rocks between granite and trachyte, in veins which generally run from north and northwest to south and southeast; in some places, however, their course is irregular, or they extend east and west. The auriferous veins run nearly parallel to the grain or imperfect cleavage of the surrounding granite rocks. Gold is found most abundantly in the beds of detritus, derived from the degradation of the upper portion of the rocks. Copper ores, containing a small quantity of gold, are generally associated with micaceous specular iron. In the hills of Altruc, about four leagues from Rancagua, in the province of Santiago, are the only gold mines worked with any spirit, excepting some new mines near Copiapo, and they are remarkable for the variety of minerals mixed with the gold, such as galena, blende, copper and iron pyrites, and peroxyd of iron. The substances are found disseminated in quartz veins, running nearly north and south. Near Illapel are some very poor gold mines, in the beds of the gypseous formation, in altered feldspathic clay-state, which alternate with purple porphyritic conglomerate.

Until 1832, the only silver mines in Chili were those of Dehesa, San Francisco, San Lorenzo, Sema and San Pedro Nolazco, in the province of Santiago, and Arqueros mineral district, about 17 leagues from Coquimbo; but these mines now produce very little silver, and are nearly abandoned for the rich silver mines in the province of Atacama, near to Copiapo. Within a circuit of 25 leagues from Copiapo, there are 19 silver mineral districts; the richest are Chañarcillo and Tres Puntas. In Chañarcillo the upper part of the mines produces native silver, iodid, and bromid, associated with chlorid of silver and carbonate of lead. In the "Colorado" mine of Chañarcillo, embolite with native silver is occasionally found. In the mine of San Antonio, in the same district, is found bismuthic silver ore, combined with native silver, copper, and arsenic. As the mines become deeper, the silver ores are changing principally into what the natives call "metales frios" (cold ores); these contain different proportions of antimony, sulphur, and one sort a little arsenic. The dark-red silver ore is a pyrargerite, containing sulphuret of silver and antimony, with sometimes a little arsenic. The gray ore contains silver, arsenic, and antimony. Of these two sorts upward of 5000 tons were exported to England during 1852, as the natives are unable to extract the silver by the usual plan of amalgamation adopted with the other ores. The export of the "metales frios" to England will in a great measure cease, as an English establishment is forming at Caldero, the port of Copiapo, to treat them on an improved plan. Some of the mines in Chañarcillo yield nearly pure silver; the most productive are in the hands of four or five large capitalists. The ground near some of the richest mines is sometimes sold at enormous prices, the price being in some regulated by the probability of the rich veins of metal running into it. In Copiapo a regular traffic is carried on in buying and selling "barras" (a 24th part) in different mines.

A railroad runs from Caldera to Copiapo, a distance of 54 miles, which is to be continued on to Chañarcillo, about 50 miles from the city; and a tram-road is projected to the rich mineral district of Tres Puntas (8400 feet above the sea), which, when completed, will enable the miners to send down the poor silver ores which they now throw away. The commerce of Chili has vastly increased since the time when the country lay torpid under the yoke of Spain. As soon as it had recovered from the unsettled condition caused by the revolution, business of all kinds acquired new energy, and the trade, freed from its oppressive restrictions, extended to the larger ports of the United States and Europe. A few years were sufficient to show a large increase in its export and import trade, and Valparaiso soon became a flourishing port.

The precious metals are the most valuable exports from Chili. While obtaining annually from her mines metal to the amount of £1,500,000, she exported in the year 1851 gold to the value of £59,950, silver to the value of £709,467, and copper to the value of £414,503. Flour, wheat, barley, and biscuits figure largely in her exports, but with considerable variations in amount. In 1850 there were shipped more than 68,000,000 lbs. of flour; in 1851, 44,000,000; and in 1852 only 41,000,000. Above 62,000 quarters of wheat were exported in 1850; in 1851 the quantity was 26,470; and in 1852, 55,570 quarters. In barley, however, there has been a considerable increase. From 37,750 quarters in 1850, it rose to 96,190 quarters in 1852. The increased export of wheat and flour in 1850 arises from the extensive shipments made in that year to California.

In the latter half of 1852 the exports of wool amounted in value to £32,330, pulse to £26,808, coal to £13,970, hides and skins to £3762, guano to £5562, and charqui or jerked beef to £6393. Among the minor articles of export are figs, dried peaches, walnuts, Cayenne pepper, wine, brandy, bones, horns, hoofs, leather, ham, fat, cheese, butter, rags, and timber.

In return for her various exports Chili receives from England cotton goods, from France silks and various articles of luxury, and from other countries a variety of articles for domestic use. Chili has reciprocal treaties of commerce with Austria, Brazil, Belgium, Bremen, Sardinia, Denmark, France, Great Britain, Prussia, Sweden, Norway, Tuscany, Hamburg, Lubeck, Oldenburg, the United States, Peru, Ecuador, and the Sandwich Islands. Her commercial relations are most extensive with Great Britain and the British colonies, the imports into Chili amounting in 1852 to £1,159,613, and the exports to £1,093,772. Next in importance is the trade with France, the United States and California. With the other republics of South America her commercial transactions, which were once considerable, appear to be on the decline.

In 1851 several important restrictions were removed from the customs code of Chili, which had been only partially modified in 1834. The exportation of national produce was then declared free in principle, but a small duty was to be maintained for a short time upon a very few articles. All imports, with the exception of iron, steel, zinc, cotton, mercury, coal, agricultural tools, surgical instruments, and books, are liable to a moderate duty. Jewelry pays 2 per cent.; horses, mules, and dried fruit, 6 per cent.; shoes, linen stuffs, furniture, and articles used only by the wealthy, 30 per cent. The duty on white wine is reduced to 10 reals per dozen, and on red to 8 reals. Teas pay 2 reals the pound. Grain of all kinds is subject to a movable tariff. As long as the price in the home market does not exceed 16*s*. 8*d*. the fanega of 150 lbs., foreign grain pays an import duty of 12 reals the fanega; but if the price rises to 20 shillings, the duty falls to 8 reals, and if it exceeds 25 shillings the import duty ceases altogether. Many of the merchants of Valparaiso are desirous of the complete abolition of all restrictive duties; but government will probably delay any further steps in this direction until the advantage of the reform already made has been tested by further experience. The effect of this legislation, introduced under the administration of General Bulnes, has hitherto been to increase the revenue.

The weights and measures of Chili are the same as those used in Spain; but according to the decree of January, 1848, those of France are to be substituted in January, 1858. The largest dry measure of capacity is the fanega, which is subdivided into twelve *almuds*, and contains 5,430,626 cubic inches. The usual corn measure is the half fanega, which is a long parallelopipedon having one of its narrow sides trapezoidal. The imperial bushel contains 2,218,274 cubic inches, so that the fanega of Chili is to the former as 2·448 to 1. The average weight of a fanega of wheat is 157 lbs.

The old table of long measure is divided into lineas, pulgadas, pies, varas, and cuadras, or lines, inches, feet, yards, and quadras. Corresponding exactly in value to Troy weight there are the Spanish granos, onzas, and libras—or grains, ounces, and pounds; and to avoirdupois weight, onzas, libras, and quintales, or cwt. In liquid measure the English quart is equal to 1·022 Spanish cuartillo, and the imperial gallon to 4·089 cuartillos. Gold is bought by the castellano or marco. Its relative fineness is expressed by quillates or carats, four granos or grains making one quillate. The weight of the marco is equal to 4800 Spanish grains, or to 7 oz. 7 dwt. and 22 gr. English Troy weight. The standard fineness of gold is 21 quillates. The relative fineness of silver is expressed by dineros, the dinero being equal to 24 granos; and the standard fineness of that metal is 10 dineros and 20 granos. The old gold coins are the ounce, equal to 17 dollars 2 reals, £3 9*s*. sterling money; the half ounce, equal to 8 dollars 5 reals, £1 14*s*. 6*d*.; the quarter ounce, equal to 4 dollars 2½ reals, 17*s*. 3*d*.; and the escudito, equal to 2 dollars 1¼ real, 8*s*. 7½*d*. Among the silver coins, besides the real, whose value is 6*d*., there are now pieces representing various values, expressed in centavos, a copper coin, of which one hundred make a dollar. There are silver pieces of 5, 10, and 20 centavos. One of 50 centavos is equal to half a dollar, or 2*s*. English money. The new gold and silver coins contain nine-tenths of pure metal, and one-tenth of alloy. The copper coins are quite pure, containing no alloy. Their names, value, and weight may be most conveniently represented by means of the following table:

		£	*s*.	*d*.	Spanish Granos.		French Grammes.
Gold Condor............	=	2	0	0	305·540	or	15·253
Gold Doblon.............	=	1	0	0	152·770	"	7·676
Gold Escudo.............	=	0	8	0	61·108	"	3·071
Silver Peso..............	=	0	4	0	500·768	"	25
Silver Medio peso.........	=	0	2	0	250·384	"	12·500
Silver Quinto............	=	0	0	9⅗	100·153	"	5
Silver Décimo............	=	0	0	4⅘	50·076	"	2·500
Silver Veinteno..........	=	0	0	2⅖	25·038	"	1·250
Copper Centavo..........	=	0	0	0·48	200·307	"	10
Copper Medio centavo....	=	0	0	0·24	100·153	"	5

The communication between the several towns of Chili is now greatly facilitated by roads, railways, and steam-vessels. The excellent road from Santiago to Valparaiso was constructed at a great cost by General O'Higgins, when President of the republic. A road, generally kept in good repair, connects the towns of Atacama and Concepcion. By far the most pleasant for the traveler is that by which Santiago and Talca are united. A railroad has been already established between Copiapo and Caldera; and in 1852 the President, M. Montt, laid the first stone on the line (about 90 miles in length) between Santiago and Valparaiso, and it is now rapidly advancing to completion. When finished it will be the most extensive work of the kind in South America. Proposals for railways from Serena to the sea, from Copiapo to Tres Puntas, and from Concepcion to Talcahuano, have also been laid before Congress. A line of electric telegraph has also been established between Valparaiso and Santiago.

The revenue of Chili is in a very prosperous condition, exhibiting a surplus of receipts over expenditure in the returns of several years. In 1845 the revenue amounted to £1,083,169 13*s*., leaving, after the necessary outlay, a surplus of £410,215. In 1849 the revenue, including the surplus from 1848, was £1,352,210. The surplus of 1849 was £57,048, which, together with the receipts of 1851, amounting to £885,381 8*s*., were entirely swallowed up during the revolution of the latter year. With the restoration of peace in 1852, the revenue rose to £1,096,096, which, with the sum of £24,000 paid by Peru as interest for its debt, gives an increase of £234,714 12*s*. over the income of the preceding year.

TABLE OF REVENUE FOR 1852.

Customs...........................	£695.067	14	0
Government monopolies...........	156.672	10	0
Licenses...........................	11.155	12	0
Stamp paper.......................	12.887	7	0
Tithes.............................	105.388	2	0
Mint...............................	19.420	6	0
Post-office........................	14.065	14	0
Peaje..............................	12.582	16	0
Auction-houses....................	1.212	14	0
Catastro...........................	19.724	10	0
Alcabala...........................	39.587	14	0
	£1.120.096	0	0

The catastro is a duty of 5 per cent. levied upon the sale of lands. The alcabala is a duty of 4 per cent. on the sale and exchange of immovable property, and of 2 per cent. on the sale of mines. Peaje consists of tolls and pontages, and is levied on cattle, mules, vehicles, etc.—E. B.

In 1835, the exclusive right of steam navigation between the ports of the republic was granted to a company, which commenced its operations in 1840. A similar privilege was afterward extended to the same company by the governments of Peru, Ecuador, and New Granada. The communication between England and Chili is maintained by way of the Isthmus of Panama. Steamers sail between England and Chagres, from which by traveling across the isthmus the Pacific is reached in about four hours, and the remainder of the journey continued in steam-vessels. The voyage from England to Chili by this route occupies about forty or fifty days; while the voyage from the United States to Chili requires about thirty days.

Commerce of the United States with Chili, from October 1, 1824, to July 1, 1856.

Year ending September 30.	Exports.			Imports.	Whereof there was Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
1825......	$454.254	$467.184	$921,438	$229,509	$88,760	$46.306	7,207	....
1826......	512,659	934.848	1,447,498	629,949	59,100	251,774	6,798	....
1827......	1,040,748	661.853	1,702,601	184,693	20,781	95,502	12,664	....
1828......	1,519,978	1,109,424	2,629,402	781,863	....	330,803	19,338	....
1829......	890.356	530,778	1,421,134	416,118	....	153,850	9,079	....
1830......	915.718	620,396	1,536,114	182,585	....	1,569	12,287	....
Total...	$5,333,704	$4,324,483	$9,658,187	$2,424,717	$168,641	$879,804	67,373	....
1831......	$849,493	$518.662	$1,368,155	$413,758	$21,362	$91,694	11,145	....
1832......	579.370	641.749	1,221,119	504,623	100,762	37,483	8,105	....
1833......	730.140	733,800	1,463,940	334,130	....	97.559	8.590	....
1834......	714,407	761,948	1,476,355	787,409	361	385.531	8,550	641
1835......	586.188	355.696	941.884	917,095	....	415.150	6,089	....
1836......	582.866	355,051	937.917	811,497	....	203.980	5.837	81
1837......	1,092.359	395.440	1,487,799	1,180,156	1,580	550,017	6,944	....
1838......	1,047,572	322.692	1,370.264	942,095	....	262,033	6,265	....
1839......	1,307,143	487.410	1,794.553	1,186,641	....	134,603	8,683	241
1840......	1,372,254	356.575	1,728,829	1,616,859	....	480.536	7,414	....
Total...	$8,861,792	$4,929,023	$13,790,815	$8,694,263	$124,065	$2,658,584	77,502	963
1841......	$846.410	$256,578	$1,102,988	$1,230,980	....	$346,496	5,962	991
1842......	1,270,941	368,735	1,639,676	831,039	$800	30,520	7.092	694
1843*.....	869.883	179.580	1,049,463	857,556	....	98,680	5,378	....
1844†.....	856.645	248.576	1,105,221	750,370	....	185,817	7,247	....
1845†.....	1,247.360	300.831	1,548,191	1,123.690	....	66.085	8,273	....
1846†.....	1,539,136	229.434	1,768,570	1,275,960	....	111,929	8,649	1,452
1847†.....	1,461,347	210.263	1,671,610	1,716,903	....	70,112	7,185	1,077
1848†.....	1,703,625	220.886	1.924,511	1,310,451	....	20,593	10,465	366
1849†.....	1,722,457	294.643	2,017,100	1,817,723	....	170,462	25,936	1.351
1850†.....	1,297,133	125.588	1,422,721	1,796,877	....	119.057	41,279	25,383
Total...	$12,814,937	$2,435,114	$15,250,051	$12,711,549	$800	$1,228,751	127,466	31,314
1851†.....	$1.608.877	$286.428	$1,895,305	$2,734,746	$3,000	774	48.140	41,657
1852†.....	2,043,836	295.297	2,339,133	2,062,160	17.250	32,723	21,386	23,402
1853†.....	2,157,320	169.117	2,326,437	2,214,252	30.000	12,318	23,488	38,665
1854†.....	1,942,330	250,929	2,193,259	3,332,167	6,570	22.805	22,371	22,403
1855†.....	2,994,231	432,026	3,426,257	3,518,896	13,166	11,708	21,667	10,109
1856†.....	2.591.354	276.389	2,867,743	2,467,819	10,000	....	22,477	4,778

* 6 months to June 30. † 1 year to June 30.

Chillies (Hind. *Gas Murridge;* Javan. *Lombok;* Malay *Chabai*), the pods or fruit of the *Capsicum annuum*, or Guinea pepper. This is one of the hardiest and most productive plants found in tropical climates; growing luxuriantly in almost all dry soils, however indifferent. In the wild state the pods are small, and so pungent and acrid as to blister the tongue; but when raised on rich soils, they are large and comparatively mild. The plant is said to be a native of both Indies. It is very extensively cultivated; and, with the exception of salt, it is far more extensively used than any other condiment. In tropical countries, the pods are frequently made use of when unripe and green; when ripe, they become of a deep red color; and in that state they are exported dry and entire, or reduced to powder.—*See* Cayenne Pepper.

China. The conterminous empires of Russia and China occupy between them about one-fifth part of the habitable globe, in pretty nearly equal portions; but the population of the latter is about four times greater than that of the former, even after including its recent annexation of Poland. We can easily trace the boundaries and mark the extreme limits of these two great empires, by parallels of latitude and meridional lines of longitude; but when we come to reduce them to square miles, or speak of their contents in acres, the mind is bewildered by the magnitude of the numbers required to express them, and forms but an indistinct idea of their superficial extent.

No country in the world is better adapted, from situation, climate, and products, for extensive commerce, than China; yet no civilized country has profited less by these advantages. The happy distribution of its numerous rivers, aided by artificial canals, affords an almost uninterrupted water communication from the northern to the southern, and from the western to the eastern extremities of this grand empire; and thus a facility is given for the interchange of the products of one province with those of another, unknown in any other country, and unequaled even in Great Britain. The multitudes of barges of different sorts and sizes, which vary in their construction on almost every river, are incredible. The Chinese are rarely to be trusted where numbers are concerned; but they are probably not far amiss in stating that the number of imperial barges employed in the grand canal and its lateral branches, for the purpose of collecting and distributing among the public granaries the rice and grain paid in kind as taxes, amounts to 10,000, or, as they express it, where they mean to be correct, to 9999. A vast number of vessels are also employed in conveying the copper currency from place to place, wherever it may be wanted; others in collecting the silks, cottons, and various articles of taxes, paid in kind, and depositing them in the public magazines; and the salt barges alone are probably not less numerous than those which carry grain. It was calculated that the dépôt of salt accumulated at Tien-sing for the use of the capital and the northern provinces was sufficient for a year's consumption for thirty millions of people. This was all brought up in the course of the summer, from the sea-coast of Tche-kiang and Fokien, in sea-going vessels. Cakes of coal-dust and turf, for fuel, and cakes made up of various ingredients for garden manure, employ a multitude of barges; and when to these are added the various kinds of vessels employed in general commerce, in the conveyance of passengers, and in the fisheries of the interior, we may be sure that the number of persons who constantly reside upon the water amounts to many millions.

Commerce of the United States with China, from October 1, 1820, to July 1, 1856.

Year ending September 30.	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
1821......	$388,535	$3,902,025	$4,290,560	$3,111,951	$3,391,487	....	6,040	....
1822......	429,230	5,506,138	5,935,368	5,242 536	5,075,012	$500	8,185	....
1823......	288,375	4,347,686	4,636,061	6,511,425	3,584,182	22,036	9,478	....
1824......	330,466	4,970,705	5,301,171	5,618,502	4,463,852	....	9,563	....
1825......	160,059	5,410,456	5,570,515	7,533,115	4,523,075	....	8,667	....
1826......	242,451	2,324,193	2,566,644	7,422,186	1,651,595	....	4,956	....
1827......	290,862	3,573,543	3,864,405	3,617,183	2,524,818	....	8,950	....
1828......	230,385	1,252,417	1,482,802	5,339,108	454,500	24,390	5,664	....
1829......	260,759	1,094,103	1,354,862	4,680,847	601,593	....	6,351	....
1830......	156,290	585,903	742,193	3,878,141	79,984	9,194	3,564	....
Total...	$2,777,412	$32,967,169	$35,744,581	$52,954,994	$26,350,098	$56,120	69,365	....
1831......	$244,790	$1,046,045	$1,290,835	$3,083,265	$367,024	....	5,061	....
1832......	336,162	924,360	1,260,522	5,344,907	452,119	$25,932	7,252	....
1833......	537,774	895,985	1,433,759	7,541,570	290,456	6,400	9,365	....
1834......	255,756	754,727	1,010,483	7,892,327	378,830	....	8,123	....
1835......	335,868	1,532,712	1,868,580	5,987,187	1,391,666	....	7,104	....
1836......	341,563	852,701	1,194,264	7,324,816	413,661	50	5,662	....
1837......	318,973	311,618	630,591	8,965,337	155,060	....	8,793	....
1838......	655,581	861 021	1,516,602	4,764,536	728,661	4,000	7,314	....
1839......	430,464	1,103,137	1,533,601	3,678,509	992,563	....	6,419	....
1840......	469,186	540,780	1,009,966	6,640,829	477,003	....	5,760	....
Total...	$3,926,117	$8,823,086	$12,749,203	$61,223,223	$5,646,983	$36,382	68,376	....
1841......	$715,322	$485,494	$1,200,816	$3,095,388	$426,592	$485	4,876	....
1842......	737,509	706,888	1,444,397	4,934,645	606,714	....	7,259	364
1843*.....	1,755,393	663,565	2,418,958	4,385,566	571,660	....	13,532	....
1844†.....	1,110,023	646,918	1,756,941	4,931,255	566,955	....	15,035	....
1845†.....	2,079,341	196,654	2,275,995	7,285,914	158,860	27,107	17,477	....
1846†.....	1,178,188	153,553	1,331,741	6,593,881	112,574	....	13,697	....
1847†.....	1,708,655	124,229	1,832,884	5,583,343	33,308	....	12,364	....
1848†.....	2,063,625	126,388	2,190,013	8,083,496	72,013	....	17,150	....
1849†.....	1,460,945	122,279	1,583,224	5,513,785	9,967	....	11,740	....
1850†.....	1,485,961	119,256	1,605,217	6,593,462	25,000	....	17,800	3,106
Total...	$14,294,962	$3,345,224	$17,640,186	$57,000,735	$2,583,643	$27,592	130,930	3,470
1851†.....	$2,155,945	$329,342	$2,485,287	$7,065,144	$147,475	....	46,317	10,198
1852†.....	2,480,066	183,111	2,663,177	10,593,950	19,728	$281	67,264	21,507
1853†.....	3,212,574	524,418	3,736,992	10,573,710	489,344	....	66,041	24,868
1854†.....	1,293,925	104,163	1,398,088	10,506,329	155,588	108,174	68,658	18,547
1855†.....	1,533,057	186,372	1,719,429	11,048,726	674,983	....	101,660	15,768
1856†.....	2,048,244	509,993	2,558,237	10,454,436	633,592	1,000	85,438	10,467

* 6 months to June 30. † 1 year to June 30.

All foreign commerce is systematically discouraged. The extent, fertility, and variety of their soil and climate, happily situated between the extremes of heat and cold, partaking of the advantages of both, without experiencing the inconveniences of either, supply the Chinese with the productions of almost all the world besides, whether to minister to the necessities, the comforts, or the luxuries of their numerous population; and leave this great empire, as a nation, almost independent of foreign supplies through the medium of commerce. Satisfied, or affecting to be satisfied, with the prodigal bounty of nature, jealous of strangers, and governed by a gradation of arbitrary despots, the Chinese long considered it as a favor bestowed on foreigners to open any of their ports for the interchange of commodities. The revenue derived from this limited intercourse was of little or no importance at the chief seat of government.

A very extensive intercourse is carried on by them with Japan, the Philippine Islands, Java, Sumatra, Timor, Gelolo, and the great island of Borneo, in all of which are found multitudes of Chinese, living in habits of peaceful industry, in the midst of the more idle and less civilized natives, conducting the concerns of trade, cultivating the ground, and exercising all the various branches of the mechanical arts; in no place, however, varying in the smallest degree their original character. But though the Chinese spread themselves over every part of the Asiatic, and into many of the Polynesian islands, there seems to be no reciprocity of commerce by the vessels of those countries visiting the ports of China, excepting some ten or twelve junks that annually visit the southern ports of Fokien from Japan, and perhaps as many from Cochin China. "From Canton," says Lord Macartney, "to Ten-chou-foo, at the entrance of the Gulf of Pe-tche-lee (to say nothing of the country within the Gulf itself), is an extent of coast of near two thousand miles, indented with innumerable harbors, many of them capable of admitting the largest European ships, and all of them safe and sufficiently deep for the vessels of the country. Every creek or haven has a town or city upon it; the inhabitants, who abound beyond credibility, are mostly of a trafficking mercantile cast, and a great part of them, from their necessary employment in the fishery, which supplies them with a principal article of their subsistence, are accustomed to the sea, and the management of shipping." From Java alone they import birds' nests to the value of half a million dollars annually; the sea-slug or biche-de-mer (*holothuria*), from the coast of New Holland, Timor, and adjoining islands, to a still greater extent; sharks' fins from the same quarter; copper from Japan, and tin from Bantam; pepper, areca-nut, spices of different kinds, ebony, sandal-wood, red-wood for dyeing, tortoise-shell, pearl-shell, coral, camphor, wax, and a variety of articles, generally produced or collected by their own countrymen resident in the islands of the East.

The Chinese levy no specific duties on the articles imported, nor *ad valorem* duties on the cargoes; the only impost is on the ship itself, and is estimated by a rule as absurd as it is partial and unequal. They measure the length from the centre of the foremast to the centre of the mizen-mast, and the breadth is taken close abaft the mainmast. The length is then multiplied by the breadth, and the product, divided by ten, gives the measurement of the ship. All ships, according to this measurement, are classed under first, second, or third rates; all other vessels, however small, are classed as third-rates. By this rule a ship of a hundred tons would pay from $4000 to $5000, and a ship of a thousand not above double that sum.

Revenue.—To ascertain exactly or even approximately the revenue of the Chinese Empire is almost impossible. In 1587, Trigault, a French missionary, stated it at 20,000,000 taels—the tael being equal to about 5s. 6d. English, or $1 25 United States currency.

In 1655, Nieuhoff estimated it at 108,000,000 taels. Twelve years later, Magelhaens reckoned it at about £4,000,000 sterling. In 1721, it was calculated to have risen to £10,000,000 or £14,000,000 sterling. Toward the close of the eighteenth century it was given by Sir George Staunton at £66,000,000; of which sum, however, little more than a fifth was transmitted to Pekin. According to the Chinese constitution each province is obliged to support itself, and to transmit a certain surplusage for the maintenance of the Emperor and his court. The manner in which the items of the revenue are divided are thus stated by De Guignes, the last authority on this subject:

	Taels.
Income in money	27,967,000
Equal revenue in kind from grain	27,967,000
Tax on the second crop in the southern provinces.	21,800,000
Gabel, coal, transit duties.	6,479,400
Customs at Canton	800,000
Revenue from silk, porcelain, etc.	7,000,000
Taxes, licences, tonnage duties.	4,000,000
Total	89,713,400

Till within a few years ago, Canton was the principal mart for foreign commerce, and was in fact the only port open to foreigners. In virtue of the treaties, however, concluded at the termination of the war with England, four additional ports have been thrown open, viz., Shanghai, Ningpo, Foo-chow, and Amoy. Under the respective heads of these articles will be found detailed accounts of the exports and imports of the districts in which they are respectively situated. The foreign commerce of China, as more fully detailed below, may be roughly estimated at between 20 and 25 millions sterling. This, however, bears a very small proportion to the inland trade. It has been asserted that there is a greater amount of tonnage belonging to the Chinese than to all the other nations of the world combined; and from the length and number of the canals, and the myriads of boats necessary for carrying on the enormous inland trade of the empire, it is believed that this statement is not very wide of the truth.

The mode of conducting the trade is fully described in the *Chinese Commercial Guide*, where the forms of custom-house blanks are given both in English and Chinese. The foreigners themselves employ clerks called *linguists* to transact their business, and these linguists act also in many transactions as brokers. Every Chinese who intends to engage in trade in this capacity, or as a trader, previously learns to speak English by studying manuscript vocabularies in which the English sounds of words and phrases are written underneath in the Chinese character, the student obtaining the assistance of more advanced scholars to correct his pronunciation. The idioms of the English learned in this *viva voce* manner are chiefly Chinese, which explains the inverted arrangement of sentences in the Canton English, as this jargon is called, and the utter disregard paid to gender, number, person, time, and other proprieties considered of importance in most languages. The whole trade is conducted in this meagre gibberish, which the natives, however, suppose to be as copious and correct as foreigners themselves speak, but which hardly serves even the common purposes of trade and household need, much less enables the two parties to exchange ideas upon recondite subjects. Much of the misunderstanding and trouble experienced in daily intercourse with the Chinese is doubtless owing to this imperfect medium, for they seldom take the trouble to ascertain if their idea of what is told them is the correct one; and mutual vexation and ill-will arise, when one party finds his orders to have been heedlessly performed, and the other that his efforts to please have only earned maledictions instead of commendation. These petty annoyances have also had more serious results in strengthening the national dislikes, and still farther separating those who originally intended, perhaps, to endure each other only so long as they could make gain thereby.

The total amount of the exports and imports of the five towns now open to foreign commerce is given in the subjoined table for 1845:

Canton	Imports in vessels of all nations	£3,046,942
	Exports in vessels of all nations	6,622.726
Amoy	Imports in British vessels	147,494
	Exports in British vessels	154,781
Ningpo	Imports	18.000
	Exports	19,000
Foo-chow	Imports	100,000
	Exports	85,000
Shanghai	Imports	1,223,980
	Exports	1,347.052

The contraband trade in opium is estimated to amount to upward of 40,000 chests, at a sale price of nearly £5,000,000 sterling, which with the pearls, gold and silver ware, precious stones, and other articles smuggled, will swell the total of the foreign trade to about £21,000,000 sterling annually, exclusive of the Russian trade at Kiakhta. The consumption of tea in England is about 60,000,000 of pounds annually; in the United States it is about 20,000,000; in the Netherlands, 2,000,000; in Russia, 5,000,000; in Germany, 3,000,000; in New South Wales, 4,000,000; in Spain and France, 3,000,000. The aggregate consumption of tea in China itself has been estimated, though not on very good authority, at about 700,000,000 of pounds. The prospects of the rapid extension of the foreign trade with China are not very promising, except in a few articles. The raw produce furnished from that country is very trifling, silk and alum being the chief, and there is in the mean time little prospect of any great increase in the exportation of her manufactured articles, except tea and silk goods. The opium trade has been for many years between three and four millions sterling in excess of the regular exchange of commodities, and the drainage of the country for this balance will probably go on as long as the taste for this pernicious narcotic continues, or there is any specie to pay for it. To legalize the opium trade would make no material difference in the exportation of specie, as long as the balance of imports so greatly exceeds the exports. England may make every effort to supply China with her manufactures, but so long as the Chinese furnish so little that she wants beyond a supply of tea, it is difficult to perceive with what they are to pay for all the cottons and woolens they may be expected to buy.

The Chinese appear to have no regular established system of credit among themselves, and the only circulating medium in the shape of coin is a small piece of base metal (copper, tin, or lead mixed), of the value of the one-thousandth part of six shillings and eightpence, of little more intrinsic value, in fact, than a cowrie-shell, which the Chinese, as well as the Hindus, would seem once to have used; as the same character in their language which signifies a *shell* signifies also money and wealth, and it enters into the composition of characters which represent *buying*, *selling*, *paying*, *etc.* Silver in small ingots is used in commerce, but they have no determinate value, the price fluctuating with the demand, as in other articles of commerce. The high rate of interest operates as a discouragement to mercantile speculations, and the rigor of corporal punishment is added, with the view, as it would appear, of deterring the most hardy speculator. The law says, "whoever shall lend either money or goods, shall only receive three parts in the hundred per month," and that "how much soever may be suffered to accumulate, the capital shall remain the same." It is lent from month to month, and if the lender should complain of the interest not being punctually paid, the borrower is subject to the punishment of ten stripes of the bamboo the first month, twenty the second, and so on. The legal rate of interest, however, is seldom paid, and in large transactions among business men it is from 12 to 15 per cent. per annum. The borrower makes a special agreement with the lender for a rate of interest varying between these two sums.

On the 29th August, 1842, a treaty of peace was signed before Nankin, on board of the *Cornwallis*, by Sir Henry Pottinger on the part of Great Britain, and by Ke-ying, Elepoo, and Niu-kien, on the part of the Emperor of China. The most important provisions of the treaty were, lasting peace and friendship between the two empires; China to pay twenty-one millions of dollars during that and the three succeeding years; the ports of Canton, Amoy, Foo-chow, Ningpo, and Shanghai, to be thrown open to foreign trade; consular officers to be appointed by foreign powers to reside at these places; regular and just tariffs of import and export and inland transit dues to be established and published; the island of Hong Kong to be ceded in perpetuity to her Britannic majesty, her heirs, and successors; and correspondence to be conducted on terms of perfect equality between the officers of both governments. To this important treaty the emperor signified his assent on the 8th of September, and on the 31st of December it was ratified by the British government. In June, 1843, the ratifications were exchanged at Hong Kong, which was then taken possession of by proclamation, and the functionaries of government appointed.

The announcement of the treaty of Nankin excited considerable sensation in Europe and America, chiefly in the commercial circles; and agents were sent to China from the governments of Belgium, Holland, Prussia, Spain, and Portugal, and most of them had interviews with Ke-ying at Canton before he returned to court. France and the United States of America sent embassadors extraordinary to the court of Pekin, but neither of them went farther than Canton. Ke-ying having been reappointed commissioner for the purpose, a treaty was signed between China and the United States, embodying all the important stipulations of the treaties and commercial regulations agreed to with England, and providing further for the erection of hospitals, chapels, and cemeteries at the five ports; for permission to ships of war to visit any part of the coasts of China; and for the extension of these privileges to all nations. The ratifications of this treaty were exchanged on 31st December, 1845. The French embassador having also arrived at Canton, and entered into negotiation with Ke-ying, a treaty was concluded between them at Whampoa on the basis of that of the United States.

Their naval architecture wears the stamp of great antiquity, and is exceedingly grotesque. They have, in fact, made little progress in maritime navigation, from the inveterate dislike of the government to all foreign intercourse, and to all innovation. The very same kind of vessels as those described by Marco Polo at the port nearest to Pekin, in the thirteenth century, were found without variation by Lord Macartney, five hundred years afterward, and accurate to the Italian's description, even to the number of compartments into which the hold of each vessel was divided. They had anchors of wood, and ropes and sails of bamboo. The boats and barges for internal commerce and communication are very varied, generally commodious, especially the passage-boats on the grand canal, and all of them suited to the depth and velocity of the stream, and the width of the locks and flood-gates of the respective canals and rivers which they are intended to navigate. These vessels are so numerous as almost to supersede the necessity of land-carriage; and the most common and convenient mode of traveling in China is in barges, which are generally provided with cabins for sleeping, and a kitchen and utensils for cooking victuals. Their military navy is unworthy of the name. It consists of a flotilla, whose principal occupation is that of conveying soldiers where they may be wanted, and looking after pirates and smugglers. An English frigate would beat the whole naval force of China.—GROZIER, DU HALDE, BARROW, DE GUIGNES, etc.

The principal articles of export from China are tea and raw silk; and of these the following quantities have been exported during the ten years ending 1st July, 1853:

TEA EXPORTED FROM CHINA TO THE UNITED KINGDOM.

Year ending June.	Pounds.	Year ending June.	Pounds.
1844	50,613,600	1851	64,020,000
1845	53,570,200	1852	65,137,000
1846	57,584,600	1853	72,906,000
1847	55,365,000	1854	77,217,000
1848	47,694,000	1855	86,509,000
1849	47,242,000	1856	91,035,000
1850	53,261,000		

Thus, in the last seven years, the quantity of tea shipped from China to the United Kingdom has become nearly doubled, and, even compared with 1852, is nearly one half more. But, as we have already intimated, it is as important a question, as regards the exchanges with China, what progress has been made in the shipments to the United States. These have been as follows:

TEA EXPORTED FROM CHINA TO THE UNITED STATES.

Year ending June.	Pounds.	Year ending June.	Pounds.
1849	18,072,000	1853	40,974,000
1850	31,757,000	1854	27,867,000
1851	28,700,000	1855	31,515,000
1852	34,334,000	1856	40,246,000

From these two tables it appears that since 1849, only seven years ago, the quantity of tea exported from China to the United Kingdom and the United States has increased from 65,314,000 lbs. to 131,280,000 lbs. Since 1852 the increase has been from 99,471,000 lbs. to 131,282,000 lbs. Then as to silk: the entire exports from China to the United Kingdom, eleven years ago, amounted only to 10,727 bales. In the year ending June, 1848, there were 17,229 bales, since which time, particularly during the last four years, they have very rapidly increased. The following table shows the export in each year:

SILKS EXPORTED TO THE UNITED KINGDOM FROM CHINA.

Year ending June 30.	Bales.	Year ending June 30.	Bales.
1849	17,228	1853	25,571
1850	16,134	1854	61,948
1851	22,143	1855	51,486
1852	23,040	1856	55,489

IMPORTS OF SILKS INTO THE UNITED STATES.

Year ending June 30.	Piece Goods.	Sewing Silk.	Embroideries.	Raw.	Others.
1853	723,143	3,497	485,950	647,457	7,865
1854	1,065,510	2,553	174,556	748,457	29,420
1855	1,372,365	19,736	9,164	455,770	1,915

STATEMENT OF CHINESE PASSENGERS AND TONNAGE TO CALIFORNIA.

Years.	Vessels.	Tonnage.	Passengers.
1849	13	3,700	323
1850	22	7,708	447
1851	35	11,700	2,716
1852	84	43,144	18,434
1853	54	25,535	4,316
1854	52	28,021	15,063
1855	37	15,527	3,212
Total	297	135,335	44,511

STATEMENT OF EMIGRATION OF CHINESE TO THEIR OWN COUNTRY, AND TONNAGE EMPLOYED.

Years.	Vessels.	Tonnage.	Passengers.
1851	96	51,241	261
1852	120	72,596	2,056
1853	89	53,349	4,405
1854	113	85,698	2,086
1855	92	73,093	3,628
Total	510	335,977	12,436

China Porcelain. This manufacture is first mentioned in history in 1531: it was introduced into England in the sixteenth century. Porcelain was made at Dresden in 1706; fine ware in England, at Chelsea, 1752; at Bow in 1758; in various other parts of England, about 1760; and by the ingenious Josiah Wedgwood, who much improved the British manufacture, in Staffordshire, 1762 *et seq.*—HAYDN. *See* PORCELAIN.

China-root (Ger. *Chinawurzel*; Du. *Chinawortel*, Fr. *Squine, Esquine*; Sp. *Raiz China, Cocolmeca*; Arab.

Rhubsinie), the root of a species of climber (*Smilax China*, Linn.). It comes from the West Indies, as well as from China; but that from the latter is best. It is oblong and thick-jointed, full of irregular knots, of a reddish-brown color on the outside, and a pale red within; while new, it will snap short, and look glittering within; if old, the dust flies from it when broken, and it is light and kecky. It should be chosen large, sound, heavy, and of a pale red color internally. It is of no value if the worm be in it.—MILBURN'S *Oriental Commerce.*

Chints, or **Chintz** (Fr. *Indiennes;* Ger. *Zitze;* It. *Indiane;* Russ. *Siz;* Sp. *Chites*, *Zaraza*), a peculiar pattern upon printed calicoes, in which flowers and other devices are printed in five or six different colors, upon white and colored grounds. A good chintz pattern in fast colors is one of the most surprising and difficult efforts of the art. It was first manufactured in the East Indies, but is now largely manufactured in Europe, particularly in Great Britain.—*See* CALICO.

Chocolate (Du. *Chocolade;* Fr. *Chocolat;* Germ. *Schokolate;* It. *Cioccolata;* Port. *Chocolate;* Russ. *Schokolad;* Sp. *Chocolate*), a kind of cake or confection, prepared principally from the cacao-nut. The nuts are first roasted like coffee; and being reduced to powder and mixed with water, the paste is put into tin moulds of the desired shape, in which it speedily hardens, being, when taken out and wrapped in paper, fit for the market. Besides cacao, the Spanish use vanilla, sugar, maize, etc., in the preparation of chocolate. Chocolate was first introduced into Europe from Mexico about A.D. 1520. It was sold in the London coffee-houses soon after their establishment in 1650.—*Tatler.*

"Alike easy to convey and employ as an aliment, it contains a large quantity of nutritive and stimulating particles in a small compass. It has been said with truth that, in Africa, rice, gum, and *shea* butter, assist man in crossing the deserts. In the New World, chocolate and the flour of maize have rendered accessible to him the table-lands of the Andes, and vast uninhabited forests."—HUMBOLDT'S *Personal Narrative*, vol. iv. p. 234, Engl. transl.

Christiana, the capital of Norway, situated at the bottom of a fiord or gulf, in the province of Aggerhuus; in lat. 59° 55⅓′ N., long. 10° 48¾′ E. Population in 1845, 26,141. Christiana is about 60 miles from the open sea: the gulf is in some places very narrow, and its navigation somewhat difficult; but it is sufficiently deep for the largest vessels, having 6 or 7 fathoms water close to the quay. It is compulsory on all ships to take a pilot on board at the mouth of the bay. The trade of the town is considerable. The principal exports are timber and deals, which are largely imported into England; glass, particularly bottles; iron and nails, bones, smalts, oak bark, etc. Salted and pickled fish, one of the staple products of Norway, is principally exported from Bergen. The deals of Christiana have always been in the highest estimation—a consequence of the excellence of the timber, and of the care with which the sap-wood and other defective parts are cut away; and not, as Mr. Coxe seems to have supposed, of the skillful sawing of the plank. The saw-mills were formerly licensed to cut a certain quantity only, and the proprietors were bound to make oath that it was not exceeded.—COXE'S *Travels in the North of Europe*, 5th edition, vol. iv. p. 28. This absurd regulation no longer exists. There are far fewer restrictions on industry and commerce in Norway than in Sweden. In the former, manufactured goods are admitted on moderate duties, and are very generally made use of. The principal articles of import are colonial produce; iron and hardware; machinery; woollen, linen, and cotton goods; coals, butter, wine, brandy, etc.; corn is sometimes extensively imported.

Customs Regulations.—Within 24 hours after a vessel has got to her moorings, the master should deliver to the collector his general report as to ship and cargo, or present the requisite documents for having such report made out with the assistance of a ship-broker, whose services masters of foreign vessels can not entirely dispense with. On making this general report, the measuring bill is to be exhibited, and payment of the tonnage and other dues inward is to be made. If the ship have not been previously measured in Norway, and is, consequently, not provided with a Norwegian measuring bill, she is to be measured, to ascertain her burden in Norwegian commercial lasts, for the calculation of the tonnage duty. The general report having been made, the custom-house officers in charge of the vessel are furnished with the books for delivery, and the discharge of the cargo commences under their inspection; and the consignees may make their special reports under their responsibility and signature. If they are without precise information as to the contents of any or all of the packages or bales to their address, these bales or packages may, at their request, be opened in the presence of the officers before report is made. If a consignee omits availing himself of this permission, his pretending thereafter that more or other goods than he had ordered or been advised of have been sent to his address, will not be attended to. In the reports or entries is to be stated whether it is intended to pay the duties forthwith, whether the goods are intended for exportation, or whether they are to be landed. Prior to commencing loading outward, the master is to give verbal notice of his intention at the custom-house. If he have no Norwegian measuring bill, the vessel is to be measured. This being done, the shipper or shippers of the outward-bound cargo are each of them to make their special entries as to the quality, weight, and measure of the goods they mean to load. A copy of such entries is to be deposited at the custom-house, and the loading commences under the control of the officers. This applies to all mixed cargoes; but if the outward-bound cargo consist exclusively of wood, the shipper or shippers are only to notify that they intend loading wood, without specifying quantity, measure, etc., as the export duty on wood is charged according to the burden of the vessel. When the master clears outward, he produces the proper documents for showing the burden of his vessel, and to what port she belongs, and he is then, on proper application being made, provided with a pilot, who takes his vessel to sea.

Warehousing.—In Norway goods brought from abroad may be bonded or warehoused, with a view to their being again exported at some future period. Goods entered for home consumption may also be bonded for a certain period, in order to facilitate the payment of the duties. The former is called "*transit oplag;*" that is, depositing or warehousing goods for exportation, subject to transit duties only. The latter is called "*credit oplag;*" that is, warehousing or bonding on credit.

Transit Oplag.—Under this system goods from abroad may be warehoused for exportation free of import duty, paying on exportation a transit duty, which in most cases is 1-10th of what they would pay if entered for home consumption. If the goods are deposited in the custom-house warehouses, they lie free of rent or dues during 14 days, and if in private warehouses, under the key and seal of the customs, during six months. If they remain long, viz., beyond 14 days in the one, and beyond six months in the other case, they pay rent or dues equal to ⅛ of the transit duty per month; which, after the lapse of three months, as regards goods in the custom-house warehouses, is increased to ¼ of the transit duty per month.

Credit Oplag.—This system allows most goods imported from abroad to be placed in the owner's or importer's own warehouses, under his own lock, free of duty, for a given time, on his reporting to the customs, every three months, how much he has sold, otherwise consumed, or exported, and then paying the duty on such amount; the custom-house officers, who are bound quarterly to examine the goods, convincing themselves by ocular demonstration that no more is missing than the quantity reported to have been taken away. This credit on the duties in no case to exceed two years from the time the goods were imported.

By way of security for payment of the duties on which the credit is granted, government reserve to themselves, 1. Priority of mortgage on all the goods in question. 2. Priority, or first right, in the property, goods, and effects of every description belonging to the trader availing himself of this credit, in as far as such property is not previously legally mortgaged. 3. Liberty for the custom-house officers, when and as often as they shall deem it expedient, between the stated quarterly inspections, to look over the stock on hand, with a view of ascertaining whether there remains sufficient value for the duties; and if they see reason to doubt this, full right, in default of other satisfactory security being offered, to seize the stock, and to sell the whole, or as much as shall cover the duties. 4. In case of death or failure of the party, an equal right to sell forthwith the whole of his stock at public auction, and to retain as much of the proceeds as shall cover the duties; and in case of deficiency, an established claim for the remainder on the estate of the deceased or bankrupt, as the case may be. In charging the duties no allowance is made for waste or damage in the warehouses. The warehouse rent charged on goods bonded under the transit system, in the custom-house warehouses, is as follows:

On a quarter of wheat for the first 3 months	0	0·5538	per month
Afterward	0	1·1076	“
On a ton of raw sugar for the first 3 months	0	11·5384	per month
Afterward	1	11·0765	“

Money, Weights, and Measures.—In Norway there are no gold coins. The principal silver coin, called a species dollar, is divided into 120 skillings. There are also half species, or 60 skilling pieces; 1-5th species, or 24 skilling pieces; 1-15th species, or 8 skilling pieces; and what is denominated skillemynt, or small change—that is, 4 and 2 skilling pieces. The species dollar contains 390·58 English grains of pure silver, and is consequently worth 4*s.* 6½*d.* sterling, the par of exchange being four species dollars 42 6-17 skillings=£1. All Norway coins, except the small change, are alloyed with 1-7th copper, so that the species dollar weighs 448·38 English grains, and its divisions in proportion. Small change coins are alloyed with three times their weight of copper. There are one and two skilling pieces of copper.

Weights and Measures, same as at COPENHAGEN; which see.

Shipping Charges.—The various charges of a public nature payable by a ship of about 300 tons burden, entering the port of Christiana with a mixed cargo on board, unloading there, taking on board another cargo, and clearing out, are as follows:

	£	s.	d.
1. *Charges Inward.*—Pilotage from Farder, at the mouth of Christiana Bay, where all ships must take a pilot on board	2	2	2
Bill of health, assuming that the crew, including the master, consists of 14 persons	0	17	9
Tonnage dues and light money	9	16	9
Brokers' fees	1	5	4
	£14	2	0
2. *Charges Outward.*—Pilotage	0	9	2
Castle dues	0	1	7
Muster-roll of crew	1	0	5
Pale or stake money	0	3	2
Measuring bill	2	4	5
Charity chest	0	1	7
Tonnage dues and light money	10	11	1
Higholm light	0	0	9
Pilotage to Farder	1	16	8
Brokers' fees	1	18	11
	£18	6	11

N.B.—There is no difference between the charges on native ships in Norwegian ports and privileged foreign ships, that is, the ships of countries having reciprocity treaties with Norway; nor in the duties on goods imported by native ships and such privileged foreign ships. Great Britain is a privileged country.

The shipping of Norway has declined considerably of late years; a proof, if any such were wanting, of the groundlessness of the clamors kept up in Great Britain as to the supposed pernicious influence of reciprocity treaties on shipping.

Banking.—There are no private banking establishments in Norway; but there is a public bank, having its principal office at Drontheim, with branches at Christiana, Bergen, and Christiansand. It was established by a compulsory assessment in 1816. Its capital consists of 2,000,000 species dollars, in transferable shares, divided among those who were forced to contribute to its formation. These shares are now at a premium of 30 per cent. Its managers are appointed by, and are accountable to, the Storthing or Norwegian Parliament. It issues notes for 100, 50, 10, and so low as 1 species dollar. These notes should be payable in specie on demand; but they are at a discount of 35 per cent., and are paid by the bank at that rate. It discounts bills at two and three months date at 6 per cent. per annum; advances money on mortgage at 4 per cent.; and transacts the ordinary banking business of individuals. It does not allow interest on deposits.

Credit.—Goods are sold partly for ready money, and partly on credit, but principally the former.

Commission, etc.—The number of brokers in Christiana is limited to four. Commission on the sale of goods, 2 per cent., or, *del credere* included, 3 per cent. Brokerage is fixed by law at 5-6ths per cent., which, in practice, is paid by the sellers.

Insurance.—All houses situated in Norwegian market towns must be insured in the General Insurance Company at Christiana, which is guaranteed by the state. The premium is moderate, being, on buildings situated in towns, ¼th, and on those situated in the country, ⅛th per cent. Sometimes, however, when very destructive fires occur, it is raised.

Provisions, etc.—Christiana is not a favorable place for careening and repairing ships; but supplies of beef, bread, water, and other sea-stores, may be had as cheap or cheaper than in any other port of Norway; but its distance from the sea is too great to allow of its being visited by ships desirous merely of victualing.—We have derived these details from various sources, but principally from Consular Returns.

Timber.—A standard Christiana deal is 11 feet long, 1¼ inch thick, and 9 inches broad; and 51·2 such deals make a load. Freight of deals from Norway to England is calculated at the rate of single deals, the standard measure of which for Christiana and all the southern ports of Norway, except Dram (a small town on the Drammen, about 20 miles southwest of Christiana), is 11 feet long and 1¼ in thickness. A single deal from Dram is reckoned 10 feet long and 1½ inch thick.

Battens.—Three battens make 2 deals, retaining their own length and thickness. Half deals are only counted as deal ends, if they run under 6 feet; but if they run 6 or 7 feet long, then two half deals are counted a deal, retaining their own thickness.

Ends of Deals.—Four ends of deals, although 5 feet long, make but a deal 11 feet long, retaining their thickness; but as the freighters of ships seldom wish to have this assortment, which commonly run from 3 to 5 feet, and are taken on board as stowage, consequently for the advantage of the ship and not the freighter, the ship ought to bear the burden.

Ends of Battens, called *Larwick Palings.*—No less than six ought to be counted a single deal, 11 feet long and 1¼ inch thick.

Pale-boards, when they have their proper length, are 7 feet long; three pale-boards are counted a single deal.

Staves for hogsheads take up much room; in consequence of which more than ten can not be computed a single deal.

Christopher (St.), or **St. Kitt's**, one of the British West India islands, Leeward group. Lat. (Fort Smith) 17° 17′ 7″ N., long. 60° 42′ 2″ W., 46 miles west-northwest from Antigua. Length, northwest to southeast, 20 miles, breadth 5 miles, except at its southeastern extremity, where a narrow tongue of land extends toward the island of Nevis. Area, 68 square miles. Population in 1848, 23,127, of whom about 2000 are whites. The island is an irregular oblong, traversed in the centre from north to south by a mountain ridge of volcanic origin, in the middle of which rises the perpendicular craggy summit of Mt. Misery, elevation 3711 feet, and overhanging the crater of an extinct volcano; from this central ridge the land gradually and uniformly slopes to the sea, every portion of which is a rich fertile soil, and highly cultivated; pasture and woodlands ascending almost to the mountain summits. Four rivers water this country, and in the northeast there are several salt ponds, producing abundance of salt. Soil composed of loam, clay, and volcanic ashes, in some places with a depth of 75 feet, resting on gravel. Brimstone-hill consists of granite, limestone, and primary schists. Sulphur is found in the central range, and some indication of silver ore. The climate is dry and healthy; mean annual temperature of coast 80°, but the mornings and evenings are cooled by sea-breezes. The coldest month is February, the warmest August. Prevailing winds, northeast and southeast; rains frequent, but not in excess; hurricanes occur occasionally, and a terrific and fatal one nearly destroyed the island in 1722. The scenery, especially the vale of Basseterre, is rich and beautiful. The soil is particularly adapted for sugar plantations. Chief towns, Basseterre, the capital, and Sandy Point. Besides the parish churches, there are three Methodist congregations, and several schools. This island was discovered by Columbus in 1493, and was then densely peopled by Caribs. In 1625 it was simultaneously taken possession of by colonies of English and French, and divided into upper and lower portions. From that period it became the scene of frequent and bloody contests between the two nations, till at last it was finally ceded to the British in 1783.

Chronometer (Greek χρονος, *time*, and μετρον, *measure*), a watch of peculiar construction, and great perfection of workmanship, used for determining geographical longitudes, or other purposes where time must be measured with extreme accuracy. The chronometer differs from the ordinary watch in the principle of its escapement, which is so constructed that the balance is entirely free from the wheels during the greater part of its vibration; and also in having the balance compensated for variations of temperature. Marine chronometers generally beat half seconds, and are hung in gimbals, in boxes about six or eight inches square. The pocket chronometer does not differ in appearance from the ordinary watch, excepting that it is generally a little larger. Chronometers are of immense utility in navigation; and ships going on distant voyages are usually furnished with several, for the purpose of checking one another, and also to guard against the effects of accidental derangement in any single one. The accuracy with which some of the better sort of chronometers have been found to perform is truly astonishing; the error in a two months' voyage not exceeding two or three seconds.—*See* Dent *on the Construction and Management of Chronometers.*

Chunam, the name given in India to lime. The best, obtained by the calcination of shells, is employed in the mastication of betel (which see), to prevent, it is said, its injuring the stomach.

Cider or **Cyder**, a vinous liquor made from the expressed and fermented juice of the apple. In England, the counties of Devon and Hereford are noted as the cider counties; but good cider is also produced in the counties of Gloucester, Monmouth, Worcester, Dorset, Somerset, and Cornwall. Normandy has long been known for the excellence of its cider; and considerable quantities are manufactured in other districts of France, and also in Belgium, Germany, and in North America.

In England the manufacture of cider is almost entirely in the hands of the common farmer, so that little or nothing has been done either to improve the machinery or bring science to bear on the processes which are followed. Hence much of the cider is of inferior quality, and much waste ensues in the manufacture. The apples for cider should only be gathered when fully ripe, as it is only then that they contain their full proportion of saccharine matter. As the apples are gathered they are laid in heaps, and are allowed to lie thus from 15 to 30 days, in order to become fully ripe or mellow. They are then thrown into a stone trough, round which a heavy circular stone is turned by means of one or two horses. When the apples are thoroughly ground, the pulp is carried in pails to the screw-press and poured into square pieces of hair-cloth, the edges of the hair-cloth being so folded over the pulp as to prevent any escaping. The pulp is then subjected to pressure, when the juice escapes, leaving a solid cake. The juice is now transferred to casks, where it rapidly undergoes a process of fermentation, without requiring any addition; and in three or four days the process is completed, when it is drawn off into casks. The best cider is almost always that in which the process of fermentation has been most slowly conducted. When the fermentation has been rapid the cider is apt to run to acidity.

In France several manufacturers of cider have lately employed improved apparatus for mashing their apples, somewhat similar to that used for mashing the beet-root in the manufacture of sugar; and have also given special attention to the management of the process of fermentation. The quality of the cider is said to have been thereby greatly improved. The cake after its first pressure is sometimes broken up with water, and subjected to a second pressure, and the juice it then yields furnishes, on fermentation, an inferior cider, which must be soon used, as it will not keep. Cider is not fit to be drunk till about three months after it is made. Good cider yields about 6 per cent. of alcohol on distillation, and thus contains nearly the same amount of alcohol as the ordinary bitter Indian ales; but the inferior kinds do not contain above half that proportion. Cider appears to be a refreshing and healthful drink; and the natives of the counties in which it forms the ordinary drink are remarked to be nearly exempt from stone and from gravel complaints.—E. B.

Cigars. *See* Tobacco.

Cincinnati, the metropolis of Ohio, capital of Hamilton county, and the largest and most commercial place west of the Alleghany Mountains. It is situated on the right bank of the Ohio River, 455 miles below Pittsburg, and 1548 miles above New Orleans, and 502 miles from Washington. It is the largest city of the Mississippi Valley north of New Orleans, and the fifth in population in the United States. Population in 1800, 750; in 1810, 2540; in 1830, 24,831; in 1840, 46,338; in 1845, 65,000; in 1850, 115,438; in 1853, 160,141. The suburbs have 25,000 inhabitants additional.

This city is near the eastern extremity of a valley, about twelve miles in circumference, surrounded by a series of hills, which rise to the height of 300 feet by gentle and varying slopes, and are partly covered with the native forest trees. From the summit of these hills is presented a beautiful and picturesque view of the city and valley. It is built on two table lands, the one elevated from 40 to 60 feet above the other. Low-water mark in the river, which is 108 feet below the upper part of the city, is 432 feet above tide-water at Albany, and 133 feet below the level of Lake Erie. Covington and Newport, opposite, in Kentucky, and

Fulton and the adjacent parts of Mill Creek township on the north, are but suburbs of Cincinnati, and if added to the above population would extend it to 185,000. The shore of the Ohio at the landing is substantially paved to low-water mark, and is supplied with floating wharves, adapted to the great rise and fall of the river, which renders the landing and shipping of goods at all times convenient.

The Ohio River at Cincinnati is 1800 feet, or about one-third of a mile wide, and its mean annual range from low to high water is about 50 feet; the extreme range may be about 10 feet more. The greatest depressions are generally in August, September, and October, and the greatest rise in December, March, May, and June. The upward navigation is in winter very rarely suspended by floating ice, and in some winters not at all. Its current at its mean height is about three miles an hour; when higher or rising, it is more; and when very low, it does not exceed two miles

The commercial returns for the year 1856 show that Cincinnati has participated in the general prosperity of the West. The total value of principal imports for the year ending September 1, 1856, was $75,295,000, against $67,501,000 the previous year; and of exports $50,744,000, against $38,777,000 the previous year, showing an increase in the value of imports of $7,794,000, and in the value of our exports $11,967,000: these figures do not represent the total value of imports and exports at Cincinnati. To the value of the imports 10 per cent. may be added, and to the exports 25 per cent., to embrace those articles not included in them. The figures then would stand thus:

Value of imports	$82,825,000
Value of exports	63,430,000

No record being kept of imports by the Cincinnati custom-house officers, except those which come under custom-house bond, the Chamber of Commerce, at its own expense, keeps a record of the imports and exports.

Imports into Cincinnati for Five Years, commencing September 1st, and ending August 31st, each Year.

Articles.		1850–'51	1851–'52.	1852–'53.	1853–'54.	1854–'55.
Apples	Barrels.	16,934	71,882	19,845	31.477	15.971
Beef	"	1,101	1,609	1,118	1.841	1.766
Barley	Bushels.	111,257	89,994	225.844	286.536	204,224
Beans	"	31,037	14,137	26,439	21,332	17,173
Butter	Barrels.	8,259	10.203	16,484	16.842	10,185
Butter	Firkins and kegs.	11.043	13,720	11.331	11.692	7.132
Corn	Bushels.	489,195	653,788	723,334	745.455	845,579
Cheese	Boxes.	205,444	241.753	212,336	216,892	183,379
Cotton	Bales.	7.168	12.776	16.550	22.513	15.107
Coffee	Sacks.	91,177	95.732	109.138	91.425	114.113
Flour	Barrels.	482,772	511,042	449.089	427.464	342,772
Hogs	Head.	111,484	160,684	420.594	525,273	496.360
Lard	Barrels.	36.889	36.047	51,744	76,094	53.654
Lard	Kegs.	31,087	32.283	26,159	19,752	14.831
Molasses	Barrels.	61.490	93,132	115,112	86,430	56,237
Pork and Bacon	Hogsheads.	6,277	10,333	15,251	12,164	5.947
Pork and Bacon	Tierces.	1,183	1,987	3.550	2,736	6,770
Pork and Bacon	Barrels.	31,595	22.501	39.517	39,387	38,365
Pork in bulk	Pounds.	14,961	17,417	27,209	27,986	19,197
Potatoes	Barrels.	19,649	20,739	15,585	35.244	29,282
Rye	Bushels.	44,308	58,318	33,670	29,592	53,164
Sugar	Hogsheads.	29,808	39.324	44,299	64.461	46.953
Sugar	Barrels.	18,584	15,237	24.004	25.441	19.465
Wheat	Bushels.	388,660	377,037	343,649	408,084	437.412
Whisky	Barrels.	244,049	272,788	280,317	285.346	272,165

In the above table the number of hogs does not include those driven into the city or by private conveyance.

Value of the principal Exports from the Port of Cincinnati for the Years ending August 31st, 1854–'55.

Articles.	1854.	1855.
Alcohol	$528,838	$311,047
Beef, Barrels	202,216	251.594
Beef, Tierces	237,609	122.336
Butter	308,536	524,040
Corn	90,081	39,426
Cheese	337.761	454,116
Candles	1,057,851	1,064,476
Cattle	719,950	502,100
Cotton	440,924	664,135
Flour	1,624,099	2,096,501
Lard	1,158,607	1,458,000
Lard-oil	1,307,850	1,223,728
Pork and Bacon	5,394,681	5,378,815
Sugar	2,010,784	1,985,355
Whisky	2,922,612	1,966,896
Other articles	20,434,995	27,390,215
Total	$38,777,394	$45.432,780

—Hunt's *Merchants' Magazine*. *See* Ohio.

Cinnabar (Germ. *Zinnober;* Du. *Cinaber, Vermilioen;* Fr. *Cinnabre;* It. *Cinabro;* Sp. *Cinabrio;* Russ. *Kinowar;* Lat. *Cinnabrium*).

Native Cinnabar—a mineral substance, red, heavy, and brilliant. It is found in various places, chiefly in quicksilver mines, being one of the ores of that metal. The cinnabar of the Philippine Islands is said to be of the highest color; but that of Almaden, in Spain, is the richest. The best native cinnabar is of a high color, brilliant, and free from earthy or stony matter.

Artificial Cinnabar.—"When two parts of mercury and one of sulphur are triturated together in a mortar, the mercury gradually disappears, and the whole assumes the form of a black powder, formerly called *Ethiops mineral.* When this mineral is heated red hot, it sublimes; and if a proper vessel be placed to receive it, a cake is obtained of a fine red color. This cake was formerly called cinnabar; and, when reduced to a fine powder, is well known in commerce under the name of *vermilion.*"—Thomson's *Chemistry.*

Cinnamon (Du. *Kaneel;* Fr. *Cannelle;* Ger. *Zimmet, Kanehl;* It. *Canella;* Lat. *Cinnamomum, Canella;* Port. *Canella;* Sp. *Canela;* Pers. and Hind. *Darchinie;* Arab. *Darsini;* Malay *Kaimanis;* Greek Κιναμον), the bark of the cinnamon-tree (*Laurus cinnamomum*), a native of Ceylon, where it grows in great abundance, Cochin China, and perhaps of some other countries. It is brought home in bags or bales weighing 92½ lbs. each; and, in stowing it, black pepper is mixed with the bales to preserve the cinnamon. The best cinnamon is thin and rather pliable; it ought to be about the substance of royal paper, or somewhat thicker; is of a light yellow color, approaching nearly to that of Venetian gold; it is smooth and shining; fractures splintery; has an agreeable, warm, aromatic flavor, and a mild, sweetish taste; when chewed, the pieces become soft, and seem to melt in the mouth; it is not so pungent but that it may be borne on the tongue without pain, and is not succeeded by any after taste. Whatever is hard, thick as a half-crown piece, dark-colored or brown, or so hot that it can not be borne, should be rejected. Particular care should be taken that it be not false packed, or mixed with cinnamon of an inferior sort.—Milburn's *Oriental Commerce;* Marshall's *Essay.*

The cinnamon of Cochin China grows in the dry sandy districts lying northwest of the town of Faifoe, between the 15th and 16th degrees of north latitude.

It is preferred in China to the cinnamon of Ceylon. The annual imports into Canton and other ports vary from 250,000 to 300,000 lbs. There are no fewer than ten varieties of this species in the market. It is not cured, like that of Ceylon, by freeing it from the epidermis.—Crawfurd's *Embassy to Siam*, etc., p. 475.

Cinnamon Monopoly.—Down to 1833, the cultivation of cinnamon in Ceylon was restricted to a few gardens in the neighborhood of Colombo, the production and sale of the article being wholly monopolized by government. Upon the transference of the island from the East India Company to the king's government, the former agreed to pay £60,000 a year for 400,000 lbs. or 4342½ bales of cinnamon; it being stipulated that if the quantity collected exceeded this amount *the surplus was to be burned!* But this agreement was afterward broken off; and the cinnamon was sent to England by government, and sold on its account at quarterly sales. The net revenue derived from the cinnamon monopoly, in 1831, is said to have amounted to £127,961. As the monopoly could not be enforced, except by confining the culture of cinnamon to certain districts, it necessarily led to the most oppressive interferences with the rights of individuals, to the creation of numberless imaginary offenses, and the multiplication of punishments, forming a heavy drawback upon the prosperity of the island. A sense of these disadvantages led at length to the abolition of the monopoly system in 1833, when England ceased to be amenable to the charge of upholding, without improving, the worst part of the Dutch policy, and restored to the natives their right to cultivate cinnamon anywhere and in any way they think fit.

Cinque Ports (*i. e.* the five ports), five havens on the southeastern coast of England, opposite France, and thus called by way of eminence, on account of their importance as safeguards against invasion. These comprise Hastings, Romney, Hythe, Dover, and Sandwich; to which were afterward added the two ancient towns of Winchelsea and Rye. These places were anciently deemed of so much importance in the defense of the kingdom against invasion, that they received royal grants of particular privileges, on condition of providing during war a certain number of ships at their own expense. They are governed by a warden with the title of Lord Warden of the Cinque Ports, and each had the privilege formerly of returning to Parliament two members under the title of Barons of the Cinque Ports; but since 1831 this privilege has been confined to Hastings, Dover, and Sandwich. We are told by Camden that William the Conqueror appointed the first warden of the Cinque Ports; but their charters are traced to the time of Edward the Confessor. The salary of the Lord Warden is £3000 a year. E. B.—*See* Chitty's *Commercial Law.*

Circumnavigators. Among the greatest and most daring of human enterprises was the circumnavigation of the earth at the period when it was first attempted, A.D. 1519. The first ship that sailed round the earth, and hence determined its being globular, was Magellan's, or Magelhoen's; he was a native of Portugal, in the service of Spain, and by keeping a westerly course he returned to the same place he had set out from in 1519. The voyage was completed in three years and twenty-nine days; but Magellan was killed on his homeward passage, at the Philippines, in 1521.—Butler. The following are the most renowned of this illustrious class of men: their voyages were undertaken at the dates affixed to their names.—*See* Navigators.

	A. D.
Magellan, a Portuguese, the first who entered the Pacific Ocean	1519
Groalva, a Spanish navigator	1537
Avalradi, a Spaniard	1537
Mendana, a Spaniard	1567
Sir Francis Drake, first English	1577
Cavendish, his first voyage	1586
Le Maire, a Dutchman	1615
Quiros, a Spaniard	1625
Tasman, Dutch	1642
Cowley, British	1683
Dampier, an Englishman	1689
Cooke, an Englishman	1788
Clipperton, British	1719
Roggewein, Dutch	1721
Anson (afterward Lord)	1740
Byron (grandfather of Lord Byron)	1764
Wallis, British	1766
Carteret, an Englishman	1766
Cook, the illustrious captain	1768
On the death of Captain Cook, his last voyage was continued by King	1779
Bougainville, French	1776
Portlocke, British	1788
Wilkes, American	1837
D'Urville, French	1837

Several voyages have been since undertaken, and, among other nations, by the Russians.—Haydn.

Cities. The word *city* has been in use in England only since the Conquest, at which time even London was called *Londonburgh*, as the capital of Scotland is still called *Edinburgh.* The English cities were very inconsiderable in the twelfth century. Cities were first incorporated A.D. 1079. The institution of cities has aided much in introducing regular governments, police, manners, and arts.—Robertson.

Citron (Ger. *Succade;* Da. *Sukkat;* It. *Confetti di cedro;* Sp. *Acitron verde;* Fr. *Citronat verd*), an agreeable fruit, resembling a lemon in color, smell, and taste. The principal difference lies in the juice of the citron being somewhat less acid, and the yellow rind being somewhat hotter, and accompanied with a considerable bitterness.—Lewis' *Mat. Med.* It is imported, preserved and candied, from Madeira, of the finest quality.

Civet (Germ. *Zibeth;* Du. *Civet;* Fr. *Civette;* It. *Zibetto;* Sp. *Algalia*), a perfume taken from the civet cat: it is offensive unless extremely diluted, and then, in combination with other perfumes, it adds to their energy. It is brought from the Brazils, Guinea, and the interior of Africa.

Civita Vecchia, a fortified sea-port town of the papal dominions, on the Mediterranean, lat. 42° 4′ 38″ N., long. 11° 44′ 52″ E. Population 7000. The port of Civita Vecchia is artificial, and is formed by three large moles. Two of them projecting from the main land, inclined one to the north and the other to the south, form the sides of the harbor; while a third mole, or breakwater, constructed opposite to the gap between the other two, serves to protect the harbor from the heavy sea that would otherwise be thrown in by the westerly gales. A light-house, having the lantern elevated seventy-four feet above the level of the sea, is erected on the southern extremity of the outward mole; the distance from its extremities to the extremities of the lateral moles, on which there are towers, being about ninety fathoms. Vessels may enter either by the south or north end of the outer mole, but the southern channel is the deepest, having from eight to six and four fathoms. Ships may anchor within the port, in from sixteen to eighteen feet of water; or between it and the outer mole, where the water is deeper. Within the port there is a dock and an arsenal.—*Plan of Civita Vecchia.*

Imports and Exports.—Though the wealth and population of the country round Civita Vecchia be much fallen off in modern times compared with antiquity, it still continues to be the *entrepôt* of Rome, and engrosses almost the entire trade of the papal dominions on the side of the Mediterranean. The imports consist principally of cotton, woolen, silk, and linen stuffs; coffee, sugar, cocoa, and other colonial products; salt and salted fish, wines, jewelry, glass and earthen ware, etc. The exports consist of staves and timber, corn, coal, wood, cheese, potash, pumice-stone, alum, from Tolfa, in the vicinity, and other articles. The total value of the imports may be reckoned at from £650,000 to £700,000, and it may be fairly presumed that the real value of the exports is not much inferior. Marseilles and Genoa have the largest share of the foreign trade of Civita Vecchia, and next to them, England.

Duties.—Civita Vecchia is a free port; that is, a port into which produce may be imported, and either consumed or re-exported, free of duty.

Quarantine regulations are strictly enforced, no vessel with a foul bill of health being permitted to enter any of the papal ports.—*Annuaire du Commerce Maritime*, tom. ii. p. 366, etc.

Claret, one of the best French wines. It is derived from the Latin *Claretum*, from *Clarere*, to be clear.—*See the articles* BORDEAUX *and* WINE.

Clarification, the act of clearing; particularly the clearing or fining of liquids from feculent matter by the separation of the insoluble particles. This is performed by depuration, filtration, or coagulation. The substances usually employed for clarifying liquors are the albumen of eggs, blood, and isinglass. The first two are used for such liquors as are clarified while boiling hot; the last for those which are clarified in the cold state, as wines, etc. The whites of eggs are beaten up into a froth and mixed with the liquor, when they unite with and entangle the impure matters that float in it; and, presently coagulating by the heat, carry these impurities up to the surface in the form of scum. Blood operates in the same manner. Isinglass is much employed for fining wines. For this purpose, about a quarter of an ounce may be thrown into the cask, or the isinglass may be previously dissolved and boiled down to a slimy consistence. It is then mixed with the liquor by rolling the cask about; after which it is allowed to settle.

Clearing, among London *bankers*, is a method adopted for exchanging the drafts on each other's houses, and settling the differences. Thus, at half-past three o'clock, a clerk from each bank attends at the clearing-house, where he brings all the drafts on the other bankers which have been paid into his house that day, and deposits them in their proper drawers (a drawer being allotted to each banker); he then credits their accounts separately with the articles which they have against him, as found in the drawer. Balances are then struck from all the accounts, and the claims transferred from one to another, until they are so wound up and canceled that each clerk has only to settle with two or three others, and their balances are immediately paid.

Clearing-house, the place where the operation termed clearing is carried on. The London clearing-house was established some years since, for the convenience of bankers and joint-stock banks in the metropolis by facilitating the transfer, liquidation, or exchange of bank checks and bills. This object is fully accomplished by each party, or some one representing it, meeting at a fixed place, at a fixed hour per day, to deliver checks on each other, and receiving in return checks on themselves, or cash to balance. It follows, necessarily, that the payments and receipts daily must exactly counterbalance each other. The utility of this arrangement, its economy of time and labor, and avoidance of risk, may be estimated from the fact that the annual clearings for one year (1839) amounted to £954,000,000 sterling, or over $15,000,000 each business day. In the year 1810, the average payments or clearings were $4,700,000 daily, on an average.

1839.	Aggregate Demands.	Bank-notes.	Per Cent.
January	£82,762,400	£6,348,500	£7·672
February	76,164,700	4,960,200	6·513
March	75,879,200	5,621,500	7·408
April	85,839,200	5,836,000	6·800
May	80,587,600	5,615,000	6·882
June	67,413,900	5,060,000	7·506
July	83,865,200	6,284,800	7·493
August	87,610,500	6,164,900	7·037
September	74,237,700	5,129,800	6·910
October.......	87,478,200	5,706,800	6·524
November	81,729,200	4,793,100	5·866
December	70,833,800	4,755,000	6·713
Total....	£954,401,600	£66,275,600	£6·944

The New York clearing-house was established in 1853, and a constitution adopted in September of that year, when fifty-two of the banks of the city were represented and became members. Operations were commenced the second week in October, 1853, and have been carried on regularly ever since.

The hour for making exchanges at the clearing-house is 10 o'clock A.M., when all the checks or bills of each bank are delivered by a clerk, and distributed by the manager or his assistant to the clerk or representative of the banks respectively. At 1 o'clock P.M., the debtor banks pay to the manager the balances against them, either in coin or in bank certificates—the latter representing coin and used only by and among the banks, to avoid the carrying of specie to and from the clearing-house. At the same hour the creditor banks receive from the manager, at the same place, the respective balances due to them. The manager receives a salary of $3000, and has two clerks under him. The expenses of the clearing-house are borne by a tax upon the city banks who are members, now fifty-three in all. Banks having a capital less than $500,000 pay $100 each, annually; less than $1,000,000 pay $200, and those over $1,000,000 pay $300 each, annually.

TRANSACTIONS OF THE NEW YORK CLEARING-HOUSE, FROM ITS COMMENCEMENT, OCTOBER, 1853, TO OCTOBER 1, 1856.

Date.	Clearings.	Balances.
October, 1853....	$325,796,792 95	$19,3[illegible]6,275 25
November, "	470,625,765 57	24,216,666 59
December, "	481,443,321 57	27,611,805 47
January, 1854....	465,245,490 37	23,166,409 96
February, "	448,236,297 98	23,294,241 75
March, "	529,929,949 17	25,950,085 11
April, "	511,531,155 98	24,484,423 40
May, "	581,011,472 41	26,251,982 50
June, "	527,360,722 12	25,162,991 65
July, "	469,250,993 11	26,543,709 51
August, "	458,462,906 71	25,601,446 23
September, "	454,161,119 12	25,722,465 47
Total......	$5,750,455,987 06	$297,411,493 69
October, 1854....	$478,977,120 33	$24,574,949 04
November, "	447,128,246 10	22,240,636 87
December, "	426,948,104 46	22,023,515 76
January, 1855....	472,204,524 60	23,159,158 99
February, "	383,072,087 45	20,607,744 42
March, "	446,302,243 30	24,154,071 12
April, "	441,336,357 61	24,144,093 52
May, "	488,064,634 24	25,543,048 94
June, "	465,222,844 64	25,769,645 97
July, "	438,644,305 99	27,306,548 85
August, "	457,258,918 12	25,425,105 30
September, "	462,752,711 54	24,745,618 36
Total......	$5,407,912,098 38	$289,694,733 14
October, 1855....	$557,111,464 83	$26,990,960 25
November, "	553,708,677 93	25,341,747 17
December, "	552,993,465 14	26,166,320 52
January, 1856....	544,860,535 98	28,662,804 57
February, "	544,143,624 37	26,855,260 63
March, "	557,425,295 60	28,364,462 92
April, "	603,421,614 53	27,128,724 61
May, "	665,013,835 28	32,063,642 09
June, "	567,700,305 47	28,227,589 30
July, "	596,557,439 10	30,549,158 54
August, "	547,674,598 61	26,688,313 78
September, "	615,602,471 84	27,674,704 95
Total......	$6,906,213,318 38	$331,714,489 53

The Boston clearing-house was organized in that city September 26, A.D. 1855, and commenced business March 29, A.D. 1856. All the banks in the city (thirty-five in number) are connected with the institution, representing a capital of $31,960,000. The executive committee consists of five gentlemen, all of which are presidents of banks. The total transactions from its commencement to November 30th, 1856, amounted to $1,060,390,841. The Merchants' Bank is the depository bank for the special deposit of coin from the several banks connected with the association.

Cleveland, city, port of entry, and the capital of Cuyahoga county, Ohio, on the south shore of Lake Erie. Lat. 41° 30′ N., long. 81° 47′ W. The population in 1799 consisted of one family; in 1825 about 500 inhabitants; in 1830, 1000; in 1834, 4300; in 1840, 6071;

in 1850, 17,034; and in 1854, about 25,000; and with the addition of Ohio City, 7000 more, making a total of 32,000. Cleveland is the emporium of Northern Ohio, and, next to Cincinnati, the most important town in the State; possesses a commanding situation on Lake Erie, at the mouth of the Cuyahoga River, and the northern termination of the Ohio Canal, by which it is connected with the Ohio River, and by railroad to New York, to Buffalo, to Philadelphia *via* Pittsburg, to Cincinnati, to Chicago. It is 130 miles northwest from Pittsburg, 146 northeast from Columbus, 200 by water from Buffalo, 130 from Detroit, and 359 from Washington. The value of imports in 1851 amounted to $22,804,159; exports same year amounted to $12,026,497. The licensed and enrolled tonnage of the district for 1851 was 36,070 tons; 11,355 steam, and 24,615 sail. The harbor of Cleveland is formed by the mouth of the Cuyahoga River, and improved by a pier on each side, extending 425 yards into the lake, 200 feet apart, and faced with substantial stone masonry. Cleveland has a ready communication with New York *via* railroad and the Erie Canal, with Philadelphia by railroad and canal, with Cincinnati by railroad, and with the Ohio River by the Ohio Canal, and it exports much by the way of the Welland Canal to Canada.—*See* Ohio.

Clock, Clocks (Ger. *Uhren*, *Grosse Uhren*, *Wiandunrhe*; Du. *Uuren*, *Uurwerken*, *Horologien*; Fr. *Horloges*; It. *Orologgi*, *Oriuoli*; Sp. *Relojes*; Russ. *Tschasŭ*), a kind of machine put in motion by a gravitating body, and so constructed as to divide, measure, and indicate the successive portions of time with very great accuracy. Most clocks mark the hour by striking or chiming. It is a highly useful instrument, and is extensively employed for domestic and philosophical purposes. Clocks are made of an endless variety of materials and models, so as to suit the different uses to which they are to be applied, and the different tastes of their purchasers. The Germans, Dutch, and Americans are particularly celebrated for their skill in the manufacture of clocks; while the English, French, and Genevese, especially the former, have carried the art of making metallic clocks, so as to keep time with the greatest precision, to a high degree of perfection. The history of the invention, introduction, and successive improvements in the manufacture of clocks, has been carefully investigated by some very learned and industrious antiquaries (*see* Beckmann's *Hist. of Inventions*, vol. i. p. 419–462, English ed.; and Rees' *Cyclopedia*); but, notwithstanding these researches, the subject is still involved in considerable obscurity. It seems, however, that the middle of the fourteenth century may be regarded as the epoch when clocks, having weights suspended as a moving power and a regulator began to be introduced. The period when, and the individual by whom, the pendulum was first applied to clock-work, have been subjects of much contention. Galileo and Huygens have disputed the honor of the discovery. "But whoever may have been the inventor, it is certain that the invention never flourished till it came into the hands of Huygens, who insists that if ever Galileo thought of such a thing, he never brought it to any degree of perfection. The first pendulum clock made in England was in the year 1662, by one Fromantel, a Dutchman."—Hutton's *Math. Dictionary*.

The origin of clock-work is involved in great obscurity. Notwithstanding the statements by many writers that clocks, *horologia*, were in use so early as the ninth century, and that they were then invented by an archdeacon of Verona, named Pacificus, there appears to be no clear evidence that they were machines at all resembling those which have been in use for the last five or six centuries. But it is certain that for that period at least clocks have been made depending on the action of a weight on a train of wheels, as distinguished from the water-clocks, *clepsydræ*, which are well known to have been used many centuries before. We will refer the reader who is curious about it to the articles on clocks, etc., in the *Encyclopedia Britannica* and the various works there cited. We will only add to the information there given, that it appears from a communication of Captain Smith to the Antiquarian Society in 1851, that there is still a clock in existence at Dover Castle bearing the date 1348, earlier by thirty years than that of the clock made by De Vick for the palace of the Emperor Charles V., which has generally been described as the earliest clock of which the actual construction is known. Mr. Denison also, in his *Rudimentary Treatise on Clocks* (of which we have largely availed ourselves throughout this article, and also of various papers by him in the Cambridge Philosophical Transactions, and the Journal of the Society of Arts), mentions a clock in Peterborough Cathedral, still in use as to the striking part, of which the construction is more like that of the Dover Castle clock than that of De Vick; and Lord Chief Justice Coke tells us that a clock was set up in Westminster Hall in the thirteenth century out of a fine levied on one of his predecessors in that seat, from which, perhaps, the appropriate inscription *Discite justitiam moniti* was copied on to the sundial on a house now facing the hall.

The clock called the clepsydra, or water-clock, was introduced at Rome 158 B.C. by Scipio Nasica. Toothed wheels were applied to them by Ctesibius, about 140 B.C. Said to have been found by Cæsar on invading Britain, 55 B.C. The only clock supposed to be then in the world was sent by Pope Paul I. to Pepin, king of France, A.D. 760. Pacificus, archdeacon of Verona, invented one in the ninth century. Originally the wheels were three feet in diameter. The earliest complete clock of which there is any certain record was made by a Saracen mechanic, in the thirteenth century.

The scapement, ascribed to Gerbert, A.D.	1000
A clock constructed by Richard, abbot of St. Alban's, about	1326
A striking clock in Westminster	1368
A perfect one made at Paris by Vick	1370
The first portable one made	1530
In England no clock went accurately before that set up at Hampton Court (maker's initials, N. O.)	1540
Richard Harris (who erected a clock in the church of St. Paul's, Covent Garden) and the younger Galileo constructed the pendulum	1641
Christian Huygens contested this discovery, and made his pendulum clock some time previously to	1658
Fromantel, a Dutchman, improved the pendulum, about	1659
Repeating clocks and watches invented by Barlow, about	1676
The dead beat, and horizontal escapements, by Graham, about	1700

The subsequent improvements were the spiral balance spring suggested, and the duplex scapement invented by Dr. Hooke; pivot holes jeweled by Facio; the detached scapement invented by Mudge, and improved by Berthoud, Arnold, Earnshaw, and others.—Haydn.

Clocks imported into the United States pay a duty of 30 per cent.; watches, 10 per cent. Of clocks, the value imported in the fiscal year 1854–'55 was $69,258; watches, $3,651,187.

Olive-oil is most commonly used in lubricating clock machinery and preventing too great wear. We believe, however, that animal oil is better than any of the vegetable oils, as some of them are too thin, while others soon get thick and viscid. For turret clocks and common house clocks, good sperm oil is fine enough, and is probably the best. For finer work the oil requires some purification. Even common neat's-foot oil may be made extremely fine and clear by the following method: mix it with about the same quantity of water, and shake it in a large bottle, not full, until it becomes like a white soup; then let it stand till fine oil appears at the top, which may be skimmed off: it will take several months before it has all separated into water at the bottom, dirt in the middle, and fine oil at the top. And it should not be done in hot weather, because heat makes some oil come out as fine which in cold would remain among the dirty oil in the middle, and in cold weather that fine oil of hot weather will become muddy. There are various vegetable oils sold at tool-shops as oil for watches, including some for which a prize medal was awarded in the Exhibition, but not by any of the mechanical juries; we have no information as to the test which was applied to it, and none but actual use for a considerable time would be of much value. We have heard of 5 per cent. in power being saved in a manufactory by the use of sperm instead of sweet oil to small spindles requiring constant lubrication.—E. B.

Close-hauled; that is, the tacks close down, the sheets aft, the yards braced sharp up, and the bowlines hauled, the ship making her progress as near the direction of the wind as she can.

Cloth. Both woolen and linen cloth were known in very early times. Coarse woolens were introduced into England A.D. 1191; and seventy families of cloth-workers from the Netherlands settled in England by Edward III.'s invitation, and the art of weaving was thereby introduced, 1331.—RYMER's *Fœdera*. Woolens were first made at Kendal in 1390. Medleys were manufactured 1614. The fine English broad-cloths were yet sent to Holland to be dyed, 1654. Dyed and dressed in England by one Brewer, from the Low Countries, 1667. The manufacture was discouraged in Ireland and that of linen countenanced, at the request of both Houses of Parliament, 1698.—HAYDN. *See* WOOL.

Clover (Ger. *Klee*; Du. *Klaver*; Fr. *Trefile*, *Luzerne*, It. *Trifoglio*; Sp. *Trebol*; Russ. *Trilistnik*; Lat. *Trifolium*), a very important species of grass. Some of the species in cultivation are annual, others biennial or triennial, and others perennial. The seed used formerly to be principally imported from Holland; but that which is raised in England is now said to be of a superior quality. Culture for seed is, however, very precarious, and of uncertain profit. For crops of hay and grass seeds (including clover) raised in the United States, *see art.* HAY.

Cloves (Ger. *Näglein*, *Gewurznelken*; Du. *Kruidnagelen*; Fr. *Clous de girofle*, *Girofles*; It. *Chiori di garofana*, *Garofani*, *Garoffoli*; Sp. *Claros de especia*, *Clavillos*, Russ. *Gwosdika*; Arab. *Kerenful*; Malay, *Chankee*), the fruit, or rather cup of the unopened flowers of the clove-tree, or *Caryophyllus aromaticus*. The clove-tree is a native of the Moluccas, where it was originally found; but plants have since been carried to Cayenne and other places, where they succeed tolerably well. Cloves are shaped like a nail, whence the name, from the French *clou*, nail. They are imported from the Dutch settlements; the best in chests, and an inferior kind in bags. The best variety of the Amboyna cloves is smaller and blacker than the other varieties, very scarce, and, as a mark of pre-eminence, is termed the royal clove. Good cloves have a strong, fragrant, aromatic odor; and a hot, acrid, aromatic taste, which is very permanent. They should be chosen large sized, perfect in all parts; the color should be a dark brown, almost approaching to black; and, when handled, should leave an oily moisture upon the fingers. Good cloves are sometimes adulterated by mixing them with those from which oil has been drawn; but these are weaker than the rest, and of a paler color; and whenever they look shriveled, having lost the knob at the top, and are light and broken, with but little smell or taste, they should be rejected. As cloves readily absorb moisture, it is not uncommon, when a quantity is ordered, to keep them beside a vessel of water, by which means a considerable addition is made to their weight.—THOMSON's *Dispensatory*; MILBURN's *Oriental Commerce*.

Policy of the Dutch as to the Trade in Cloves.—From the expulsion of the English from Amboyna, in 1623, the Dutch have, a few short intervals only excepted, enjoyed the exclusive possession of the Moluccas, or Clove Islands. In their conduct as to the clove trade, they have exhibited a degree of short-sighted rapacity, which has been, we believe, seldom equaled even in the annals of monopoly. Their object has not been to encourage the growth and trade of cloves, but to confine both within the narrowest limits. They have preferred deriving a large profit from a stunted and petty trade to a moderate profit from a trade that might have afforded employment for a very large amount of capital; and to prevent their narrow and selfish projects from being counteracted by the operations of the natives, they have subjected them to the most revolting tyranny. "That they might," says Mr. Crawfurd, "regulate and control production and price just as they thought proper, the clove-trees were extirpated every where but in Amboyna, the seat of their power; and the surrounding princes were bribed by annual stipends to league with them for the destruction of their subjects' property and birth-right. This plan was begun about the year 1551. The contracts are still in force, and an annual fleet visits the surrounding islands to suppress the growth of cloves, which in their native country, spring up with a luxuriance which these measures of Satanic rigor, and of sacrilege toward bountiful nature, can scarce repress. By the plan on which the clove trade is now conducted—a plan carried into effect through so much iniquity and bloodshed—the country of spices is rendered a petty farm, of which the natural owners are reduced to the worst condition of predial slavery; and the great monopolizer and oppressor is that government, whose duty it should have been to insure freedom and afford protection. Human ingenuity could hardly devise a plan more destructive of industry, more hostile to the growth of public wealth, or injurious to morals, than this system framed in a barbarous age; and it reflects disgrace upon the character of a civilized people to persevere in it. It is curious to remark how the monopolizers, in carrying the details of this system into effect, at once impose upon the natives and deceive themselves. The *nominal* price paid to the natives is actually above the natural price of the commodity, but they are cheated in the details. The cultivator brings his produce to the public stores, where it is subjected at once to a deduction of one-fifth for payment of the salaries of the civil and military officers. The price of the remainder is fixed at the rate of 9·6 Spanish dollars the picul; but before payment is made, another deduction of one-fifth is made; one-half of which is for the chiefs or *rajas*, and the other for the native *elders*, who are overseers of the forced culture. The real price, therefore, paid to the grower is 8 Spanish dollars per picul, or 3¼*d.* per pound avoirdupois, instead of 11 52-100 Spanish dollars per picul, or 4⅔*d.*, which is pretended to be given. When cloves have been sold on the spot, the price usually exacted has been about 64 Spanish dollars the picul, or eight times the price paid to the cultivator. The average price in Holland, previously to the war of the French Revolution, may be taken at 6*s.* per pound, or 177 78-100 Spanish dollars per picul, being 2122 per cent. advance on the real cost of the commodity in the place of its growth. When brought direct to England, they have cost at an average 3*s.* 8*d.* the pound, making 108 64-100 Spanish dollars per picul, an advance on the natural export price of 1258 per cent."—*Eastern Archipelago*, vol. iii. p. 388–390.

Oil of Cloves is procured from cloves by distillation. When new, it is of a pale reddish brown color, which becomes darker by age. It is extremely hot and fiery, and sinks in water. The kind generally imported from India contains nearly half its weight of an insipid expressed oil, which is discovered by dropping a little into spirits of wine; and on shaking it, the genuine oil mixes with the spirit, and the insipid separating, the fraud is discovered.—MILBURN.

Clyde, one of the largest and most important rivers in Scotland. It takes its rise from numerous streams flowing from the mountain range in the southern part of Lanarkshire and borders of Dumfriesshire; the chief summits of which are the Lowthers, Leadhills, Queensbury Hill, and Rodger Law, with elevation approaching 3000 feet. Its course is through rich and fertile valleys to Glasgow. From this city it expands into a river navigable for ships of 300 to 400 tons, and flows northwest, dividing the county of Renfrew on the west, from Dumbarton on the northeast, receiving the tributaries of the Kelvin, Cart, and Leven. After passing Dumbarton, it opens up into a noble estuary four miles in width, spreading northward into Loch Long, and southward into the Firth of Clyde, with the islands of Bute and Cumbraes, situated at the mouth of the estuary. Here the Clyde expands into a *firth* averaging about 32 miles in width, and at the distance of 48 miles becomes identified with the North Channel. The length of the river from its source to Glasgow, including windings, is about 75 miles. From Glasgow to the south point of Bute Island about 40 miles. In the Clyde was launched the first steamboat constructed in Britain, 1812. *Clydesdale* is the district forming the valley of the Clyde, and is celebrated for its orchards, coal and iron mines, and horses.

Coaches, vehicles for commodious traveling. They have sometimes two, and sometimes four wheels. The body of the coach is generally suspended, by means of springs, upon the frame-work to which the wheels are attached. They are usually drawn by horses, but recently have been impelled by steam. The forms and varieties of coaches are almost innumerable.

Historical Notice.—Beckmann has investigated the early history of coaches with his usual care and learning. t is certain that a species of coaches was used at Rome; but whether they were hung on springs, like those now made use of, is not certain. After the subversion of the Roman power, horseback was almost the only mode of traveling. About the end of the fifteenth century, however, covered carriages began to be employed by persons of distinction on great occasions. In 1550, there were at Paris only three coaches; one of which belonged to the queen; another to the celebrated Diana of Poitiers; and the third to a corpulent, unwieldy nobleman, René de Laval, lord of Bois-Dauphin. Coaches were seen for the first time in Spain in 1546. They began to be used in England about 1580; and were in common use among the nobility in the beginning of the seventeenth century.—*History of Inventions*, vol. i. p. 111, 127, English translation.

According to Haydn's *Dictionary of Dates*, the coach is of French invention. Under Francis I., who was a contemporary with Henry VIII., there were but two in Paris, one of which belonged to the queen, and the other to Diana, the natural daughter of Henry II. There were but three in Paris in 1550; and Henry IV. had one, but without straps or springs. The first courtier who set up this equipage was John de Laval de Bois-Dauphin, who could not travel otherwise on account of his enormous bulk. Previously to the use of coaches the kings of France traveled on horseback, the princesses were carried in litters, and ladies rode behind their squires. The first coach seen in England was in the reign of Mary, about 1553.—Priestley's *Lecture.* They were introduced much earlier.—Andrews' *History of Great Britain.* They were introduced by Fitz-Allen, earl of Arundel, in 1580.—Stowe. And in some years afterward the art of making them.—Anderson's *History of Commerce.* A bill was brought into Parliament to prevent the effeminacy of men riding in coaches, 43 Eliz. 1601.—Haydn.

Stage-coaches, Traveling by.—Owing to the improvement in the breed of horses and the building of carriages, but above all, to the extraordinary improvements that were effected within the last half century in the laying out, construction, and keeping of roads, the ordinary rate of traveling by stage-coaches, previously to their all but total extinction by railways, was seldom under 9 or 10 miles an hour, stoppages included, and on some roads was as much as 11 or 12. The stages having been shortened, this speed was not found to be materially more injurious to the horses than the slower rate at which they previously traveled. The surface of the roads being perfectly smooth, and most sharp turns or rapid descents having been got rid of, traveling even at this rate was comparatively safe; and it was surprising, considering the number of coaches, how few accidents occurred. They were occasioned, for the most part, by the misconduct of the drivers; and principally by their endeavoring to make up by increased speed for time lost at stoppages, or by their attempting to pass each other. It is, perhaps, needless to add that, since the opening of railways between all the principal places of the country, traveling by stage-coaches in England no longer exists, except in a few remote districts, and has now become almost a matter of history.

Coal (Du. *Steenkoolen;* Fr. *Charbon de terre;* Ger. *Steinkohlen;* It. *Carboni fossili;* Lat. *Lithanthrax;* Port. *Carvoes de terra, ou de pedra;* Russ. *Ugolj, Kamennoe;* Sp. *Carbones de tierra, Carbones de piedra;* Swed. *Stenkol*). This highly important combustible mineral is divided by mineralogists into the three great families of black coal, uninflammable coal, and brown coal; each of these being again divided into many subordinate species.

It is contended, with much seeming truth, that coals, although they are not mentioned by the Romans in their notices of Britain, were yet in use by the ancient Britons.—Brandt. They were first discovered at Newcastle-upon-Tyne in 1234; some say earlier, and others in 1239. Sea-coal was prohibited from being used in and near London, as being "prejudicial to human health;" and even smiths were obliged to burn wood, 1273.—Stowe. Coals were first made an article of trade from Newcastle to London, 4 Rich. II., 1381.—Rymer's *Fœdera.*

This mineral will be considered under the general heads of—I. Origin of Coal; II. Coal Statistics of Great Britain; III. Areas of Coal-beds in the World, and a Comparison of their Extent; IV. Comparison of the Coal Trade of the United States and Europe; V. Statistics of the Coal Trade in the United States.

I. *Origin of Coal. Phenomena of Combustion, etc.*—Coal beds, or strata, lie among those of gravel, sand, chalk, clay, etc., which form great part of the present surface of the earth, and have been evidently accumulated during remote ages by the agency of "moving water"—similar to accumulations now in process of formation at the mouths of all great rivers, and in the bottoms of lakes and seas. When these strata had, by long contact and pressure, been solidified into a rocky crust to the earth, this crust, by subsequent convulsions of nature, of which innumerable other proofs remain, has been in various parts broken and heaved up above the level of the sea, so as to form the greater part of our dry or habitable land; in some places appearing as lofty mountains, in others as extended plains. In many situations, the fracture of the crust exhibits the edges of the various distinct strata found in a given thickness of it. When the fracture has the form of a precipitous cliff, these edges appear one above another, like the edges of piled planks or books; but often also they are met with in horizontal succession along a plain, as the edges of a pile of books laid down upon a table; or they may be seen surrounding hills of granite, which protrude through them. Coal, and other precious minerals, were first discovered at the fractures of the strata above described, and by the continued digging of the strata or veins the vast excavations called mines have been gradually formed. When it was at last discovered that the mineral strata occur every where in nearly the same order or succession, so that the exposure of a portion of one stratum is a good indication of the other strata being near, the operations of the miner became of much surer result, and expensive boring through superior strata might be prudently undertaken, even where no specimen of the desired but more deeply buried substance had yet been seen.

Before the discovery of coal mines, or the invention of cheap means of working them, wood was generally used as fuel; and in many countries where the arts have not much flourished, it continues to be principally employed as such. Coal, however, for many purposes, answers much better than wood; and, in fact, the two, although in appearance so different, are in their ultimate composition very nearly allied. They both have for their basis or chief ingredient the substance called by the chemists *carbon*, and for their chief other ingredient the substance called *hydrogen*, which, when separated, exists in the form of air or gas. The hydrogen is easily driven away or volatilized from either coal or wood, by heating in a close place; and when it is caught and preserved, it forms the gas now used to light our streets and public buildings. What remains of coal, after being so treated, is the substance called *coke;* and what remains of wood, similarly treated, is the substance called *charcoal*—both being nearly pure carbon, but differing as to the states of compactness. This kindred nature of coal and wood does not surprise when the fact is known that much of our coal is really transformed wood; many coal mines being evidently the remains of antediluvian forests, swept together in the course of the terrestrial changes alluded to, and afterward solidified to the state now seen. In these mines the species of the plants or trees which formed them are still quite evident in abundant specimens, mixed often with the remnants of the animals which inhabited the earth at the same time. The extensive peat-mosses now existing on the surface of the earth consist chiefly of vegetable remains at an early stage of the kind of change which terminates in the formation of coal.

A substance which, like coal or wood, cheaply answers the purpose of producing great heat and light is called fuel, and the phenomenon of that production is called combustion. Now modern discovery has ascertained that, in every instance, combustion is merely an appearance which accompanies the mutual action, when very intense, of two substances in the act of forming an intimate or chemical union. Where that act is less energetic, the heat produced is less intense, and there is no light. Thus, water and sulphuric acid, when mixing, produce great heat, but no light. Water and quick-lime produce still greater heat; sufficient, it is known, to set fire to a ship in which the mixture unfortunately occurs. It is an occurrence of the same kind when heat is evolved from an acid dissolving a metal; and it is still of the same kind when a mass of coal or wood in a fire-grate is, with the appearance of combustion, undergoing solution in the oxygen of the atmosphere. In this last case, however, the temperature of the fuel is, by the very intense action, raised so much that the fuel becomes incandescent or luminous; an appearance assumed by every substance, whether burning or not—of a stone, for instance, or piece of metal—when heated beyond the temperature indicated by 800° of Fahrenheit's thermometer. The inferior degrees of such incandescence are called *red heat*, the superior degrees *white heat.* The reason why any strongly heated body throws out light, we can not yet explain. When a quantity of wood or coal has been burned to ash in a confined portion of air, the whole of the fuel, vanished from view, is held in solution by the air, as salt is held in water, and is again recoverable by the art of the chemist. The phenomenon of common fire, or combustion, then, is merely the fuel being chemically dissolved in the air of the atmosphere. If the fuel has nothing volatile in it, as is true of pure carbon, and nearly true of coke and charcoal, it burns with the appearance of red-hot stones; but if there be an ingredient, as hydrogen, which, on being heated, readily assumes the form of air, that ingredient dilates before burning, and in the act produces the more bulky incandescence called flame.

Varieties of Coal.—There is a curious chain of links which connect living wood with dead coal. First, there is *peat*, consisting of various kinds of plants and moss, imbedded and pressed together into a mass, and exposed to the action of air or water, or both, and perhaps heat, for unnumbered centuries. Then there is *lignite*, formed in nearly the same way from trunks of trees, and accumulated in layers of vast thickness in Germany and other parts of Europe; it has not hitherto been much used as fuel, but there are indications that it will so be ere long. Next comes *jet*, which appears to be a peculiar variety of vegetable matter brought almost to a bituminous state. Then we have *cannel coal*, which not only yields the best and most abundant gas for street-lighting, but has often such a hardness, blackness, and polish, as to enable it to be worked up into very beautiful ornaments. One peculiar kind of cannel coal, called the Breckinridge coal, was lately discovered in Kentucky, from which a burning oil has been manufactured, which by experiment has proved quite equal to sperm whale oil, if not superior, and can be manufactured for one-half the cost of sperm oil. The United States government have under consideration a contract to use it in the light-house system. Next is the *caking*, or common bituminous coal, which combines so many useful qualities for household purposes. Somewhat different from this is the *stratified coal* of the midland counties of England, which is obtained in very long pieces, and has less bituminous or caking quality. A still less gaseous coal is that which, from the purpose to which it is now found to be admirably adapted, is called *steam coal;* it is obtained chiefly from Wales, and burns with intense heat, and little flame or smoke. Last on the list is *anthracite*, so nearly without gas as to consist almost entirely of carbon; its intense heat and freedom from sulphur render it invaluable for iron-smelting and other manufacturing processes.

The two great purposes which combustion serves to man are to give light and heat. By the former he may be said to lengthen considerably the duration of his natural existence; for he converts the dismal and almost useless night into what, for many ends, serves him as well as day; and by the latter, besides converting winter into any climate which he desires, he is enabled to effect most important mutations in many of the substances which nature offers for his use; and, since the invention of the steam-engine, he makes heat perform a great proportion of the work of society. From these considerations may be perceived the importance of having fire at command; and, as the cheapest means of commanding fire, of having abundance of coal.

II. *Coal in Great Britain.*—As respects the supply of coal, Great Britain is singularly favored, a large portion of the surface of the country having under it continuous and thick beds of this valuable mineral—vastly more precious than would have been mines of the precious metals, like those of Peru and Mexico; for coal, since it has been applied to the steam-engine, is really hoarded power, applicable to almost every purpose which human labor directed by ingenuity can accomplish. It is the possession of her coal mines which has rendered Great Britain, in relation to the whole world, what a city is to the rural district which surrounds it—the producer and dispenser of the various products of art and industry. Calling her coal mines the coal-cellars of the great city, there is in them a supply which, at the present rate of expenditure, will last for 2000 years at least; and, therefore, a provision which, as coming improvements in the arts of life will naturally effect economy of fuel, or substitution of other means to effect similar purposes, may be regarded as inexhaustible.

The kinds or differences of coal depend on their comparative proportions of carbon and hydrogen, and of earthy impurities totally incombustible. While some species of coal contain nearly a third of their weight of hydrogen, others have not a fiftieth part. The former kinds are flaming coal, pleasing in parlor fires, and fit for the manufacture of gas. The other kinds—some of the Welsh stone coal, for instance—will only burn when in large heaps, or when mixed with more inflammable coal: they have no flame. When flaming coal is burned where a sufficiency of oxygen can not pass through or enter above the fire, to combine with and consume the hydrogen as fast as it rises, a dense smoke is given out, consisting of hydrogen and carbon combined in the proportions which form a pitchy substance. The Welsh coal above mentioned can as little give out smoke as flame, and hence is now much used in great breweries, and in the steam-engine furnaces of towns, where smoke is a serious nuisance. The foliated or cubical coal, and slate coal, are chiefly used as fuel in private houses; the caking coals, for smithy forges; the slate coal, from its keeping open, answers best for giving great heats in a wind furnace, as in distillation on a large scale; and glance coal, found in Staffordshire, is used for drying grain and malt. The coals of South Wales contain less volatile matter than either the English or the Scotch; and hence, when employed in smelting the ore, produce a greater quantity of iron. It is supposed that three parts of good Newcastle coal are equivalent, as fuel, to four parts of good Scotch coal.

Consumption of Coal. Number of Persons engaged in the Trade. Supply of Coal.—The great repositories of coal in England are in Northumberland and Durham, whence London and most parts of the south of England are at present supplied; in Cumberland, whence large quantities of coal are exported to Ireland; and in Staffordshire, Derbyshire, Lancashire, Yorkshire, Leicestershire, Warwickshire, South Wales, etc. In Scotland, coal is found in the Lothians, Lanarkshire, Renfrewshire, Ayrshire, and other counties. In Ireland, coal is both deficient in quantity and inferior in quality to that of Great Britain; and turf forms the great article of fuel.

The importance of coal as a necessary of life, and the degree in which superiority in arts and manufactures are dependent upon obtaining supplies of it at a cheap rate, has naturally attracted a good deal of attention to the question as to the period when the exhaustion of the coal mines may be anticipated. But the investigations hitherto made as to the magnitude and thickness of the different coal-beds, and the extent to which they may be wrought, are too vague and unsatisfactory to afford grounds for forming any thing like a tolerably near approximation to a solution of this question. But such as they are, they are sufficient to show that *many centuries* must elapse before posterity can feel any serious difficulties from a diminished supply of coal. According to an estimate prepared by Mr. Taylor, an intelligent coal engineer, in 1829, the coal-fields of Durham and Northumberland are adequate to furnish the present annual supply for a very long period. We subjoin Mr. Taylor's estimate.

ESTIMATE OF THE EXTENT AND PRODUCE OF THE DURHAM AND NORTHUMBERLAND COAL-FIELDS.

	Sq. Miles.	
Durham.		
From South Shields southward to Castle Eden, 21 miles; thence westward to West Auckland, 32 miles; northeast from West Auckland to Eltringham, 33 miles; and then to Shields, 22 miles; being an extent or area of	594	
Northumberland.		
From Shields northward 27 miles, by an average breadth of 9 miles	243	
		837
Portion excavated.		
In Durham, on Tyne, say	39	
on Wear	40	
	79	
In Northumberland, say 13 miles by 2	26	
		105
		732

	Tons.
Estimating the workable coal strata at an average thickness of 12 feet, the contents of one square mile will be 12,390,000 tons, and of 732 square miles	9,069,480,000
Deduct one-third part for loss by small coal, interceptions by dikes, and other interruptions	3,023,160,000
Remainder	6,046,320,000

This remainder is adequate to supply the present vend from Newcastle, Sunderland, Hartley, Blyth, and Stockton, of 3,500,000 tons, for a period of 1727 years.

It will be understood that this estimate of the quantity of coal in Durham and Northumberland can only be an approximation, especially as the southeastern coal district of Durham is yet almost wholly unexplored; but the attempt is made, in the hope of satisfying your lordships that no apprehension need be entertained of this valuable mineral being exhausted for many future generations.

There is also a considerable extent of coal-field in the northern and southwestern districts of Northumberland, but the foregoing comprises that which is continuous, and most suitable and available for exportation. It is, however, to be observed that the shipments of coal from the ports mentioned by Mr. Taylor has been largely increased during the last dozen years; so that, supposing the estimate to be in other respects accurate, it must now be modified accordingly.—*Lords' Report*, 1829, p. 124.

Dr. Buckland, the celebrated geologist, considers Mr. Taylor's estimate as greatly exaggerated; but in his examination before the committee of the House of Commons in 1829, he quoted with approbation a passage of Bakewell's *Geology*, in which it is stated that the coal-beds in South Wales were alone sufficient to supply the then demand of England for coal for 2000 years. The passage is as follows:

"Fortunately we have in South Wales, adjoining to the Bristol Channel, an almost exhaustless supply of coal and iron-stone, which are yet nearly unwrought. It has been stated that this coal-field extends over about 1200 square miles; and that there are 23 beds of workable coal, the total average thickness of which is 95 feet; and the quantity contained in each acre is 100,000 tons, or 65,000,000 tons per square mile. If from this we deduct one half for waste, and for the minor extent of the upper beds, we shall have a clear supply of coal equal to 32,000,000 tons per square mile. Now if we admit that 5,000,000 tons from the Northumberland and Durham mines is equal to nearly one-third of the total consumption of coal in England, each square mile of the Welsh coal-field would yield coal for two years' consumption; and as there are from 1000 to 1200 square miles in this coal-field, it would supply England with fuel for 2000 years, after all the English coal mines are worked out!"

But supposing this supply to last only 1000 years, that carries us so far into futurity, that it appears to be quite idle either to prohibit or impose heavy duties on the exportation of coal, on the ground of its accelerating the exhaustion of the mines.

Profits of Coal Mining. Coal Owners' Monopoly, etc.—Instead of the business of coal mining being, generally speaking, an advantageous one, it is distinctly the reverse. Sometimes, no doubt, large fortunes have been made by individuals and associations engaged in this business; but these are rare instances. The opening of a mine is a very expensive and hazardous operation, and of very uncertain result. Collieries are exposed to an infinite number of accidents, against which no caution can guard. The chances of explosion have, it is true, been a good deal lessened by the introduction of Sir Humphry Davy's lamp; and some mines are now wrought that, but for the invention of this admirable instrument, must have been entirely abandoned. But besides explosions, which are still every now and then occurring, from the carelessness of the workmen, and other contingencies, mines are very liable to be destroyed by *creeps*, or by the sinking of the roof, and by drowning, or the irruption of water from old workings, through fissures which can not be seen, and consequently can not be guarded against. So great, indeed, is the hazard attending this sort of property, that it has never been possible to effect an insurance on a coal-work against fire, water, or any other accident.

Coal Trade.—It is estimated that not less than forty million tons of coals are raised annually from the various mines in the United Kingdom. Of these the greater part is either used in the immediate neighborhood of the mines, or sent by inland navigation or land carriage to different parts of the kingdom. In 1852, 12,709,771 tons of coals, cinders, and culm were shipped from ports in the United Kingdom; of these, 9,069,577 tons were sent coastwise to other ports of the kingdom; being, coals 8,805,934 tons, cinders 43,376 tons, culm 220,267 tons. The quantities of coals, cinders, and culm shipped coastwise from the different ports of the United Kingdom in 1851 and 1852, were:

	1851.	1852.
ENGLAND.	Tons.	Tons.
Portsmouth	6,103	6,644
Bristol	1,562	1,085
Gloucester	85,963	88,801
Cardiff	501,002	462,343
Newport	451,491	451,770
Swansea	352,247	375,182
Llanelly	219,460	214,735
Milford	49,573	50,102
Chester	101,044	85,772
Liverpool	115,904	105,932
Preston	42,257	37,918
Fleetwood	9,898	9,349
Lancaster	5,337	4,838
Whitehaven	226,266	222,208
Workington	95,703	85,014
Maryport	201,676	230,012
Carlisle	15,153	17,851
Newcastle	2,067,112	2,175,857
Shields	214,829	168,172
Sunderland	1,899,160	1,978,611
Stockton	388,646	336,821
Hartlepool	1,137,989	1,340,876
Gainsborough	9,577	7,605
Hull	12,735	10,113
Goole	104,336	96,083
Other ports	4,252	3,934
SCOTLAND.		
Leith	9,091	8,358
Barrowstounness	36,359	34,550
Grangemouth	6,521	2,943
Alloa	23,015	18,266
Kirkcaldy	37,035	29,504
Glasgow	86,893	81,966
Irvine	224,193	250,847
Ayr	72,569	77,888
Other ports	430	2,091
IRELAND.		
Ross	476	179
Total	8,816,538	9,069,577

In 1852 the exports from the United Kingdom to foreign countries, including British settlements, were as follows: Coals 3,479,282 tons, of the value of £1,287,626; cinders 159,040 tons, of the value of £83,832; culm 1872 tons, of the value of £656; total, 3,640,194 tons, of the declared value of £1,372,114.

The principal foreign countries to which coals, cinders, and culm were exported from the United Kingdom in 1851 and 1852, were the following:

Countries.	Quantities Exported.	
	1851.	1852.
	Tons.	Tons.
Russia	215,221	188,041
Denmark	295,153	313,689
Prussia	216,603	214,513
Hanseatic Towns	343,065	350,499
Holland	132,258	147,540
France	602,808	663,261
Spain and Canaries	191,355	203,371
Italy	152,919	171,367
Turkey	98,235	72,782
British East Indies	97,738	94,304
British West Indies	82,147	99,449
United States, North America	83,546	122,285

The quantities of coal brought coastwise and by inland navigation into the port of London were:

Years.	Coastwise.	Inland Navigation and Land Carriage.	Total.
	Tons.	Tons.	Tons.
1851	3,236 542	254,421	3,490,963
1852	3,330,428	414,917	3,745,345

During the six months ending 30th June, 1852, 179,386 tons of coal were imported into London by railway, and 19,637 tons by canal: for the corresponding period of 1853 the imports by railway were 296,361 tons, and by canal 10,322, showing a decrease by canal, but a very considerable increase by railway.

The coal trade was long subjected to very heavy and oppressive duties. A duty of 17*s*. per chaldron on large, and 4*s*. 6*d*. per chaldron on small coals, was levied on all coal exported to foreign countries. In 1831 these duties were considerably modified, and in 1835 they were repealed, with the exception of an *ad valorem* duty of 10*s*. per cent. on coal exported in British vessels, or in those of foreign countries entitled to the privileges conferred by treaties of reciprocity, while in other foreign vessels it was subject to a duty of 4*s*. a ton. These duties were, in 1840, altered to 10*s*. 6*d*. per cent., and 4*s*. 2$\frac{8}{20}$*d*. per ton respectively. In 1842, duties of 2*s*. per ton on large, and 1*s*. per ton on small coal and culm were imposed, and on all coal exported in foreign vessels not entitled to the privileges conferred by treaties of reciprocity a duty of 4*s*. per ton. The two former were abolished on 12th March, 1845, but the last continued in force till 14th August, 1850.

In the reign of William III., a duty of 5*s*. per chaldron was laid upon coal carried coastwise from one part of the kingdom to another. During the last war with France this was raised to 9*s*. 4*d*., but in 1824 it was reduced to 6*s*., and in 1831 was repealed. This tax pressed unequally on different parts of the empire, for while it amounted to 6*s*. a chaldron, or 4*s*. a ton in the metropolis, and all the south of England, it was only 1*s*. 7¼*d*. a ton on coal carried by sea to Ireland, and 1*s*. 8*d*. on that to Wales; while Scotland was for many years entirely exempted from this duty.

Though these duties are now abolished, the coal trade is still in some places burdened with heavy local duties. Thus a duty of 1*s*. 1*d*. per ton is chargeable upon all coal brought into the port of London. By act 1st and 2d William IV., cap. 76, several oppressive acts were repealed, and the duties payable to the corporation of the city of London were commuted for a duty of 1*s*. 1*d*. per ton; and by 8th and 9th Vict., cap. 101, a like duty was imposed on coal brought into London by railway, canal, or other inland carriage. Of this duty 8*d*. per ton is carried to the London Bridge Approaches Fund, for effecting street improvements in the metropolis; 4*d*. per ton is the property of the corporation of the city of London, and after defraying certain charges is carried to the general account of the corporation; 1*d*. per ton is payable to her majesty's commissioners of works, to be applied by them in effecting public improvements in the metropolis, authorized by several acts of Parliament. The produce of these duties, with the drawbacks allowed upon coal exported, was, in 1852,

	Gross Duty.	Drawback.	Net Duty
8*d*. per ton to 5th January, 1853	£123,657	£10,098	£113,559
4*d*. per ton to 31st December, 1852	62,640	5,049	57,591
1*d*. per ton to 31st December, 1852	15,560	1,262	14,298
Total	£201,857	£16,409	£185,448

In 1851 the gross amount of duty was, on sea-borne coal, £175,840; on coal brought landwise, £12,151. The 4*d*. per ton duty, in 1851, amounted to £54,104, of which £215 were salaries in relation to collection: £3009 drawback allowed upon coal exported; £7607 retiring allowances paid to deputy sea-coal meters and others, upon the abolition of their offices in consequence of act 1st and 2d Will. IV., cap. 76, and which had gradually decreased from £16,820 in 1836; and £20,000 an annual charge for making a new street in the line of Canon Street, and other improvements. The attention of government is at present directed to these unjust local imposts, by which our home trade is unnecessarily burdened, and the merchant and ship-owner made to pay for improvements which ought properly to be charged against the landlords or inhabitants; and it is expected that they will speedily be abolished.—E. B.

III. *Areas of Coal-beds in the World, and a Comparison of their Extent.*—From the elaborate work, "Statistics of Coal," by R. C. Taylor, we extract a comparison of the proportionate areas of coal land in Europe and America:

The following table shows the relative magnitude of the principal coal-producing countries, and their respective *areas of coal land*, together with the proportions which they severally bear to each other. Those of France and Spain are considerably less than the actual amount. Coal occurs in almost every principal subdivision of Spain, but we have only included the Asturias region.

Hence, as regards European countries, Great Britain takes the first rank; Belgium, as regards territorial proportion, occupies the second rank, although in relative coal area she is the least of the four. Pennsylvania, in respect to territorial proportion, is higher than any of these, being relatively one-third; but in absolute area of coal formation, the four eastern colonies of British America united exceed them all, being larger than that of Great Britain, France, Belgium, and Spain conjoined. This table is not strictly perfect, since we possess the areas of the concessions only in France; and in Spain, only of the single coal region of Asturias. We add the coal areas of Prussia and Austria, but can not state the proportions of coal formation therein. The American area of coal is nearly three-fourths of the whole amount in our table.

Countries.	Entire Area of each Country.	Area of Coal Lands.	Proportion of Coal to their whole Areas.	Proportions, Relative Parts of 1000, of Coal Areas.
	Square Miles.	Square Miles.		
Great Britain	120.290	11,859	1-10	64
Spain (Asturias region)	177,781	3,408	1-52	18
France (area of fixed concession) in 1845	203,736	1,719	1-118	9
Belgium conceded lands	11,372	518	1-22	3
Pennsylvania, United States	43,960	15,437	1-3	84
British Provinces, North America	81,113	18,000	1-4½	98
Persian dominions	107,937	....	..	..
Austrian Provinces containing coal or lignite	150,000	....	..	..
United States	2,280,000	....	1-17	..
Twelve principal coal-producing States	565.283	133,132	1.4	724
Total	....	184,073	..	1000

We assume these, in round numbers, as correct; and here we perceive at a glance the vast resources of the United States in their coal-producing regions, when compared with Europe. It must be recollected, too, that several of our States have not had geological surveys; and it would not be surprising if other States than those enumerated were found hereafter to possess coal in abundant quantities.

The whole coal region of Europe is by Mr. Taylor shown to be only 50,941 square miles, being *somewhat less than that of the Western States of Illinois and Indiana;* while England has only 8139 miles, and Ireland 3720 miles, the aggregate being somewhat less than that of the State of Ohio. But Great Britain produces annually upward of 34,000,000 tons of coal; while that of Pennsylvania is about 10,000,000 tons.

IV. *Comparison of the Coal Trade of the United States and Europe.*—The consumption of coal in Europe and the United States was estimated as follows in 1845, showing also the square miles of coal formation, the relative proportions, and the value in dollars:

Countries.	Square Miles.	Production, 1845.	Proportion.	Value.
		Tons.		
Great Britain	11,859	31.500.000	·642	$45,738,000
Belgium	518	4,960,000	·101	7,689,000
United States	133.132	4,400,000	·089	6,650,000
France	1.719	4,141,000	·084	7,663,000
Prussian States	undefined.	3,500,000	·070	4,122,000
Austrian States	undefined.	659,000	·014	800.000
Total	....	49,160,000	1·000	$72,662,000

The quantities of coal imported into the United States from England and the British provinces were, in 1850, 180,439 tons; and in the year 1853, 231,508 tons. From a letter of Mr. E. K. Collins, we learn that the Collins line of steam vessels had used the Cumberland coal, but had relinquished it, and afterward tried the anthracite, which was used for three years. In January, 1854, they thought of using the Cumberland coal again.

Mr. Cunard states that for his line they use the Welsh coals on the voyage from Liverpool, and the Cumberland coal on the return trips.

"We have in the United States more iron ore and more coal, with the usual fluxes, in convenient connection and of cheaper access, than all the other civilized nations of the world, and have the necessary capital, skill, and labor to produce all the iron and steel, and manufactures of iron and steel, required for our consumption, or that may be required for our consumption, for centuries to come, and also to enable us to supply the markets of other countries in fair competition with the iron and steel of other nations. Our production of iron and steel, and manufactures of iron and steel, was greater in proportion to population in 1850 than it was in 1840, and that it was greater in 1855 than it was in 1850, giving us the right to assume that, influenced by the same causes, it will be greater in 1860 than it now is, and in time will be sufficient for our own consumption, and then give us a surplus for export. But taking into consideration our present population and accumulated capital, with the amount of capital annually drawn from other countries in the course of emigration, and the great cost of carriage to the interior of our country, with the late improvements in the modes of production and manufacture of iron and steel, it would not be rash to expect a full supply for our own consumption between this and the returns of the census of 1870."—*United States Treasury Report*, 1856.

The question of duty on coal attracts considerable attention, and it is well to understand certain facts which have a direct bearing upon its decision.

In the year 1815, when the duty on foreign coal was $3 60, the price in New York was $23 the chaldron of 36 bushels.

From 1816 to 1823 the duty was $1 80, and the average price was $11.

From 1824 to 1834 the duty was $2 16, and the average price was $14.

In 1842 the duty was $1 75 per ton, and the market price was $7 16; and in 1844, with a duty of $1, the price was $5 56. In the year 1846 the duty was altered to an *ad valorem* one of 30 per cent., or about 45 cents per ton, and the market price since has ranged from $6 50 to $7 50.

V. *Statistics of the Coal Trade of the United States.*—Pennsylvania is rich in its coal product. This article is one of the great sources of wealth to that State, and its importance may be seen from the single fact that about 6,000,000 tons are carried over or through the various railroads and canals of that State eastwardly. We refer only to the anthracite region, which mines seem to be inexhaustible, and we leave out of view the immense production in Western Pennsylvania. The latter portion of the State owes its growth mainly to its coal-beds, in conjunction with its iron and glass manufactures.

The maximum capabilities of the transportation companies may be set down at 7,600,000 tons per year, with their present forces; viz.:

	Tons.
Lehigh (Canal) Navigation Company	1,300,000
Schuylkill (Canal) Navigation Company	1,000,000
Reading Railroad	4,000,000
Delaware and Hudson Canal	1,300,000
Total	7,600,000

If we may judge by the increase of the last two or three years, the quantity of coal required by the above conveyances will be 7,500,000 tons for the coming year, and between eight and nine millions for the year 1856. We have received from London the special Report of Professor Wilson on the New York Industrial Exhibition, in which document we find a variety of useful information in reference to the manufactures, minerals, mining, and metallurgy of the United States. His remarks on the iron, lead, copper, and zinc products and manufactures will be a valuable addition to the information already in possession, and will be acceptable as well to the legislator as to the manufacturer and merchant.

Virginia takes the lead among the Eastern (or Atlantic) States as the owner of coal-fields, and is, in fact, one of the prominent States of the whole Union as the possessor of this valuable mineral.

AREA OF THE SEVERAL STATES WHERE COAL IS FOUND, AND THE COAL AREA OF EACH, AND THE PROPORTION OF COAL.

States.	Area.	Coal Areas.	Proportion of Coal.
	Square Miles.	Square Miles.	
Alabama	50,875	3,400	1-14
Georgia	58,200	150	1-386
Tennessee	44,720	4,300	1-10
Kentucky	39,015	13,500	1-3
Virginia	64,000	21,195	1-3
Maryland	10,829	550	1-20
Ohio	38,850	11,900	1-3
Indiana	34,800	7,700	1-5
Illinois	59,130	44,000	3-4
Pennsylvania	43,960	15,437	1-3
Michigan	60,520	5,000	1-20
Missouri	60,384	6,000	1-10
Total	565,283	133,132	Nearly ¼th

North Carolina is reputed to hold about as much coal land as Georgia. Iowa is one of the richest coal States, and has a coal area almost equal to Ohio.

From this valuable reference-table it will be seen that Illinois takes the lead, having within her own borders *one-third* of the entire coal region of the United States. Next in importance is Pennsylvania, producing both anthracite and bituminous coals. Of these immense fields Professor Wilson says:

"These comprise the three anthracite coal-fields of Eastern Pennsylvania, known as the Southern Schuylkill, the Middle of Shamokin, and the Northern or Wyoming, and the Frostburg or Cumberland coal-field (semi-bituminous), in the State of Maryland. Besides these beds, a small outlying bed exists in Pennsylvania of semi-bituminous coals, known as the Broadtop, which, however, owing to its insulated position, being without any means of access, is only available for local purposes; and some deposits of considerable area in Virginia, whose importance is being daily recognized, and whose produce is gradually finding its way into the markets. The demand at present, however, is confined chiefly to gas-making purposes.

"Of the three anthracite beds of Pennsylvania, the Southern is, both by situation and magnitude, the most important, and furnishes a large proportion of the entire supply. It presents great facilities of access, which have been made advantageous use of by two Canal Companies, the Lehigh and the Schuylkill, and by the Reading Railroad, which penetrate far into the interior, and form the great outlets for its produce. Other railways are now in progress, which will not only afford additional facilities of transfer to the Atlantic cities, but also open a communication to the latter, and through them to the Western markets."

The third in importance is Ohio, having nearly one-third of its area in coal. The returns as to production are not copious; but Charles Lyell, who made critical inquiries on the subject, reported the following as the yield for 1851–'52:

	Bushels.	Tons.
Western Pennsylvania	35,000,000	1,170,000
Virginia	15,000,000	500,000
Eastern Ohio	16,000,000	535,000
Total	66,000,000	2,205,000

At the Exhibition were produced samples of coal from Valley Falls, Rhode Island, but the product is of inferior quality.

Of the Virginia coal, twelve miles west of Richmond, and extending fifty miles, the seams are 800 feet in thickness, being the deepest mines known in America. In Belgium some of the mines are known to be from 1140 to 1476 feet in depth. In England, 1000 to 1794 feet—with an average in Lancashire of 750 feet.

DISTANCES OF THE CHIEF COAL DISTRICTS OF PENNSYLVANIA AND MARYLAND FROM TIDE-WATER.

BITUMINOUS COAL.		Miles.
Farrandsville	to Havre de Grace	202
Alleghany Coal Mines	to Havre de Grace	195 to 200
Cumberland, Maryland,	to Georgetown	199
Cumberland, Maryland,	to Baltimore	189
Dauphin and Susq. Co.	to Havre de Grace	93
ANTHRACITE COAL.		
Del. and Hudson Co.	to Rondout	125
Pine Grove	to Havre de Grace	120
Lykens' Valley Co.	to Havre de Grace	116½
Bear Mountain Co.	to Havre de Grace	111
Lehigh Room Run	to Bristol	110
P. Grove by Minersville	to Philadelphia	110
Stony Creek Coal Estate	to Havre de Grace	100
Minersville	to Port Richmond	98
Pottsville	to Port Richmond	95½

IMPORTED COAL.—The only countries from which coal ever finds its way into the United States are Great Britain and British America, and the contributions from them appear to be annually diminishing. For a time there was an increasing foreign importation; viz., from 22,123 tons in 1821, to 181,551 tons in 1839. By the operation of the American tariff this advance was not only checked, but a retrograde movement was produced, so as in 1843 to amount to only 41,163 tons, by the United States returns. By the last annual return, that for 1847, the entry of foreign coals, whether from Europe or from British America, was 148,021 tons; of which from 12,000 to 15,000 tons were re-exported for the service of the English steamships. In 1850, 180,439 tons were imported into the United States; in 1853, 231,508 tons; showing an increase.

INCREASED PRODUCTION OF COAL. *Anthracite Coal.*—The production of anthracite may be said to be entirely confined to Pennsylvania, which possesses a numerous and interesting group of coal basins of various sizes and character.

Our returns show that the consumption of anthracite, in other words, the coal trade, commenced with 365 tons in the year 1820; that the production reached 48,047 tons in 1827; that it had increased to 881,026 tons in 1837, and advanced to 3,000,000 of tons in 1847, without including much that is consumed on the spot, in the mining districts, or interior of the country.

The increased production, therefore, was, in the first ten years, viz., from 1827 to 1837, 1735 per cent.; in the second ten years, viz., from 1837 to 1847, 240 per cent.; and in the twenty years previous to 1848, that is, from 1827 to 1847, 6100 per cent.

We introduce another view of the subject, which exhibits this accelerated increase in the consumption of anthracite, perhaps, with yet greater perspicuity. The amount which was periodically forwarded to market, exclusive of the consumption in or near the places of production, and which has not been estimated, is as follows:

	Tons.
Aggregate in the 21 years, from 1820 to 1840, inclusive	6,847,179
In the succeeding 7 years, to 1847, inclusive	12,371,961
Total	19,219,133
From 1847 to 1853, inclusive	23,841,358
Total	43,060,491

We add the statistics from the various regions for the year 1855.

SCHUYLKILL REGION.	1854.	1855.	Increase.	Decrease.
	Tons.	Tons.	Tons.	Tons.
By railroad	987,854	2,213,294	225,438	....
By canal............	907,354	1,105,263	197,909	....
Pinegrove	62,452	15,019	15,019	....
Total..............	2,957,670	3,396,037	438,366	....
LEHIGH REGION.				
Lehigh Canal	1,207,186	1,224,842	17,656	....
Lehigh Valley Railroad	....	9,063	9,063	....
WYOMING REGION.				
Del. and Hudson Co. .	440,944	565,460	124,516	....
Pennsylvania Coal Co.	496,648	507,803	8,155	....
N. Branch Canal	492,689	564,039	....	28,650
White Haven Railroad	39,232	50,209	10,977	....
Western Railroad	133,965	187,000	53,035	....
Shamokin	63,506	116,117	52,617	....
Anthracite...........	5,831,834	6,517,569	715,385	28,650
	....	5,831,818	28,650	....
Increase of anthracite in 1855	....	686,735	686,735	....

Showing an increase of anthracite coal in 1855 of 686,735 tons, against 734,690 tons last year.

AN OFFICIAL STATEMENT OF THE AMOUNT OF COAL SENT TO MARKET FROM THE LEHIGH REGION, FROM THE COMMENCEMENT OF THE TRADE TO THE CLOSE OF THE YEAR 1856.

Years.	Tons.	Years.	Tons.
1820............	365	1839............	222,042
1821............	1,073	1840............	225,591
1822............	2,441	1841............	142,807
1823............	5,823	1842............	271,913
1824............	9,541	1843............	267,125
1825............	28,396	1844............	376,363
1826............	31,280	1845............	430,988
1827............	32,074	1846............	522,518
1828............	30,232	1847............	643,563
1829............	25,110	1848............	680,197
1830............	41,750	1849............	800,988
1831............	40,966	1850............	722,681
1832............	75,000	1851............	989,254
1833............	123,000	1852............	1,113,843
1834............	106,244	1853............	1,080,550
1835............	131,250	1854............	1,245,815
1836............	146,522	1855............	1,274,983
1837............	225,937	1856............	1,357,520
1838............	214,211		

Bituminous Coal.—We have given, in the first part of this article, data by which the approximate increase of this description of fuel can be determined, and give here all the statistics that can be collected.

SEMI-ANTHRACITE OR BITUMINOUS.	1854.	1855.	Increase.	Decrease.
	Tons.	Tons.	Tons.	Tons.
Lykens' Valley Co..	57,500	66,721	9,221	....
Short Mountain Co.	50,000	50,000	500	....
Dauphin Co.	63,000	1,000	....	62,000
Cumberland Region	648,299	664,304	16,005	....
Foreign coal.......	252,865	287,408	34,543	....
Total.......	1,071,664	1,069,933	60,269	62,000
	1,069,933	....	....	60,269
Decrease in 1855...	1,731	....	....	1,731

The increase of semi-anthracite or bituminous coal in 1854, including foreign, over the previous year, was 218,167 tons. This year (1855) there is a decrease of 1731 tons, making the total increase of all kinds in 1855 684,004 tons, against 952,857 tons in 1854.

Almost as interesting as the statistics of the areas and production of the coal countries, is the consideration of the means of transportation and the facilities needed to give us fuel in abundance and at a low price. It is of great importance to the consumer, and an extract from a private letter will be of interest, throwing some light on the ways and means, the cost and contingencies in the transit to market:

"By canal, besides the distance and cost of the structure, there are so many contingencies, arising from too much or too little water, as to weaken the dependence; and on the railroads, the grades and the adaptation to the business are alone the objects by which the price can be regulated. If the grades be level or descending, the capacity of the engine is not only increased, but the expense is so much reduced as to determine its value, and it is only upon a road so graded and so constructed as to endure the burden that the price can be fixed or defined. On the down-hill grade the momentum keeps up the speed, and relieves the engine, while on the up-hill grade the speed is depressed, the power is reduced, the strain is increased, and the expense augmented.

"On the Reading Railroad, in operation since 1841, these facts are so illustrated and defined as to establish their existence beyond a question. On the stem as upon the laterals, the descent is from 22 feet to a mile to a level of 36,000 feet, and as the maximum is but four miles in length, the balance descends to the level without the slightest rise to interfere with the speed. On this descent and over the level, a single engine can take as many cars loaded as it can bring empty to the place of starting. This difference, from the weight of the descending and ascending trains, is ascertained to be equal to two and three-quarters engines, or 175 per cent. more than on the downward grade—consequently a reversion of the trade; or upon a road where the grade is equal to twenty-two feet to the mile against the trade, the expense for engines, fuel, and wages, would be more for the same distance than the profits derived from the coal in market.

"But as these are the questions for railroad-makers, we will next consider the extent of the trade, and arrive at our object by the expenditure made to accommodate it. On the Lehigh, we have an expenditure on the part of the Lehigh Coal and Navigation Company of $8,441,405, and on the part of some fourteen or fifteen companies passing over their works about five millions more, making together $13,441,405. From the commencement of the company in 1820 until the close of the season in 1855, the production of the region is 12,278,012—equal to 353,725 tons per annum. But if we take the amount sent to market during the year just closed, 1,274,986 tons, and admit a clear profit of 75 cents per ton, which it did not give to the several parties concerned, the income would be less than 7 per cent. on the money expended. In the region it is also understood the mining operations are above water-level, and that until recently they were conducted on the principle of a quarry, and that the expenses, together with the transit, prevented a dividend to the stockholders until the outside operators came in to their relief.

"On the Lackawana, the Delaware and Hudson Company, and the Pennsylvania Coal Company, with capitals amounting to $11,626,761, brought to market during 1855, 1,092,000 tons, and during the period they have been in existence the average is equal to 332,000 tons per annum. The production of 1855, at 75 cents per ton clear profit, gives, however, but 7 per cent.

"On the Schuylkill, the operations are more extensive, and the expenditure, including the

Reading Railroad, cost	$18,464,114 64
Schuylkill Canal cost	10,850,451 41
496 miles Lateral Roads to the Collieries.	4,000,000 00
Total.........................	$33,314,566 05

Besides this expenditure for reaching the trade, there is a population depending upon it of 60,717 in 1850, which is divided into 10,927 families and 10,670 houses. In the region there are also 300 stationary engines, equal to 10,000 horse power, used in mining. In 1855, the production was 3,318,340 tons, and during the existence of the works (the Navigation Company thirty-four years, and the Reading fifteen years), the product has been 28,508,944 tons, equal to 838,495 tons per annum. At 75 cents on the product of the year just closed, clear profit, the percentage on $36,631,516, including the improvements at the mines, would be between 7 and 8 per cent.

"Altogether the cost for improving and reaching the three regions in operation, including the eastern division of the Pennsylvania works, is $62,272,898. The product during 1855 amounted to 5,262,189 tons, which, at 75 cents profit, would be equal to 7½ per cent. profit."—*See articles* IRON *and* UNITED STATES.

Coasting-trade, the trade or intercourse carried on by sea between two or more ports or places of the same country. It has been customary in most countries to exclude foreigners from all participation in the coasting-trade. This policy began in England in the reign of Elizabeth (5 Eliz. c. 5), or perhaps at a more remote era; and it was perfected by the acts of navigation passed in 1651 and 1660. This policy is now entirely abrogated in Great Britain.—*See* GREAT BRITAIN.

Of Vessels which may engage in the Domestic Trade of the United States.—Vessels of twenty tons and upward, enrolled, and having a license in force, and vessels of less than twenty tons, not enrolled, but having a license in force, and no others, shall be deemed vessels of the United States, entitled to the privileges of vessels employed in the coasting-trade and fisheries. Every vessel of twenty tons or upward (other than such as are registered) trading between district and district, or between different places in the same district, or carrying on the fishery, without being enrolled and licensed, or if of less than twenty tons, and not less than five tons, without a license, if laden with goods the growth or manufacture of the United States only (distilled spirits only excepted), shall pay the same fees and tonnage in every port at which she may arrive as are payable by vessels not belonging to a citizen of the United States; and if she have on board any articles of foreign growth or manufacture, or distilled spirits, other than sea-stores, she, together with her tackle, apparel, and furniture, and lading, found on board, shall be forfeited. But if such vessel be at sea at the expiration of the time for which the license was given, and the master shall swear that such was the case, and shall also, within forty-eight hours after his arrival, deliver to the collector of the district in which he shall first arrive the license which shall have expired, she shall not be forfeited, nor shall be liable to pay such fees and tonnage. No goods shall be imported, under penalty of forfeiture thereof, from one to another port of the United States, in a vessel belonging wholly, or in part, to a subject of any foreign power; but such vessel may sail from one to another such ports, carrying such goods only as were imported in her from some foreign port, and which shall not have been unladen.

Of the Enrollment and License of Vessels.—The like qualifications and requisites are necessary for the enrollment as for the registry and record of vessels, and the same duties are imposed on, and authority given to, all officers respectively, in relation to such enrollments, and the same proceedings shall be had in similar cases touching such enrollments; and vessels so enrolled, with their masters or owners, shall be subject to the same requisites as are in these respects provided for registered vessels. The record of such enrollment shall be made, and an abstract or copy thereof granted, as nearly as may be, in the form directed by law. Enrolled and licensed vessels may be registered upon the registry being given up; and registered vessels may be enrolled, upon surrendering up the enrollment and license. And when any vessel shall be in any other district than that to which she belongs, the collector, on application of the master, and on his making oath that, to the best of his knowledge and belief, the property remains as expressed in the register or enrollment, proposed to be given up, and upon his giving the bonds required for granting register, shall make such exchanges; and such collector shall transmit the register or enrollment given up to the register of the treasury. The register or enrollment and license granted in lieu thereof, shall, within ten days after the arrival of the vessel within the district to which she belongs, be delivered up to the collector of such district, and be by him canceled. And if the master shall neglect to deliver such register or enrollment and license within the time specified, he shall forfeit one hundred dollars. In order to the licensing of any vessel for carrying on the coasting-trade or fisheries, the husband, together with the master, with one or more sureties, to the satisfaction of the collector, shall become bound to pay to the United States, if she be of the burden of five tons and less than twenty tons, the sum of one hundred dollars; and if twenty tons, and not exceeding thirty tons, the sum of two hundred dollars; and if above thirty tons, and not exceeding sixty tons, the sum of five hundred dollars; and if above sixty tons, the sum of one thousand dollars, in case it shall appear, within two years from the date of the bond, that she has been employed in any trade whereby the revenue of the United States has been defrauded, during the time her license remained in force; and the master of such vessel shall also swear that he is a citizen of the United States, and that such license shall not be used for any other vessel, or any other emplyment, than that for which it is specially granted, or in any trade whereby the revenue may be defrauded; and if such vessel be less than twenty tons burden, her husband shall swear that she is wholly the property of a citizen or citizens of the United States; whereupon the collector of the district whereto such vessel may belong (the duty of six cents per ton being first paid) shall grant a license, in the form directed by law, for carrying on the coasting-trade, whale fishery, cod fishery, or mackerel fishery. A steam-vessel, intended to be employed only in a river or bay of the United States, owned wholly or in part by an alien, resident within the United States, shall be enrolled and licensed as if she belonged to a citizen of the United States, except that no oath shall be required that she belongs to a citizen or citizens of the United States. The owner of such steam-vessel, upon application for enrollment or license, shall give bond to the collector of the district, to and for the use of the United States, in the penalty of one thousand dollars, with sufficient surety, conditioned that she shall not be employed in other waters than the rivers and bays of the United States. When the master of any licensed vessel, ferry-boats excepted, shall be changed, the new master, or, in case of his absence, an owner, shall report such change to the collector residing at the port where the same may happen, if there be one, otherwise to the collector residing at any port where such vessel may next arrive, who, upon the oath of such new master, or in case of his absence, of an owner, that he is a citizen of the United States, and that she shall not, while such license continues in force, be employed in any manner whereby the revenue may be defrauded, shall indorse such change on the license, with the name of the new master; and when any change shall so happen, and shall not be reported, and the indorsement so made, such vessel, found carrying on the coasting-trade or fisheries, shall be subject to pay the same fees and tonnage as a vessel of the United States having a register, and the new master shall forfeit and pay the sum of ten dollars. Before any vessel, of the burden of five tons, and less than twenty tons, shall be licensed, the same admeasurement shall be made, and the same provisions observed relative thereto, as are to be observed in case of admeasuring vessels to be registered; but in all cases where such vessel, or any other licensed vessel, shall have been once admeasured, it shall not be necessary to measure her anew for the purpose of obtaining another enrollment or license, except she shall have undergone some alteration as to her burden subsequent to the time of her former license. Every licensed vessel shall have her name, and the port to which she belongs, painted on her stern, as is directed for registered vessels, and if found without such painting, the owner shall pay twenty dollars. No collector shall grant to any vessel, whose enrollment or license for carrying on the coasting-trade has expired, a new enrollment or license, before the master shall have rendered a true account of the number of seamen, and the time they have severally been employed on board such vessel during the continuance of the expired license, and shall have paid to the collector twenty cents per month, for every month such seamen have been so severally employed, which sum the master may detain from the wages of such seamen. If the master shall render a false account of the number of men, and the length of time they have severally been employed, he shall forfeit and pay one hundred dollars. Any boat, sloop, or other vessel of the United States, navigating the waters on our northern, northeastern, and northwestern frontiers, otherwise than by sea, shall be enrolled and licensed in such form as may be prescribed by the Secretary of the Treasury; which enrollment and license shall authorize any such boat, sloop, or other vessel, to be employed either in the coasting or foreign trade; and no certificate of registry shall be required for vessels so employed on said frontiers: *Provided*, That such boat, sloop, or vessel, shall be, in every other respect, liable to the rules, regulations, and penalties, now in force, relating to registered vessels on our northern, northeastern, and northwestern frontiers.—*Laws of the United States.*

TONNAGE EMPLOYED IN THE COASTING-TRADE OF THE U. S.

Years.	Tonnage.	Years.	Tonnage.
1815	435,066	1836	873,023
1816	479,979	1837	956,980
1817	481,457	1838	1,041,105
1818	503,140	1839	1,153,551
1819	523,556	1840	1,176,694
1820	539,080	1841	1,107,067
1821	559,435	1842	1,045,753
1822	573,080	1843	1,076,155
1823	566,408	1844	1,109,614
1824	589,223	1845	1,190,898
1825	587,273	1846	1,289,870
1826	666,420	1847	1,452,623
1827	732,937	1848	1,620,988
1828	758,922	1849	1,730,410
1829	508,858	1850	1,755,796
1830	516,978	1851	1,854,317
1831	539,723	1852	2,008,021
1832	649,627	1853	2,134,256
1833	744,198	1854	2,273,900
1834	783,618	1855	2,491,108
1835	792,301	1856	2,211,935

From this table we see that our coasting-trade has increased 12 per cent. on an average for forty years, and has doubled in the past ten years—from 1845 to 1855. The total tonnage has increased from 435,066 tons in 1815 to 2,491,108 tons in 1855, giving an increase of 10 per cent. per annum; showing that we have at this time a larger tonnage than any other nation.

"The coasting-trade of the United States has, from the beginning, been strictly reserved for vessels built within the United States, and owned by citizens of the United States, to the exclusion of foreign-built and foreign-owned vessels. The American tonnage engaged in foreign trade and in the coasting-trade has been American built, and has had the absolute protection of our laws, and the licensed tonnage absolute protection, in the carrying-trade on our coast, and in our own waters. The protection given to our foreign-commercial and to our coasting-commercial marine has secured a large and efficient body of skillful officers and sailors, at all times ready for the defense of our cities and coast, for repelling aggression on our commerce, and for manning our ships of war. In the protection given to our shipping interest, for the purpose of having at all times the power to repel foreign aggression, and protect our coast and trade, there appears to have been but little division of sentiment, from the earliest time to the present, while the yearly increase of our tonnage proves the wisdom of our laws in this particular. We have no data to ascertain the annual number of persons, or the annual tons of freight carried, in our coasting-trade, nor the value thereof. Each person must make his own estimate of the tonnage employed, and the average number of trips the vessels can make, combined with the facts that capital constantly tends to that business, and the growth of our enrolled and licensed tonnage keeps pace with our increasing population and wealth. The amount of coasting-tonnage, and the annual number of tons of freight transported on our railroads, with an estimate of that carried by other modes of transfer, exhibit the magnitude of the means required for our internal trade."—*U. S. Treasury Report*, December, 1856.

Coast Line. The following statement of the river navigation and shore line of the United States was prepared by Colonel Abert, of the Topographical Engineers, at the request of the Treasury Department, December 7th, 1845. It has since been completed to date. The head of tide-water is assumed as the limit of steam navigation, as impeding falls or rapids are encountered at that point, above which many rivers are adapted to steam navigation, but to what extent is not sufficiently known. The shore line of rivers to head of tide-water, from

Maine to Texas, is		10,501 miles.
Rivers of Texas		1,210 "
Lower Mississippi, islands and bayous		8,372 "
Upper Mississippi and tributaries		2,736 "
Big Black, Yazoo, and bayous		1,190 "
Red River and tributaries		4,924 "
Arkansas River and tributaries		3,250 "
Missouri River and tributaries		7,830 "
Ohio River and tributaries		7,342 "
Total		47,355 "
Add rivers on the Pacific—Sacramento	600	
San Joaquin	600	
Oregon	460	
Umpqua	59	
		1,710
Total river shore line in the United States in 1854, including both banks		49,065 miles.
Shore line of northern lakes, including bays, sounds, and islands (American)		3,620 "
Total river and lake shore line		52,785 "

A calculation made at the office of the Coast Survey in 1853 gives for the total main shore line of the United States (exclusive of bays, sounds, islands, etc.) 12,609 statute miles. If all of these be followed, and the rivers entered to the head of tide-water, the total shore line will be swelled to 33,069 miles.

SHORE LINE OF THE UNITED STATES IN STATUTE MILES.

Coasts.	Main Shore, including Bays, Sounds, etc.	Proportion of each Part of Coast to Total.	Islands.	Proportion.	Rivers to Head of Tide.	Proportion.	Total.	Proportion.	Ocean Line in Steps of Ten Miles.	Continental Shore Line of States North of Virginia.	Continental Shore Line of States South of Maryland.
	Miles.	Per Cent.	Miles.	Per Ct.	Miles.	Per Ct.	Miles.	Per Ct.	Miles.	Miles.	Miles.
Atlantic coast	6,861	54·41	6328	68·44	6,655	59·35	19,844	60·01	2059	907	1256
Pacific coast.	2,281	18·09	702	7·59	712	6·35	3,695	11·17	1405	..	..
Gulf coast...	3,467	27·50	2217	23·97	3,846	34·30	9,530	28·82	1643	..	1764
Total....	12,609	100·00	9247	100·00	11,213	100·00	33,069	100·00	5107	907	3030

The main shore line of the Atlantic, including bays, etc., is twice that of the Gulf, three times that of the Pacific, and more than equal to that of the Pacific and Gulf combined. The Southern States have three times as much sea-coast as the Northern.

Europe, in extent of shore line, is more favored than any other portion of the earth, and North America next; the former having, according to Guyot, only 156 miles, and the latter 228 miles of surface to one mile of coast (the United States having 241); while South America has 376, Africa 623, and Asia 459 miles.

The following table furnishes three measurements:

1. *The coast line*, i. e. sea-coast, bays, islands, etc., of the Atlantic coast	12,359 miles.
The rivers to head of tide, *both shores*	6,655 "
For the Gulf of Mexico, the coast line is	5,744 "
Length of rivers to head of tide	3,846 "
2. *Coast line, exclusive of islands and rivers* to head of tide—for the Atlantic	6,017 "
" Gulf	3,551 "
3. *Coast line, exclusive of bays, islands*, etc., etc., except Massachusetts Bay—Atlantic.	2,163 "
Gulf	1,764 "

THE RESULTS OF MEASUREMENTS OF COAST AND SHORE LINE OF THE UNITED STATES AS REQUIRED BY THE SUPERINTENDENT OF THE CENSUS BUREAU FROM THE COAST SURVEY OF JULY 12, 1854, ARE AS FOLLOWS, IN STATUTE MILES:

States.	Shore Line, including Bays, Islands, and all Irregularities.	Shore Line, except Islands.	Continent Line; viz.: Shore Line, except Islands, Bays, etc.	Remarks.
				Measurements taken on best maps of the Coast Survey Archives.
Maine	2,486	784	278	Measured on Greenleaf's map of Maine, as correct as possible, but the great irregularities of coast prevent a correct result.
New Hampshire	49	41	18	Measured on Garrigain's map of N. H., generally correct as compared with Smith's map.
Massachusetts	886	622	286	Measured on Borden's map of Mass., generally correct as compared with Smith's map.
Rhode Island	320	245	45	Measured on Smith's and Mitchell's maps.
Connecticut	262	240	104	Measured on Coast Survey off shore charts.
New York	980	50	none.	Measured on Coast Survey off shore charts.
New Jersey	540	300	120	Measured on Coast Survey off shore charts.
Delaware	118	106	23	Measured on F. Lucas's map of Md., Ches. Bay, and C. S. Sketches and Charts.
Maryland	509	411	33	Measured on F. Lucas's map of Md., Ches. Bay, and C. S. Sketches and Charts.
Northern Atlantic	6,150	2799	907	From northeast boundary to State line between Md. and Va.
Virginia	654	348	116	Measured on F. Lucas's map of Md. and C. S. maps.
North Carolina	1,641	1089	320	Measured on Brazier's map of N. C., and compared with Smith's.
South Carolina	756	267	220	Measured on Smith's map, and compared with Mitchell's.
Georgia	684	480	128	Measured on Smith's map, and compared with Mitchell's.
Florida, East Coast.	2,474	1034	472	Measured on map of Topographical Engineers.
Southern Atlantic	6,209	3218	1256	From State line between Md. and Va. to S. extremity of Florida.
Total Atlantic	12,359	6017	2163	
Florida, West Coast	1,562	883	674	Measured on map of Topographical Engineers.
Alabama	315	247	58	Measured on Smith's map, and compared with Mitchell's.
Mississippi	287	225	88	Measured on Smith's map, and compared with Mitchell's.
Louisiana	2,250	1256	552	Measured on Gerdes's Reconnoissances and Smith's map.
Texas	1,330	940	392	Measured on Blunt's and Smith's map.
Total Gulf	5,744	3551	1764	
Total South Atlantic and Gulf	11,953	6769	3020	
Total Pacific, from boundary of San Diego to mouth of Frazer's River	3,251	2533	1343	Measured on Alden's Reconnoissances.

Coast Survey of the United States. It was to be expected that a people devoted to the pursuits of commerce, and depending in some degree on the sea as a means of communication between distant parts of the national territory, should demand, at an early period of their history, a competent survey of their coasts and inland waters.

But a short time previous to the separation of the colonies, charts had been constructed of the shores and harbors of North America, under the direction of F. W. Des Barres, his majesty's Surveyor General for the Colonies. The progress of his labors was interrupted by the Revolution. The surveys made under the personal superintendence of Des Barres still bear testimony to his skill and fidelity, and present a generally correct view of those parts of New England and the British possessions which, being rocky, are but little liable to change. They continue to form the principal basis of the charts of the northeastern coast of this continent. In the Southern and Middle States, however, they have been rendered worse than useless by the inconstant character of the bottoms, and the unequal merit of the originals. The surveys of Des Barres, covering a vast extent of coast, were originally deficient in minuteness of detail, and in hydrographical information; and these defects have been increased by the rapid and extensive changes in the direction, means, and wants of navigation caused by the growth of the country.

The project of a complete survey, conducted upon a uniform system and extending over the whole coast, was first proposed by the late Professor Patterson, in 1806. It combined three objects, the astronomical determination of prominent points, a triangulation to connect those points, and a hydrographic survey based upon this triangulation. Mr. Gallatin, then Secretary of the Treasury, encouraged the project, and obtained in writing the opinions of learned men as to the best mode of executing it. He selected the plan of operations recommended by Mr. Hassler, the first superintendent of the Coast Survey. This gentleman, a native of Switzerland, had been employed in the triangulation of the Canton of Berne, and had studied the science of geodesy under the most distinguished masters. It was exceedingly fortunate that his presence and advice here secured the early adoption of the only method of conducting a comprehensive trigonometrical survey that science approves—the only one of which the results have a certain and permanent value.

It is only, however, since the year 1832 that the survey of the coast has been in steady and active operation. During this long interval of neglect on the part of the government, the coasting trade and foreign commerce of the country have been chiefly indebted to the indefatigable labors of those distinguished hydrographers, the Messrs. Blunt of New York (both father and son), for the means of safe navigation.

The history of its fortunes, or rather misfortunes, during the preceding twenty-five years, may be recited in a few words. A law authorizing a survey of the coast was passed in 1807, but nothing was done under the law until 1811, when Mr. Hassler was sent to Europe to procure the instruments specified in his plan. They had all to be constructed. The war of 1812, and the failure of remittances, prevented Mr. Hassler's return before 1816, and in August of that year he was appointed to the office of superintendent. In 1818 Mr. Hassler's connection with the work was broken off by the repeal of that part of the law of 1807 which authorized the employment of citizens. During the ten years that followed, the coast survey seems to have been forgotten by the public and by Congress. In 1827 Mr. Southard, the Secretary of the Navy, a name never to be mentioned without an expression of the high respect which ability, patriotism, and long, faithful, and valuable services must always command in the republic, took occasion in his annual report to say that perfect surveys and charts of our harbors could not be made without the aid of the means contemplated by the act of 1807; and in February, 1828, the House directed the Committee on Naval Affairs to inquire into the expediency of carrying into effect the provisions of that act. Finally, in 1832, the act of 1807 was revised, and an appropriation made for carrying it into execution, and since that period regular annual appropriations have been made, varying in amount, but generally such as have been called for by the estimates of the superintendent.

In 1843 there was added to the appropriation a proviso stipulating that a board, consisting of scientific persons in the service of the government, should be empowered to reorganize the work, and the plan presented by them, when approved by the president, was to be, and is now, the law regulating the operations of the survey. The scientific methods pursued by Mr. Hassler were continued, and it was directed that the topography should be carried so far inland as might be necessary for a proper delineation of the shore, and for purposes either of commerce or defense.

It is now understood that the aim of the coast survey is to furnish with the utmost attainable accuracy, and in a connected and uniform manner, all the geographical, topographical, and hydrographical data that can be made in any way useful to the navigation and defense of the coast. And it is also supposed that, in collecting these data, information will be accumulated that may become serviceable in suggesting and directing local and general improvements; such as the placing and constructing of light-houses, beacons, buoys, etc., the means of improving channels, the effect of contemplated constructions upon harbors and tidal deposits, the suitableness of a submerged soil for building, etc. And, lastly, it is presumed that those States through which the survey passes will, sooner or later, avail themselves of the base it is able to supply, to form a correct geographical map of their own territory, under circumstances very favorable to economy and accuracy. These are the practical benefits, either direct or incidental, conferred by the coast survey.

In abstract science it has also its mission, equally useful and distinguished. It is to contribute a part of the means by which the irregularly elliptical form of the earth may be satisfactorily determined, the variations in local gravitation, their causes, and thence the internal structure of the earth, be made known, and the phenomena of terrestrial magnetism be explained. It will illustrate the astronomical problem of the tides. Its numerous meteorological records will also contribute to a better knowledge of the climates of the United States, and of the nature and action of meteoric storms, and thus be of service to the farmer as well as the navigator.

The science of geodetics prescribes the principles upon which a survey of an extended region should be conducted. In the ordinary operations of land-surveying, the surveyor is permitted to regard his field of work as a plane surface; but the engineer who is to construct a map of a whole country, or of a long line of continuous sea-coast, must take into consideration the spheroidal figure of the earth, and present an exact delineation of that part of the spheroid upon which he is employed. This necessity controls the processes used in computation, and the plan of projection upon which the detailed results are given, whether it be called a map or chart. Both the projection and the formulæ for computation involve the higher mathematics, and require an acquaintance with the most advanced state of the mathematico-physical sciences.

The system of projection introduced by Mr. Hassler originated with Flamsteed. It is the development of a part of the earth's surface upon a cone, either a tangent to a certain latitude, or cutting two given parallels and two meridians equidistant from the middle meridian, and extended on both sides of the meridian and in latitude only so far as to admit of no deviation from the real magnitudes, such as would be sensible in the detail surveys. In this method of reducing the curved surface of the earth to a plane, the radii of curvature of the parallels and meridians, depending upon the value given to the expression for the ellipticity, and the assumed form of the globe, are important terms. For practical use, tables have been computed in the office of the coast survey, showing the length in metres of every minute and second of the arcs of the meridians and parallels comprehended in the maps. It has been found necessary to recalculate these tables since 1844, on account of the new value of the ellipticity announced by Bessel, and adopted by the present superintendent. There will be occasion to recur to this subject.

The practical operations of the coast survey are classed under the general heads of triangulation, astronomical and magnetic observations, topography, and hydrography. The fundamental basis of the survey is a net-work of great triangles, the sides of which, varying from ten to one hundred and ten miles, are the longest that the limits of vision or the nature of the country will allow, and hence a mountainous region is much the most favorable for a first or *primary triangulation*. The starting line, or first side of the first triangle, called the *base line*, is measured by mechanical means, and this is a labor demanding, as much as any other on the survey, accuracy, a philosophical regard to minute details, and long previous preparation. Observing, in passing, that several kinds of measuring-rods have been heretofore used, as wood and glass, and that the apparatus of Mr. Hassler consisted of an assemblage of four iron bars, each of them two metres in length, with which he obtained excellent results. In 1817 the *preliminary* measurement of two base lines was made by Mr. Hassler, and in 1834 the length of the same lines was determined by computation, carried from the new base on Tin Island beach. The difference between the measured and computed lengths of these lines was in one case less than a foot, and in the other about four inches; the bases themselves were 5·9 and 4·8 miles long. It will, perhaps, best serve to convey an idea of the difficulty of measuring a base-line if some account be given of Professor Bache's base-apparatus. The measuring bars are upon the compensating system, first used by Colonel Colby in Great Britain, and by Mr. Borden in the trigonometrical survey of the State of Massachusetts; but a principle not before applied was introduced in reference to the dimensions of the bars, which is thus stated. Bars of brass and iron (the materials employed), of the same dimensions will not, owing to their different conducting powers and specific heats, heat equally in equal times, and therefore, during changes of temperature, the system ceases to be compensating. This Mr. Bache corrected by giving a coating to the bars that made them absorb equally, and by proportioning the sections to each other, so that both would have the same temperature during variable temperatures of the atmosphere. In order to do this satisfactorily, it was necessary to make direct experiments upon the materials of the bars themselves, after having first arranged them approximately by means of the numbers taken from the books. The contact between two sets of bars is made by a blunt knife-edge and a plane of agate, and a lever of contact at the ends of the bars is corrected by a level so delicate that several of its divisions make up a quantity entirely insignificant in the measurement. The bars are covered with a double conical case of tin, to keep the fluctuations of the temperature within moderate limits, and the bases on which they are supported are covered with several thicknesses of imperfectly conducting material for the same purpose. The length of the apparatus is compared, before and after final measurement, with a standard iron bar that had been compared in the coast-survey office by means of Mr. Saxton's reflecting pyrometer. By this instrument, a change of the one hundred thousandth part of an inch in the length of the standard bar is perceptible.

To the preceding description it should be added that the bars (regulated in size by the relative specific heats of the two metals) were heated above the possible temperature to which they could be exposed in use, in order to give them a set. This precaution was at first overlooked in the compensation base-apparatus of the British ordinance survey, and it was afterward found necessary to resort to it. Those who are at all familiar with the subject will perceive that Professor Bache's application of the lever of contact and level (first used by Bessel in standards of measure) has not only greatly increased the delicacy of the instrument and lessened its complexity, but also removed several sources of error. By optical contact, and the employment of a microscopic apparatus to determine the distance between the compensation points, the measures are repeated in two different terms, each having its peculiar standard. Such was the case in the British and Indian surveys, and Colonel Everest complains of the consequent liability to error, and the burdensome accumulation of petty corrections. The remeasurement of a base of seven and a half miles, in India, differed, however, only 2·4 inches from the first length. In a base of seven miles, Professor Bache found that the same difference might be about 0·5 inch, if all the errors were supposed to fall on the same side, which is most improbable. The probable error in remeasuring one hundred and twelve yards was less than five thousandths of an inch, and the actual resulting error in remeasuring one-third of a mile was nothing.

This may appear like refining too much, but it must be known that the lines measured by the same bar in winter and summer might differ materially in nominal length. This difference in the original base of the coast survey might be about twenty feet, and, at a rough estimate, an error of twenty feet in this place would amount, in one of the large triangles, of which the sides are between fifty and sixty miles, to about one-tenth of a mile. The source of error and its correction being recognized, there is no other limit to accuracy than the possible.

We return now to the great triangles of the survey, which, as has been said, form its fundamental basis. The points of the primary triangulation are selected with scrupulous regard to all those conditions which make triangles, in the technical acceptation, good. Scattered at distant intervals over the vast field of work, they are certain guides by which the more detailed operations are conducted and controlled. Within them the space is subdivided into smaller triangles, constituting the *secondary* and *tertiary triangulations.* They bring down the work to the minute details of topography and hydrography, and these subsidiary triangulations and details, circumscribed as they are by the primary points, are restrained and corrected by them in their deviations. As an additional explanation of the necessity for this first net of great triangles, it may be well to inform the general reader that there is no instrument, however delicate in construction, that is not liable to very small errors, which the most studious attention to every disturbing influence, whether mechanical or meteorological, can not altogether remove. Now this primary triangulation, which in a mountainous region spans the surface with giant strides, has fewer of these unaccountable errors, simply because it has fewer triangles. It is hardly necessary to add that better instruments also are used in it. The two and a half feet theodolite, made by Simms (after Troughton's death), under Mr. Hassler's supervision, and used by him and by Professor Bache in the primary triangulation, is still regarded in this country and in Europe as a master-piece of invention and mechanism. It reads to seconds.

Magnetic and astronomical observations accompany the primary triangulation. The latter are for latitude, longitude, and azimuth, or angular direction from the meridian.

Following the secondary triangulation in order comes the *Topography*, the duty of which is to delineate faithfully the features of the ground. It exhibits the height and contour of elevations, the shape and extent of plains, the courses of streams, all the constructions of man, and the waving and indented outline of the shores. It distinguishes the tilled land from the pasturage, and the grove from the orchard, and designates the character of the wood-land. It speaks a universal language, and observes strict fidelity to nature.

Depending upon the secondary triangulation and the topography for its means of progress, follows the *Hydrography.* In this term is included all that concerns local navigation, as the depths and character of the bottom, the direction and strength of the currents, the ebb and flow of the tides, and the information, coming under the head of sailing directions and nautical instruction, which make up the valuable knowledge of the local or general pilot. This branch enjoys the honor of announcing the nautical discoveries of the coast survey, which, though resulting from the combined operations of all, are yet brought out by its means.

In the preceding pages the plan of the survey is presented, and the general distribution of its labors is stated; it remains now to speak of the execution of the various details, and of the benefits that have been conferred by the coast survey upon science, and upon the local and general commerce of the country and of the world. In doing this it will be most convenient to keep to its actual state at this day.

It would not be just, however, to leave its past history without a tribute of respect to the memory and services of the man by whose enlightened efforts a right direction was given to the views of the government in founding the survey, who was faithful to it through thirty-five years of checkered fortunes, and who literally died in the performance of its duties, having written the last few lines of his final report after he felt that he had been touched by the hand of death. Educated in the best European schools of theory and practice, and devoted to the pursuits of science, for which he was eminently qualified by natural endowments, Professor Hassler always brought to the task before him that zeal and tenacity of purpose which give spirit to enterprises of great moment, and gain for them the name of action. He is honorably known for his mathematical and astronomical writings, and his papers in the American Philosophical Transactions, containing an account of the methods employed by him on the coast survey, will always be regarded as a valuable contribution to geodetical knowledge. Those who knew him intimately praise the ardor of his friendship and the generosity of his disposition, while the labors of his life, and the manner in which they were performed, bear ample witness to his industry and integrity. That he had some defects of character it is hardly necessary to say, for this is the inevitable lot of humanity; but they were not such as it requires the exercise of magnanimity to forget, and time, which is rapidly drawing over them the veil of perfect obscurity, will endear his name and his virtues to the reverent and affectionate respect of all true lovers of American science.

On the death of Mr. Hassler, in 1843, the appointment of his successor was regarded with deep interest by the learned men of the country. The office of superintendent of the coast survey is recognized as one of the central positions of American science, and the incumbent is expected not only to be able to fulfill its prescribed duties, but to be qualified to direct his powers to the advancement of knowledge in every department of the work. How far the present superintendent, Professor Bache, is suited to answer these expectations, to sustain the national reputation, and to promote the cause of science, may be estimated from the fact that his appointment was solicited by gentlemen in all parts of the country engaged in the pursuits of learning. He was educated at West Point, and since graduating there he has, in connection with the Franklin Institute and the University of Pennsylvania, followed a course of physical science that has made him well known in this country and in Europe. While traveling as the President of Girard College, he received from the principal European academies distinguished marks of consideration. It is but justice to Professor Bache to say that there is no branch of the work into which he has not been able to introduce improvements, either owing to the discoveries of the day, as in the use of the magnetic telegraph for meridian differences, or owing (still oftener) to his own great and eminent scientific attainments. This must appear in the course of these remarks, but it is quite as creditable to his administration to state, as may be done with strict accuracy, that the amount of results now obtained is double that under the former plan, for an increase of 50 per cent. in the cost.

The points of the *primary triangulation* are selected by means of a preliminary reconnoissance. The reconnoissances that precede the triangulations are indispensable, and require great judgment. The object of the general rconnoissance is to make known the facilities and difficulties of the work, and to discover the best plan for its execution. A particular reconnoissance decides the position of the stations, and presents a general sketch of the triangles in any section. As they constitute the authority to which the rest is subordinate, and by which it is controlled, it is of the greatest consequence to know the circumstances under which a satisfactory result may be secured with the least delay. The rule generally followed (and adopted by the former superintendent) is to observe on those days only that appear entirely unobjectionable. This rule is attended with a serious loss of time. Mr. Bache has increased the rapidity of the work, and improved rather than diminished its value, by applying the mathematical test of the least probable error to observations made under such conditions as are ordinarily favorable and of frequent occurrence. The number of observations made under these conditions, which will reduce the probable error to what is attributable to the unavoidable errors of instrument and observer, is ascertained and taken as a governing rule. Six triangles measured by Mr. Bache in 1844 gave for the greatest difference from 180°, after allowing for the spherical excess, 0″·2 (of space) to each angle; from this the difference descended to nothing.

Allusion has been made to the necessity of recomputing the first tables of projection, in consequence of the adoption of Bessel's latest determination of the ellipticity. The tables for computing the triangles have also been affected by this change, and the formulæ have been revised, and undoubtedly greatly improved in convenience and accuracy. The tables have undergone a further modification by substituting the *legal* ratio of the metre to the toise in the place of the arbitrary standard resulting from the ingenious, but (as Bessel has said) "not allowable," comparisons of Mr. Hassler.

This is the proper place to advert to the mode of operations pursued on the Southern coast. It was perceived, in the early progress of the work, that the inaptitude of this level region for a comprehensive triangulation was to be overcome, either by great expense, or by resources not yet developed. The most apparent expedient was that employed in the northern section of the great meridional arc of India, where it crosses the flat territory of the Doab. Costly edifices of masonry, with walls five feet thick at the base and two at the summit, are erected at each of the principal stations, and their height, about fifty feet, is sufficient to command a view above the vegetation. And this expedient was, if contemplated, in accordance with the former progress of the American survey, which, advancing in two directions from a central base, was necessarily slow.

In 1845, however, the present superintendent exhibited in his annual report a plan for the more rapid execution of the survey, which consisted in dividing the whole of our extended sea-board, including the Gulf of Mexico, into nine sections, comprising a nearly equal extent of shore line, and in prosecuting the work separately and simultaneously in as many of these sections as the appropriations would allow. The work of each section is commenced by the measurement of a base-line, and, as the triangulation is extended, this base serves as the verification-base of an adjoining section. The rapidity of this plan is made apparent by considering that all the different processes of the survey (in their necessary order) may be conducted at the same time in every section, and thus, if the appropriations were sufficient, the whole coast might be completed in the time required for a single division of it. But this plan accommodates itself more easily to the character of the ground than one in which the direction and progress are derived from previous connections. Indeed, every latitude is allowed for the selection of sites for bases, and for the most favorable disposition of the triangles, because each section is for the time a distinct undertaking. The combination of all will unite the extended coast of the United States into one comprehensive scheme of triangulation.

The value of permanent and conspicuous structures of masonry to designate points of primary triangulation is not, however, underrated. While temporary means of elevation are employed, such as the high tripods, with independent stands for the instruments, first used in Delaware Bay by the senior assistant of the survey, Mr. Edward Blunt, of New York, it must be remembered that the coast survey is enabled to avail itself of the light-houses, and other lofty structures along the coast. And it may be safely concluded that the governments of the Southern States will raise appropriate edifices at those points of the primary triangulation of the coast survey which limit the bases of their local operations.

Accompanying the primary triangulation, as an essential part of it, are the *astronomical* and *magnetic observations*. The former are for azimuth, latitude, and longitude. For the determination of azimuths, Mr. Bache has employed (for the first time on the work) the elongations of Polaris in its eastern and western digressions. At the time of elongation, when the change in altitude is most rapid, the movement in azimuth is nothing; and thus the opportunity is enjoyed of making careful and deliberate observations. This method is independent of local time. By using several circumelongation observations, a mean of a number of results is substituted for a single one. In this reduction a very simple formula, first investigated by Mr. Nulty, of Philadelphia, has been applied, and the practice is simplified by the use of tables for the computations of latitude, subjected to a slight trigonometrical change. It is proper to state that this method has been in use on the survey since 1845, as one similar to it, if not identical with it, has recently been communicated to the Royal Astronomical Society of London.

The superintendent has adopted the suggestion of the astronomer royal at Greenwich, who proposed referring the points of greatest elongation of circumpolar stars to marks in the horizon, by perpendicular lines demitted by means of an altitude and azimuth circle. Elongation signals are established about two miles distant, consisting of a delicate wand by day and a lamp by night, the latter seen through a perforated board.

The determinations of the latitude (as well as of the azimuths) are frequent. Since 1844 fourteen stations have been occupied for latitude, and seven for azimuth, in Sections I., II., and III. of the survey. A comparison of the latitudes deduced geodetically from a central point with astronomical determinations led the superintendent, in 1844, to the discovery of certain variations in the level, which could only be attributed to changes in form and density of the material composing the earth's crust. These variations are *similar* to those caused by the proximity of mountains; but while the latter have been well understood, the former had escaped notice. The numerous determinations of this element will, therefore, occupy an important place in the future discussions of the general form and internal structure of the earth. A similar discovery has since been made in the ordinance survey of Ireland by Major-general Colby, and appears to have been anticipated by Laplace in the opinion given by him in the Chamber of Peers, in 1817, upon the topographical map of France: "If the latitudes of the extreme points (of certain lines) and of several intermediate points are observed, and the length of the seconds pendulum corresponding to these points measured, a great deal of light will be thrown upon the figure of the earth, and upon the irregularities of its degrees and of gravity."

It is very interesting, in this respect, to know that latitudes observed at the extremities of the side of a triangle, and forward and backward azimuths on the same line, have differed by several seconds, and that these deviations in the plumb-line have occurred where the want of uniformity (whether arising from differences in density, or the want of homogeneousness of structure) was not apparent as a topographical feature of the country. After the computations from which the preceding conclusions are derived were verified, the results were confirmed by the introduction of new instruments on the work. During the last year a zenith telescope has been used for obtaining the latitude, by a method invented by Captain Talcott, which consists in observing the differences of zenith distances of stars culminating within a short distance of each other, and at nearly the same altitudes, on different sides of the zenith. The circummeridian altitudes by the repeating circle, the prime vertical transits, and the absolute measurement of zenith distances by the zenith sector, are still used.

Observations for the comparison of these instruments and methods have been made by the superintendent, and by Captain T. J. Lee, of the United States Topographical Engineers, an assistant in the coast survey, whose valuable labors have been chiefly devoted to the astronomical and magnetic observations. Of the *magnetic observations* it will be sufficient to say, as an indication of their character, that they are made with the new instruments invented by Dr. Lloyd and Mr. Weber. The portable declinometer of Mr. Weber (perfected by Lieutenant Riddle, and manipulated according to his instructions) measures inclination, and, by a subsidiary apparatus, the horizontal force, by the method of Gauss. Fox's dip circle, with the use of the deflecting magnet, has given very satisfactory results. By means of these instruments, the *declination*, *inclination*, and *intensity* (horizontal and vertical) are determined in a manner that supplies all that is practically necessary, and contributes valuable additions to general magnetic researches.

Longitudes have been determined by occultations, eclipses, moon-culminations, and the frequent transportation of chronometers. Mr. Bond, the director of the observatory at Cambridge, Massachusetts, communicates the meridian differences by chronometers between the British observatories and Boston. All determinations of this element are referred to a principal port on the sea-coast, and are connected in the aggregate with differences obtained from Europe by chronometric and astronomical comparisons. The security against error afforded by employing persons to compute who are disconnected with the duties of the field or the observatory, is well understood. Gentlemen in private life are engaged to repeat the important calculations of the survey, and this system, which enlarges the sphere of labor in a way not less commendable for its economy than for its other advantages, receives universal sanction.

But the discoveries of Professor Henry (secretary of the Smithsonian Institute), resulting in the invention of the magnetic telegraph, have provided a new and more precise method of arriving at the difference between the times of two places, or their difference of longitude expressed in time. The details of these observations were consigned to Mr. S. C. Walker. The following concise account of the manner of transmitting the signals, of the possible errors of observation, and of the real value of the results, is from the pen of Dr. Bache: "The signals are given at one of the stations by pressing a key, which causes a closing of the circuit. This closing, it is intended, shall be simultaneous with the ticking of a clock or chronometer at the station. The circuit being closed, if the electrical wave or current takes a sensible time to propagate itself, or to pass from one station to another, the absolute time in which the signal reaches the second or receiving station is sensibly different from that of making the signal at the first or giving station. A coil about the poles of a horse-shoe magnet of soft iron forms part of the circuit through which the electrical effect is transmitted. Under its influence the soft iron becomes magnetic, attracting the soft iron bar (armature or keeper) delicately poised at a determined distance from the poles of the magnet; the movement of this keeper sets in action a local battery, which gives sufficient power to make the dots and lines constituting the Morse telegraphic signals. The click of the keeper of this temporary magnet is compared, at the receiving station, with that of a clock or chronometer, thus marking the time at which the signal made at a known time at the giving station is received. From this explanation, it appears that there is liability to error."

Dr. Bache then proceeds to enumerate five possible errors, numbered in order, and shows that the numerical values can be in each case assigned to two (viz. 1 and 5), and that one (viz. 2) is insensible. A comparison of the observations proves that the errors denoted by 3 and 4 are canceled by a very small residual quantity having the opposite sign, and "the interesting consequences follow, that 'the telegraphic method of comparing clocks, distant two hundred miles from each other, is free from error when the method of coincidence of beats is employed; and that the probable error of the longitude, from this method, is the same as the mean result of the computed relative correction of the clocks for the nights of observation.' An investigation of the probable value of such error shows that, under favorable astronomical circumstances, and with due care in the use of the transit instrument, 'the astronomical difference of longitude between any two stations of a trigonometrical survey may be determined by telegraphic signals, with a degree of precision of the same order as that of difference of latitude,' the inaccuracy depending upon the same causes as the deviation of the plumb-line." Before concluding with the primary triangulation, it must be observed that Dr. Bache uses reciprocal vertical angles for determining differences of heights at the primary stations. These angles may be measured at a time of day when it is impracticable to observe horizontal angles, and the effect of refraction near the surface is investigated by a long series of observations. The space circumscribed by the terrestrial angles of the first order, and defined by the celestial observations that accompany them, is subdivided into a minute net-work of smaller triangles, constituting the *secondary* and *tertiary triangulations*, the points of which embrace and determine headlands, light-houses, beacons, churches, hills, and all conspicuous objects along the coast, that can be made useful in its navigation. They also bring down the work to the details of the topography and hydrography, and supply the bases for these branches of the survey.

It has been already mentioned that the topography is minutely and exactly descriptive of the ground, both in form and character. The Lehman system of topographical drawing has been adopted, but with such modifications as the nature of this country exacted, in order to preserve the beauty of the maps. The slopes are represented by hachures, the strength and distance apart of which indicate the degree of inclination. In the original maps, the horizontal curves limiting the different slopes are drawn in red ink, as the draughtsman progresses in his sheet.

The scale of the original sheet is $\frac{1}{10000}$, or about $6\frac{2}{3}$ inches English to the mile. Plans are frequently executed in the field, and furnished from the office, when wanted for local improvement, on twice this scale. But the charts designed for navigators are necessarily reduced in dimension. The harbor charts are published on the scale of $\frac{1}{20000}$, or about $3\frac{1}{3}$ inches English, and the more general charts on that of $\frac{1}{80000}$, or about three-fourths of an inch to the mile; which last is the scale of the *great* topographical map of France. In all the maps, the topographical details are faithfully preserved, including height, contour, etc.

It appears from the report of the council of the Royal Astronomical Society to the twenty-seventh annual general meeting, that a similar scale of execution, and an equal fidelity of representation in the topographical details, have been finally attained in the ordinance maps of England and Ireland. In both the American and English maps, the subdivisions of the meridians and parallels are so minute, that parts of a second of space can be estimated.

As the first object of the coast survey is the knowledge of our own shores and inland waters, and the general improvement of the navigation, both external and internal, of the coast, so the large class of facts and researches embraced in the general term *hydrography* are regarded as being of paramount importance. It is to the hydrography that the friends of the coast survey direct the public attention for the evidences of its great practical utility, and the discoveries in this department have been so numerous and valuable as to secure for it a high degree of public favor. The first popular inquiry concerning the coast survey is as to the progress it has made, and this inquiry is satisfied by learning the extent of the shore line over which the hydrographer has passed. But before estimating its performance in this way, it is necessary to say, that, as the operations of the triangulations, etc., must precede the hydrography, this leads to an unfair estimate. The hydrography can only be laid down when the trigonometrical points on which its operations are based have been established; thus two-thirds of the work may be completed when the hydrographical labors commence. In 1844, the first year of Dr. Bache's superintendence, nine States on the Atlantic sea-board shared in the benefits conferred by the coast survey; in 1845, thirteen States; in 1846, fifteen; and in 1847, eighteen States. The estimates for the present year include all the States on the Atlantic and the Gulf of Mexico, and it may be inferred at once from this statement that, if sufficient appropriations are supplied by Congress, a definite and not distant period can be assigned for the completion of the whole work.

Having premised this statement, which was necessary to give a correct idea of the progress of the work, it may be added that the nautical parts of the survey have extended generally from Nantucket Sound to Hampton Roads nearly, including the Vineyard Sound, Block Island and Long Island Sounds, with all their harbors, great and small, New York Bay and harbor, Delaware Bay and river, a large part of Chesapeake Bay, together with most of the rivers emptying into it north of the Potomac, and all the external sea-coast, from the southern coast of Massachusetts to the Capes of the Delaware. In this broad field a little remains to be done, but very little in comparison with the whole. In addition to the above, something has been accomplished in the hydrography of Albemarle and Mississippi Sounds, and in the latter especially great benefits have already resulted to its local commerce.

It will give, perhaps, the best idea of the value of the hydrographical work to enumerate some of those discoveries and corrections which, in different places, have signalized the progress of the coast survey. The first of these in order and in merit is the discovery of a new channel, straighter and deeper than the channels before known, over the outer bars of New York harbor. Such a gift as this to the first commercial city of the continent, where it was very much needed, ought to gain permanent favor for the enterprise by which it has been made. Important changes in the main ship-channel near Sandy Hook were first noticed by Major Bache, of the Topographical Engineers, by a comparison of his own limits with those of the coast survey in 1842, and this discovery has since been confirmed by the latter. So rapid has been the accumulation upon the extreme point of the Hook, that the high-water mark now stands where there was a depth of 40 feet in 1836. The Chamber of Commerce of New York has gratefully acknowledged the communication of this important fact by the present superintendent. In Delaware Bay a new and straight channel was discovered, lying parallel to the main ship-channel, more narrow than the latter, but likely to prove serviceable in scant winds, and better sheltered from floating ice. Three channels were opened through the ridges of Cape May, and a passage made known through the "Over-falls." The future changes in the latter, which may prove to be the germ of a new pass to the ocean, will be watched with interest. The result of the survey in Delaware Bay has been wholly to change the form of the bottom, as it stood on the old charts. Some shoals have been erased altogether, a new one near the deep water of the channel-way has been added, and the limits, shape, depth, and direction of every shoal in the bay have been altered.

In Long Island Sound, Buzzard's Bay, Massachusetts Bay, and Chesapeake Bay, so much has been added to the safety of navigation by laying down positions correctly, and by good sailing directions, but chiefly by the actual discovery of useful channels or of hidden and unknown dangers, that a list of these additions alone would occupy too much space. In Long Island Sound, a rock having only 13½ feet of water on it, on the Cerberus Shoal, was discovered and determined by the brig Washington, in September, 1845; and in the same year three rocks were found in the most frequented part of Buzzard's Bay by the Gallatin. Changes of the highest importance, which, owing to natural causes, had taken place in the channel-way of the entrance to Mobile Bay, were found out by the Phœnix in 1847.

In the off-shore work, the most valuable discoveries have been made by the hydrographical party employed on the Nantucket Shoals. They deeply concern the navigation, foreign and domestic, of the whole coast; especially the European trade from New York and the West India trade from the Eastern States. The insurance offices of New York and Boston have publicly acknowledged their obligation for these discoveries.

To this part of the hydrography belongs the *exploration of the Gulf Stream*, an enterprise that originated with the present superintendent. This is a work of difficulty and time. It was commenced by the hydrographical assistant in command of the brig Washington, in 1845, who obtained bottom near the inner edge of the stream at the depth of 7800 feet, and the marked and rapid change of temperature at this place gave reason to hope that a curve of similar depths might be traced, corresponding to the inner line of direction of the Gulf Stream, of which any point would be known when crossing, from the characteristic changes of temperature. The latitude (the most easy of the two coordinates to ascertain correctly) being given, the ship's longitude would result sufficiently near the truth to be of essential service in approaching the coast. The deep sea and surface temperatures were both taken in 1845.

Lieutenant Bache succeeded to the charge of this duty in 1846. Professor Henry has thus spoken of his merits and success: "In the last report, an account was given of a series of observations on the Gulf Stream, made by Lieutenant George M. Bache, whose life fell a sacrifice to his zeal in the discharge of his duty, and whose loss science was called upon to mourn just as he was commencing, with his accustomed ardor, the investigation of one of the most interesting phenomena of our globe. The results he obtained will be given to the world in another publication, and it will be sufficient to state in this place that he examined three entire sections across the stream. His researches exhibit the remarkable fact that the whole current of warm water, to the depth of at least 480 fathoms, divides itself into two principal branches, separated by a portion of cold water, and that the transition from the cold water, along and next to the coast, is almost instantaneous, as if the two were separated by a nearly perpendicular wall, slightly inclining to the east at the top."

The subject of the tides is now receiving for the first time, in this country, proper attention. The tide-tables on the charts contain all the information as to times, heights, and durations, that is required in practice. Corrected establishments are deduced from the means of the luni-tidal intervals combined for each half-hour of transit. The astronomical problem of the tides is worked out for prominent points where the observations have sufficiently accumulated.

The mean curves of semi-menstrual inequality of time and height, corrected for the mean annual parallax and declination, are compared with the curves of observation (freed from the diurnal inequality) at each semi-lunation, and the variations in the times and heights of high water, due to changes in the moon's declination and distance from the earth, are tabulated for the future improvement of the tide-tables.

By the continuance of careful and constant observations, the means will be supplied of adding to the knowledge of the diurnal and solar inequalities, and of studying all other phenomena of the tides. The residual errors that appear in the semi-menstrual curves, after eliminating the effects of parallax and declination, are caused by atmospheric changes. The local influence, therefore, of particular winds, and the general effect of changes in the pressure of the atmosphere, are to be investigated, and enough is already known to prove that the seaman will derive great profit from this part of the labors of the coast survey. The direction and velocity of tidal currents are now carefully determined for the normal condition of the tides, and for their disturbance by winds and storms, and a knowlege of the courses and conflicts of the tides in the harbors and inland waters of the United States (as Long Island and Vineyard Sounds) will also result from the comparison of numerous records, kept with a special view to their investigation.

To the preceding account of the operations of the coast survey it must be added, that the reduction of the maps to the scale of publication, the engraving and printing of them, are entirely executed in the office at Washington. An exception is made in the engraving of the smaller harbor maps, particularly of the harbors of refuge. They are sometimes placed in the hands of private artists, which serves the double object of an earlier publication and of encouraging the art of map-engraving in this country. The propriety of publishing to the world the important results of the coast survey as soon as obtained was immediately recognized by Professor Bache. In the case of a discovery affecting the general navigation of the coast, like that of the "New South Shoal," a "preliminary sketch," anticipating the complete chart, has been freely distributed. In other cases, information has been disseminated through the press, or furnished by authority, to chart-sellers. The office at Washington contains also workshops, at which the various instruments of the survey are repaired and made. All the details of the office duties, whether relating to the verification and engraving of maps, or the occupation of the workmen, in the absence of the superintendent, are under the direction of Captain A. A. Humphreys, of the Topographical Engineers, an assistant. As the operations of the coast survey are numerous and various, and its duties very multiplied in detail and complicated in their connection, it will be readily believed that the direction and adjustment of them—the instructions, the reports, and communications arising from them—make the office of superintendent one of increasing labor and responsibility. Besides personal attention to these duties, Dr. Bache occupies the station of the primary triangulation at the north, and the observations, whether geodetic, or astronomical, or magnetic, are either made by himself or under his immediate supervision. In the same manner he has also measured a base line for Section VIII., on Dauphin Island, and carried the main triangulation across from the Chesapeake to Washington. In a work of such magnitude and extent, occasional indirect contributions to knowledge may be expected, and there is every disposition to make them.

A point of interest to the geologist, developed by the operations of the coast survey, is the changes that are constantly occurring in different parts of the coast. In this respect its present accurate determinations will furnish in future the means of interesting comparisons. It must be remarked here, also, that too much importance can not be assigned to this view of the results of the coast survey. With regard to most harbors of consequence, the question is repeatedly asked whether they have undergone any change; and this question can rarely be satisfactorily answered, for the want of a correct standard of comparison. The charts of the coast survey will enable the future hydrographer to point out the changes, if any, and the future engineer, in his endeavors to improve or to preserve the channels of navigation, will, by a careful study of these changes, be able to guard against the causes of obstruction, and to co-operate intelligently with natural laws, instead of blindly opposing their effects. The manner in which harbors are affected by the matter held in suspension by the rivers emptying into them, that is, the place and form in which this matter is deposited, will receive such elucidation from the inquiries of the coast survey as will assist the counsels of the constructing engineer.

The charts of the coast survey exhibit, as far as they go, a view of the topographical formation of the bottom of the sea. Specimens are collected, and preserved in the office, of the bottom in all its varieties, and it was the intention of the late Lieutenant Bache to form a geological map, on which the materials thus collected should appear, in the natural order of their formation. Besides serving as useful indications to the navigator and pilot, they prove to be, when placed under the microscope, highly interesting to the naturalist. The deep-sea soundings have been examined by Professor I. W. Bailey, of West Point, and have been found to be filled with organisms, particularly those of the calcareous polythalamia, to an amount that is really amazing, hundreds of millions existing in every cubic inch. "One specimen, from the depth of ninety fathoms, is crowded with remains, most of them large enough to be recognized by a practiced eye without the aid of a magnifier." And it is not impossible that, in similar cases, science may supply the mariner with another mode recognizing the character of the bottom. In 1847, Professor L. Agassiz, of Cambridge, accompanied one of the hydrographical parties engaged in the off-shore work, by the invitation of its commander, and enjoyed an opportunity of examining the animals inhabiting depths that are rarely accessible. It proved to be a rich field of discovery. Not only many new species, but several new genera, were added to the known lists; the subject of embryology received fresh illustrations, and a new light was thrown upon the laws of the geographical distribution of animals, showing that in the different depths of the sea, as in the elevations of the land, distinct families have each their assigned and native dwelling-place.

It would lead to but a partial estimate of the value of the coast survey to omit these examples of its incidental benefits to knowledge. There are others upon which there is not room to dwell. The friends of this work have reason to be satisfied with its progress, and it is confidently believed that they may lay aside all apprehensions for its future prosperity. It rests upon the firm support of a controlling public opinion in the government and among the people. Working, as it does, in a field that is useful and honorable, and being conducted in all its branches with zeal and efficiency, it can not fail to add every year to the consideration with which it is now regarded, not only at home, but in every country where science and its application to the arts of life are justly appreciated.—*American Almanac for* 1849.

RESULTS OF THE COAST SURVEY AT DIFFERENT PERIODS, FROM 1844 TO 1854.

	Previous to 1844.	From 1844 to 1852.	For 1852.	For 1853.	Total from beginning of Survey.
Reconnoissance:					
area in square miles	9,642	30,548	1,706	1,708	43,604
parties, number of	....	....	6	5	....
Base lines:					
number of	1	5	....	2	8
preliminary, number of	2	14	4	4	24
length of, in miles	19½	64	4½	18½	106½
Triangulation:					
area in square miles	9,076	17,294	1,703	3,089	31,162
extent of coast line, in miles	310	976	224	154	1,664
extent of shore line, in miles	3,215	6,427	900	888	11,430
horizontal angle stations, number of	750	1,160	223	224	2.357
points determined, number of	1,183	2,008	446	346	3,983
vertical angle stations, number of	15	71	14	7	107
heights determined, number of	44	244	66	9	363
Astronomical stations:					
azimuth, number of	9	32	6	9	56
latitude, number of	9	44	17	20	90
longitude, number of	1	27	18	21	67
latitude, extra, number of	....	....	....	....	....
longitude, extra, number of	....	....	5	5	....
Magnetic stations, number of	....	116	8	13	137
Triangulation parties, number of	....	....	18	16	....
Astronomical parties, number of	....	....	4	7	....
Magnetic parties, number of	....	....	5	9	....
Topography:					
area in square miles	6,222	8,967	601	551	11,341
length of shore line, in miles	6,100	7,033	1,301	1,468	15,902
Topographical parties, number of	....	....	15	14	....
Hydrography:					
area in square miles	9,623	20,950	....	....	....
parties, number of	....	....	9	10	....
soundings, number of	808,147	1,852,009	288,375	305,377	3,253,908
soundings in Gulf Stream for temperature	....	1,455	....	....	1,455
fathoms of line used in same	....	143,108	....	....	143,108
tidal stations, number of	108	174	56	100	438
tidal parties, number of	....	....	5	6	....
current parties, number of	....	....	3	3	....
current stations, number of	....	321	21	89	431
specimens of bottom, number of	1,327	4,345	252	105	6,029
Topographical maps (original), number of	166	187	29	34	416
Hydrographical maps (original), number of	127	172	25	49	373
Reductions and other maps	326	399	174	133	1,032
Total number of manuscript maps	619	758	228	216	1,821
Records of triangulations (original), number of volumes	97	133	33	64	327
Records, astronomical (original), number of volumes	17	149	48	29	243
Records, magnetic (original), number of volumes	4	42	7	6	59
Duplicates of the above, number of volumes	27	250	73	76	426
Computations, number of volumes	78	158	72	101	409
Hydrographical books, sounding and angle observations (original), number of volumes	188	990	206	183	1,567
Hydrographical books, sounding and angle observations (duplicates), "	28	70	27	15	140
Hydrographical books, tidal and current observations (original), "	127	499	139	123	888
Hydrographical books, tidal and current observations (duplicates), "	....	599	132	114	845
Hydrographical books, tidal reductions, number of volumes	....	220	26	6	252
Total records, number of volumes	566	3,110	763	717	5,156
Library, number of volumes	....	1,673	171	273	2,117
Engraved plates of maps, number of	5	40	3	4	52
Engraved plates electrotyped, number of	....	55	23	47	125
Published maps, number of	....	37	5	5	47
Printed sheets of maps distributed, number of	....	15,501	5,799	8,042	29,342
Printed sheets of maps, sale agents, number of	....	28,077	6,866	4,375	39,318
Total number of printed sheets	....	57,001	31,818	24,076	112,895
Instruments, cost of	....	$167,094	$3,835	$5,296	$176,225

General List of Coast Survey Discoveries and Developments to 1853 *inclusive, compiled by Lieutenant E. B. Hunt.*—As the operations of the survey advance along the coast, important facts before unknown are constantly brought to light. Many facilities for, and dangers to, navigation are thus discovered, which had been before wholly unknown, and those before but imperfectly known are developed by accurate surveys. Many such developments and discoveries occur in the geodetic and topographical operations, some of which are of no slight value; but those which are embraced in the hydrographic work are often of vital importance to commerce and navigation. The following list presents some of the most important items of this nature, and may collectively be regarded as exhibiting one of the most valuable results of the survey. In fact, each sheet which gives shore line and hydrography with increased accuracy has somewhat of discovery or development to claim; but in this list only those cases are included in which a specific benefit has been conferred on navigation, either by unfolding some new facility, disclosing some serious danger, or indicating some important change of configuration. The arrangement is geographical, and in the order of sections.

1. A rock not on any chart, in the inner harbor of Gloucester, Massachusetts—discovered in 1853.

2. A bank 90 miles eastward of Boston, with about 36 fathoms water—probably a knoll connected with

Cashe's ledge, but with deep water between it and the ledge—1853.

3. Boston harbor: Broad Sound channel thoroughly surveyed, and marks recommended—1848.

4. Nantucket Shoals: Davis's New South Shoal, discovered in 1846, six miles south of the old Nantucket South Shoals, in the track of all vessels between New York and Europe, or running along the coast from the Eastern to the Southern States, or South America.

5. Ditto: Two new shoals north and east of Nantucket—discovered in 1847.

6. Ditto: Six new shoals near Nantucket, the outermost one 14½ miles from land, and with only ten feet water—discovered in 1848.

7. Ditto: McBlair's Shoals, off Nantucket—discovered in 1849.

8. Ditto: Davis's Bank—discovered in 1848, and survey finished in 1851.

9. Ditto: Fishing Rip, a large shoal extending north and south about 10 miles to the eastward of Davis's Bank and 30 from Nantucket, with 4½ fathoms—surveyed in 1852.

10. Ditto: A ridge connecting Davis's New South Shoal and Davis's Bank—found in 1853.

11. Ditto: A small bank or knoll, with but five fathoms on it, about five miles east of Great Rip, with 12 fathoms between it and Davis's Bank and Fishing Rip, the water gradually deepening outside of it to the northward and eastward, beyond the limits of the series of shoals.

12. Contraction of the inlet at the north end of Monomoy Island, and opening of new entrance to Chatham harbor—1853.

12 *bis*. Muskeget Channel—surveyed by Lieutenant C. H. Davis in 1848, and Lieutenant C. H. McBlair in 1850.

13. Numerous rocks in Martha's Vineyard Sound, Long Island Sound, and the various bays and harbors connected with them.

14. Gedney's Channel into New York Bay, having two feet more water than the old channels. Had the true depth of this channel (which is seen, by comparing old and new charts, to have then probably existed) been known in 1778, the French fleet under Count D'Estaing would have passed into the bay and taken the assembled British vessels.

15. Sandy Hook: its remarkable increase out across the main ship-channel has been traced from the surveys of the topographical engineers and others, and by several successive special surveys.

15 *bis*. Increase of depth in Buttermilk Channel, ascertained and made known in 1848, by survey of Lieutenant D. D. Porter.

16. Delaware Bay: Blake's Channel at the entrance discovered in 1844—open when the eastern channel is closed by the ice. This discovery has served to develop strikingly the resources of that portion of Delaware.

17. Blunt's Channel in Delaware Bay.

18. Changes in the Delaware near the Pea Patch.

19. The true extent and position of the dangerous shoals near Chincoteague Inlet, Virginia—1852.

20. Metompkin Inlet, Virginia, shoaling from 11 to 8 feet in the channel during 1852.

21. Two channels into Wachapreague Inlet, Virginia—one from the northward and the other from the eastward—both with seven feet water at low tide—1852.

22. A shoal half a mile in extent, not put down on any chart, 5½ miles east from the north end of Paramore's Island, Virginia: it has but four fathoms water on it, and has nine fathoms around it—1852.

23. Great Machipungo Inlet, Virginia: found to have a fine wide channel, with 11 feet water on the bar at low tide and 14 at high; good anchorage inside in from two to eight fathoms: the best harbor between the Chesapeake and Delaware entrances—1852.

24. Two shoals near the entrance to the Chesapeake—one 4¾ nautical miles southeast by east from Smith's Island light-house, with 17 feet upon it; and the other east by south nearly, 7¾ miles from the same light, with 19½ feet upon it—1853.

25. Only three feet water upon the "Inner Middle," the shoal part of the Middle Ground west of the "North Channel," at the Chesapeake entrance—1852.

26. A 25 fathom hole 2½ miles west-southwest from Tazewell triangulation point, eastern shore of the Chesapeake; all other charts give not more than 16 fathoms in this vicinity.

27. A shoal at the mouth of the Great and Little Choptank, in Chesapeake Bay—1848.

28. Deeper water found on Diamond Shoal, and a dangerous nine-feet shoal off Cape Hatteras—1850.

29. A new channel, with 14 feet water, into Hatteras Inlet, formed during the year 1852, which is better and straighter than the old channel.

30. The well-ascertained influence of prevailing winds in the movement of the bars at Cape Fear and New Inlet entrances, and the gradual shoaling of the main bar; the latter fact being of great importance to the extensive commerce seeking this harbor—1853.

31. Frying-pan Shoals, off Cape Fear, North Carolina. A channel of 2½ fathoms, upward of a mile wide, distant 11 nautical miles from Bald Head light-house, across the Frying-pan Shoals. A channel extending from 3 to 4 miles from the point of Cape Fear to 8 to 8½ miles from it, with sufficient water at low tide to allow vessels drawing nine or ten feet water to cross safely. A channel at the distance of 14 nautical miles from Bald Head light-house, one mile wide, with 3½ to 7 fathoms water on it. The Frying-pan Shoals extend 20 nautical miles from Bald Head light-house, and 16, 17, and 18 feet water is found 17 and 18 nautical miles out from the light—1851.

32. Shoaling of Cape Fear River bar thoroughly examined for purposes of improvement—1852.

33. Changes at the entrance of Winyah Bay, Georgetown harbor, and the washing away of Light-house Point, at the same entrance—1853.

34. Maffitt's new channel, Charleston harbor, with the same depth of water as the ship-channel—1850.

35. Changes in the channels at the entrance of Charleston harbor—1852.

36. The remarkable discovery of continuous deep-sea soundings off Charleston, and of soundings in the depth of between 400 and 500 fathoms beyond the Gulf Stream—1853.

37. The discovery of cold water at the bottom of the sea below the Gulf Stream, along the coasts of North and South Carolina, Georgia, and Florida—1853.

38. The discovery of the cold wall, alternate warm and cold bands, and various other features of the Gulf Stream, especially such as concern its superficial and deep temperatures on sections, and its distribution relative to the shore and bottom.

39. Various facts relative to the distribution of minute shells on the ocean-bottom, of probable use to navigators for recognizing their positions.

40. Hetzel Shoal, off Cape Canaveral, Florida—1850.

41. A new passage, with three fathoms water, through Florida Reef to Legaré harbor, under Triumph Reef (lat. 25° 30′ N., long. 80° 03′ W.), which, if properly buoyed, will be valuable as a harbor of refuge.

42. A new channel into Key West harbor—1850.

43. Isaac Shoal, near Rebecca Shoal, Florida Reef; not laid down on any chart—1852.

44. Channel, No. 4, a northwest entrance into Cedar-Keys Bay—1852.

45. Mobile Bay Entrance Bar; in 1822 only 17 feet at low water could be carried over it: in 1841 it was 19 feet; and in 1847 it was 20¾ feet, as shown by successive surveys—1847.

46. The diminution, almost closing, of the passage

between Dauphine and Pelican Islands, at the entrance of Mobile Bay—1853.

47. Horn Island Channel, on the Coast of Mississippi.

48. The removal of the East Spit of Petit Bois Island in the hurricane of 1852, opening a new communication between the Gulf and Mississippi Sound, and the rendering of Horn Island Pass more easy of access by the removal of knolls—1853.

49. The accurate determination of Ship Shoal, off the coast of Louisiana, in connection with the site for a light-house—1853.

50. The changes at Aransas Pass, Texas, as bearing on the question of a light-house site—1853.

51. The determination of the position and soundings on Cortez Bank, near the island of San Clemente, coast of California—1853.

52. A shoal inside of Ballast Point, San Diego Bay, with 12½ feet of water; not laid down on any chart—1852.

53. Changes in the channels of entrance of Humboldt Bay or harbor, California—1852 and 1853.

54. The depth of water on the bars at the entrance of Rogue River and Umquah River, Oregon—1853.

55. South Channel, Columbia River, surveyed and made available to commerce—1851. Changes of channels, their southward tendency, and a new three-fathom channel from Point Hancock, due west to open water, Columbia entrance—1852. Further changes—1853.

56. Various surveys and charts of small harbors on the Pacific, and a continuous reconnoissance of the entire western coast and islands adjacent, a great part of which was very imperfectly known.

Additional List for 1854.

57. Determination of the dimensions of Alden's Rock, near Cape Elizabeth, Maine.

58. A bank (Stellwagen's Bank), with 10½ to 14½ fathoms of water on it, at the entrance to Massachusetts Bay, and serving as an important mark for approaching Boston and other harbors.

59. A dangerous sunken ledge (Davis's Ledge) to the eastward, and in the neighborhood of Minot's Ledge.

60. Several rocks in the fair channel-way in Boston harbor entrance.

61. The tidal currents of Nantucket Shoals and the approaches.

62. The tidal currents of Long Island Sound.

63. The changes in New York harbor, near the city, between 1845 and 1854.

64. The general permanence of the Bodkin Channel and shoals in its vicinity, at the entrance of the Patapsco River—between 1844 and 1854.

65. A shoal (New Point Shoal) in Chesapeake Bay, with 16 feet water on it, southeast from New Point Comfort light-house, off Mobjack Bay.

66. A reconnoissance of the Wimble Shoals near Nag's Head, coast of North Carolina.

67. The general permanence in depth on the bar of Beaufort, North Carolina, with the change of position of the channel.

68. The changes in Maffitt's Channel, Charleston harbor, South Carolina, from 1852 to 1854.

69. A harbor of refuge (Turtle harbor) to the northward and westward of Carysfort light-house, Florida Reef, with a depth of water of 26 feet at the entrance.

70. A safe rule for crossing the Florida Reef near Indian Key.

71. Co-tidal lines for the Atlantic coast of the United States.

72. An increase of depth of water on the bar at Pass Fourchon, Louisiana.

73. A shoal at the entrance to the Straits of Rosario, Washington Territory, giving good holding ground in 33 feet.

74. Belle Rock, in the middle of Rosario Strait, Washington Territory, visible only at extreme low tides.

75. Entrance Rock, at the entrance of Rosario Strait.

76. Unit Rock, in the Canal de Haro, Washington Territory.

77. A five-fathom shoal in the Strait of Juan de Fuca, between Canal de Haro and Rosario Strait.

78. The non-existence of two islands at the northern entrance of Canal de Haro, laid down on charts.

79. The non-existence of San Juan Island, usually laid among the Santa Barbara group.

80. Tides of San Diego, San Francisco, and Astoria. —*Coast Survey Report for* 1854.

Cobalt (Ger. *Kobalt;* Du. *Kobal;* Swed. *Cobolt;* Fr. *Cobalt;* It. *Cobalto;* Russ. *Kobolt;* Lat. *Cobaltum*), a mineral of a gray color, with a shade of red, and by no means brilliant. It has scarcely any taste or smell; is rather soft; specific gravity about 8·6. Sometimes it is composed of plates, sometimes of grains, and sometimes of small fibres adhering to each other. Its oxides are principally employed.—*See* SMALTS, or SMALTZ. They form the most permanent blue with which we are acquainted. The coloring power of oxide of cobalt on vitrifiable mixtures is greater, perhaps, than that of any other metal. One grain gives a full blue to 240 grains of glass.—THOMSON'S *Chemistry* and URE'S *Dictionary.*

Cocculus Indicus, or **Indian Berry** (Sansc. *Kakamari;* Malay, *Tubabidgi*), the fruit of the *Menispermum Cocculus*, a large tree of the Malabar coast, Ceylon, etc. It is a small kidney-shaped berry, having a white kernel inside of a most unpleasant taste. It is of a poisonous and intoxicating quality, and has been employed to adulterate ale and beer.

Cochineal (Ger. *Koschenilje;* Du. *Conchenilje;* Fr. *Cochenille;* It. *Cocciniglia;* Sp. *Cochinilla, Grana;* Port. *Cochenilha;* Russ. *Konssenel*), an insect (*Coccus cacti*) found in Mexico, Georgia, South Carolina, and some of the West India islands; recently, also, it has been introduced into Java, and promises to become an important product of that rapidly improving colony. Formerly it was in Mexico only that it was reared with care, and formed a valuable article of commerce; but its culture is now more or less attended to in various parts of the West Indies and of the United States. It is a small insect, seldom exceeding the size of a grain of barley; and was generally believed, for a considerable time after it began to be imported into Europe, to be a sort of vegetable grain or seed. There are two sorts or varieties of cochineal: the best or domesticated, which the Spaniards called *grana fina*, or fine grain; and the wild, which they call *grana sylvestra.* The former is nearly twice as large as the latter, probably because its size has been improved by the favorable effects of human care, and of a more copious and suitable nourishment, derived solely from the *Cactus cochinillifer*, during many generations. Wild cochineal is collected six times in the year, but that which is cultivated is only collected thrice during the same period. The insects, of which there are about 70,000 in a pound, being detached from the plants on which they feed by a blunt knife, are put into bags, and dipped in boiling water to kill them, after which they are dried in the sun. It is principally used in the dyeing of scarlet, crimson, and other esteemed colors. The watery infusion is of a violet crimson; the alcoholic, of a deep crimson; and the alkaline, of a deep purple, or rather violet hue. It is imported in bags, each containing about two hundred pounds; and has the appearance of small, dry ,shriveled, rugose berries or seeds, of a deep brown, purple, or mulberry color, with a white matter between the wrinkles. In this state they suffer no change from length of keeping. Dr. Bancroft says that that cochineal is the best which is "large, plump, dry, and of a *silver-white* color on the surface."

The species of cochineal called *granilla*, or dust, is supposed by Dr. Bancroft to be principally formed of *grana sylvestra.* The insects of which it consists are smaller than those composing the fine cochineal, and it does not yield more than a third part of the coloring matter that is yielded by the latter. The cochineal insect was introduced into India in 1795; but a very inferior sort only is produced. It has also been introduced into Java and Spain, but with what success remains to be seen.—Thomson's *Dispensatory;* Bancroft *on Colors, etc.*

The cochineal plant (*Cactus cochinillifer*), or some of its congeners, is found in varying abundance throughout the torrid zone, as well as in several warm and temperate countries without the tropics. But much doubt still exists as to what particular species nourishes the cochineal insect, as it is believed that the plant which was named by Linnæus, and which has been almost universally called *Cactus cochinillifer*, is not the one that produces the best Mexican cochineal; nor is it positively known in what part of America it was originally a native. Linnæus speaks of it as indigenous to Jamaica, and the warmer parts of the New World; but others assert that it was brought from South America by a Spanish priest.

Cochin China. This extensive kingdom is situated in the southern extremity of Asia, and forms part of the peninsula between China and Hindostan. It is not separated, however, by any distinct boundary from the neighboring countries; and its limits have been greatly extended by conquest beyond those of Cochin China proper, which is merely a strip of land between the China Sea and the mountains, and is not above sixty or seventy miles broad. The empire of Cochin China, which took its present form in the beginning of the present century, comprehends Cochin China proper, Tonquin, the principal part of Cambodia, and the little state of Chiampa. This state, as it has been aggrandized by conquest, extends from the point of Cambodia, in about 8° 30′ N. lat., to the northern confines of Tonquin, which reach within a very few miles of the tropic of Cancer, and from the longitude of 102° to about 109° E. It is bounded on the north by the Chinese Quangsi or Kiangsi and Yunan; on the west by the kingdoms of Laos and Siam; while the Gulfs of Siam, Tonquin, and the China Sea bound it on the southwest, east, and northeast. Its area is estimated at about 98,000 square miles, and its population at from 12,000,000 to 16,000,000. This great country is divided by long ranges of mountains, which run nearly north and south, and in almost parallel chains, forming it into separate provinces, divided by physical boundaries, and inhabited by distinct tribes and nations, although subject to the same sovereign. By these mountainous ridges Tonquin and Cochin China proper are separated from Lactho, Laos, and Cambodia. Another chain separates the three latter states from Siam and China, and gradually diminishes in height as it approaches the south, terminating at the southern extremity of Cambodia.

The soil in Cochin China, especially in the low lands, is fertile, and its products are very valuable. Of these rice, as being the general food of the people, is the staple commodity; and after supplying the wants of the people, about 100,000 piculs remain annually for exportation. The cultivation of the sugar-cane, as well as the preparation of sugar, has of late years much increased; and the annual exportation of sugar is considered to be not less than 70,000 piculs. Cotton of the best quality is produced on the coast; and of this probably about 60,000 piculs are exported. Though raw silk is produced, it is principally for home consumption. Cinnamon ranks high among its productions, and has always been celebrated in China. In the southern parts the cocoa-nut grows very luxuriantly, and hence there is a large exportation of oil. Pepper of a good quality, but in small quantity and of a high price, is produced in the central provinces of Cochin China; but the quantity is inadequate to the demand which the Chinese trade creates for its exportation. It grows among the central mountains of Cochin China, whence it is exported to Cambodia and Tonquin, but principally to China, where it is much more highly valued than any other quality of this aromatic. Another exclusive product of the central parts of the kingdom, which is extensively cultivated and sent to the neighboring provinces, is tea, which is very coarse and only used by the poorer classes. The other productions of the country are, gamboge, gum, cardamoms, eagle-wood, areca-palm, betel-nut, ivory, stick-lac; hides, consisting of deer-skins, buffalo, elephants', and rhinoceros hides; peltry, consisting of tiger, leopard, otter, and cat skins; feathers, salt fish, horns and bones, dye-woods, and woods for ship-building and for domestic purposes. Valuable timber is only found in Cambodia, and a small quantity of teak-wood is found in the forests; also ebony cedars, mimosas, walnuts, iron-wood, and poon, and most of the other trees found in the woods of India. The wood used for ship-building and for domestic purposes is strong and durable, and is carried to the capital in large quantities. There is a hard, black wood extensively used in cabinet-work, and of large dimensions, which takes a fine polish, and might form an article of exportation. Cambodia also produces the Portuguese rose-wood, which the Chinese export as they do from Siam; also sandal-wood and other scented woods. Among the products of Tonquin is a species of vegetable root, a cheap material, which forms the dead-weight of all the Chinese cargoes exported from Tonquin, and is used extensively both throughout Cochin China and the adjacent countries, and also in China, as the material of a red dye. Edible birds'-nests, the sea-slug usually called biche-de-mer, or *Sipunculus edulis*, and various marine productions of a gelatinous quality, form standing articles of trade with China, and are always in demand.

The geological formation of Cochin China is primitive; the mountains are chiefly composed of granite and sienite. Mica slate and primary limestone here and there occur, while several hills consist of quartz rock. Among the mountains of Tonquin is the only portion of the Cochin Chinese empire which produces iron, gold, and silver. The iron received from these mines, which is as cheap as that from Siam, supplies the whole kingdom, with the exception of Saigun, which is furnished from the latter country. Gold dust is found in many of the rivers; and there are immense rocks of marble situated on the banks of the River Faifo, on a kind of sandy plain, of which large quantities have been exported. This remarkable range of limestone rocks rises almost perpendicularly from the low sand hills, to a height of from 300 to 400 feet, without a hill or mountain near them.

The foreign trade of the Cochin Chinese is almost exclusively with China; the trade carried on with Siam being inconsiderable, and that with European nations still smaller. But there is no indisposition to trade, though among the European nations the notion has been propagated by travelers that the resort of European traders is in a great measure interdicted in this kingdom, on the same principle as in Japan and China. In 1818, a new tariff was imposed on foreign vessels, by which the high duties imposed on all foreign vessels prior to 1818 were repealed, and equal duties substituted in their stead. By this regulation all vessels pay a rated measurement duty, moderate in its amount, and are exempted from all import duties payable previous to 1818. Vessels that are driven into the ports of Cochin China by stress of weather, or that visit them for the purpose of commercial inquiries, are free from all charges. Besides the exports above mentioned are cardamoms, betel-nut, eagle-wood, dye-woods, stick-lac, gamboge, ivory, elephants' hides and bones, and rhinoceros bones. The imports are silk goods of various kinds, the coarser kinds of teas, coarse china-ware, paper, cotton and woolen stuffs, iron, opium, cutlery, etc. Of the internal trade of the country, though considerable, little is known. The trade with China is chiefly conducted with Cachao in Tonquin, Saigun in Cambodia, and Faifo and Hué in Cochin China. There is also some inconsiderable intercourse with other parts of the empire.

Cochin China, from its central situation, its navigable rivers, and its many excellent harbors, possesses extraordinary advantages for commerce. Few countries are so amply provided with harbors, there being within the 6½° of latitude which intervene between Cape St. James and the Bay of Turon no less than nine of the finest harbors in the world, accessible in every wind, quite safe to approach, and affording the most complete protection. The Bay of Turon, situated in lat. 16° 7′ N., is equaled by few in the Eastern World, and surpassed by none for the security and convenience which it affords.—E. B.

Cocket, in *Commerce*, a scroll of parchment, signed and delivered by the officers of the custom-house to merchants upon entering their goods, to certify that their merchandise is customed and may be discharged.

Cock-pit, of a ship of war, the apartment of the surgeon and his mates appropriated to the use of the wounded in time of action. It is situated under the lower deck, below the water-line.

Cockswain (pronounced *coxen*), an officer on board of a man-of-war, who has the care of a boat or sloop, and who must be always ready with his gang or crew. He sits in the stern of the boat, which he steers, and has a whistle to summon his men.

Cocoa, or, more properly, **Cacao** (Fr. and Sp. *Cacao;* Ger. *Kakao*), the seed or nuts of the cocoa-tree (*Theobroma cacao*), growing in the West Indies, and in many parts of South America. It is said, by Mr. Bryan Edwards, to bear some resemblance, both in size and shape, to a young *black-heart cherry.* The nuts are contained in pods, much like a cucumber, that proceed immediately from all parts of the body and larger branches; each pod contains from ten to thirty nuts, of the size of large almonds, very compactly set. The shell of the nut is of a dark brown color, brittle and thin; the kernel is, both internally and externally, brownish, divided into several unequal portions, adhering together, but separating without much difficulty; it has a light agreeable smell, and an unctuous, bitterish, rather rough and peculiar, but not ungrateful taste. The nuts should be chosen full, plump, and shining, without any mustiness, and not worm-eaten. They yield, by expression, a great deal of oil; but they are cultivated only that they may be employed in the preparation of the excellent beverage cocoa, and the manufacture of chocolate, of which they form the principal ingredient. The finest cocoa is said to be that of Socomusco. The principal importations were formerly derived from the Caraccas and Guayaquil, particularly the former, the cocoa of which is also the more valuable. The exports from Venezuela amounted in 1851 to 8,159,905 pounds, worth $1,299,631. M. Humboldt estimated the consumption of cocoa in Europe in 1806 at 23,000,000 pounds, of which from 6,000,000 to 9,000,000 were supposed to be consumed in Spain. The production of cocoa was languishing in the Caraccas for several years previously to the commencement of the disturbances in South America; and latterly the cultivation of coffee seems to have been in most parts gaining the ascendency.—Humboldt, *Pers. Narrative*, vol. iv. p. 236–247, Engl. transl. In 1851 the exports of coffee from Venezuela amounted to 37,968,081 pounds.

Coco, **Coker**, or, more properly, **Cocoa-nuts** (Ger. *Kokonüsse;* Du. *Kokosnooten;* Fr. and Sp. *Cocos;* It. *Cocchi;* Russ. *Kokos;* Sans. *Narikēla*), the fruit of a species of palm-tree (*Cocos nucifera*, Linn.). This tree is common almost every where within the tropics, and is extremely valuable; being to the palmivorous inhabitants of many parts of Ceylon, Brazil, and other intertropical regions, not merely their principal wealth, but almost their entire dependence. Every part of the tree is appropriated to some peculiar purpose; and an Indian with a garden containing twelve cocoa-nut trees and two jack-trees is said to be comparatively independent! But we may observe that this facility of obtaining subsistence is not an advantage, but the reverse; indolence and a want of civilization being its invariable accompaniment. The tree grows to the height of from 50 to 90 feet; it has no branches, but the leaves are from 12 to 14 feet in length, with a very strong middle rib. The fruit is nearly as large as a man's head; the external rind is thin, tough, and of a brownish-red color. Beneath this there is a quantity of very tough fibrous matter, which is used in the manufacture of cordage and coarse sail-cloth. It is buoyant and extremely well suited for ropes of large diameter; and until the introduction of chain cables a majority of the ships which navigated the Indian seas were supplied with cables of this material. Within the fibrous coating is the shell of the nut, which is nearly globular, very hard, susceptible of a high polish, and used for many domestic purposes; the kernel is white, in taste and firmness resembling that of a hazel-nut; it is hollow in the interior, the hollow being filled with a milky fluid. While the nut is green, the whole hollow of the shell is filled with fluid, which is refreshing, agreeable, and pleasant to the taste. The solid part of the ripe kernel is extremely nutritious, but rather indigestible. The kernels yield by expression a great deal of oil, which, when recent, is equal to that of sweet almonds; but it soon becomes rancid, and is then employed by painters. A tree generally yields about 100 nuts, in clusters, near the top, of about a dozen each. The wood of the tree is made into boats, rafters, the frames of houses, and gutters to convey water. The leaves are used for thatching buildings; and are wrought into mats, baskets, and many other things for which osiers are employed in Europe; so that every part of it is applied to some useful end.

If the body of the tree be bored, there exudes from the wound a white liquor, called palm wine or toddy. It is very sweet when fresh; kept a few hours, it becomes more poignant and agreeable; but next day it begins to grow sour, and in the space of 24 hours is changed into vinegar. When distilled, it produces the best species of Indian arrack; it also yields a great deal of sugar. Toddy is obtained from several species of palms, but that of the *Cocos nucifera* is the best.—*See* Marshall *on the Cocoa-nut Tree;* Ainslie's *Materia Indica.* An improvement effected in the preparation of cocoa-oil has made it of much importance in the arts, by rendering it available in the manufacture of candles and soap, and for various purposes to which it was not previously applicable. The palm-oil met with in the market is not obtained from the *Cocos nucifera*, but from another species of palm. It is chiefly imported from the coast of Guinea.—*See* Palm-oil.

Cocoa-nuts are produced in immense quantities in Ceylon, forming, with their products—oil, arrack, and coir—the principal articles of export from that island. They are also very abundant in the Maldive Islands, Siam, and on several places of the coast of Brazil. Cocoa oil is in very extensive use all over India, and large quantities are manufactured in the lower provinces of Bengal. This latter is said to be superior to that imported from Ceylon. At an average of the three years ending with 1850, 431,071 gallons of cocoa-nut oil were exported from Ceylon.

Cod (Ger. *Cabljau*, *Bakalau;* Du. *Cabeljaauw*, *Baukaelja;* Dan. *Cabliau*, *Skreitorsk*, *Bakelau;* Sw. *Cabeljo*, *Bakelau;* Fr. *Morue*, *Cabillaud;* It. *Bacca*, *Baccalare;* Sp. *Bacalao;* Port. *Bacalhão;* Lat. *Gadus*), a species of fish too well known to require any description. "It is amazingly prolific. Leewenhoek counted 9,384,000 eggs in a cod-fish of a middling size—a number that will baffle all the efforts of man to exterminate. In the British seas they begin to spawn in January, and deposit their eggs in rough ground, among rocks. Some continue in roe till the beginning of April. The cod is only found in the Northern parts of the world; it is an ocean fish, and never met with in the Mediterranean. The great rendezvous of the codfish is on the Banks of Newfoundland, and the other sand banks that lie off the coasts of Cape Breton, Nova Scotia, and New England. They prefer those situations, by reason of the quantity of worms produced in these sandy bottoms, which tempt them to resort there for food. But another cause of the particular attachment the fish have to these spots is their vicinity to the polar seas, where they return to spawn: there they deposit their roes in full security; but want of food forces them, as soon as the more southern seas are open, to repair thither for subsistence. Few are taken to the north of Iceland, but they abound on its south and west coasts. They swarm on the coasts of Norway, in the Baltic, and off the Orkney and Western Isles; after which their numbers decrease in proportion as they advance toward the south, when they seem quite to cease before they reach the mouth of the Straits of Gibraltar. Before the discovery of Newfoundland, the greater fisheries of cod were on the seas of Iceland, and off the Western Isles, which were the grand resort of ships from all the commercial nations; but the greatest plenty was met with near Iceland. The English resorted thither before the year 1415; for we find that Henry V. was disposed to give satisfaction to the King of Denmark for certain irregularities committed by his subjects on those seas. In the reign of Edward IV. the English were excluded from the fishery by treaty. In latter times, we find Queen Elizabeth condescending to ask permission to fish in those seas from Christian IV. of Denmark. In the reign of her successor, however, no fewer than 150 English ships were employed in the Iceland fishery; which indulgence might arise from the marriage of James with a princess of Denmark."—PENNANT's *British Zoology*. Cod is prepared in two different ways; it is either gutted, salted, and then barreled—in which state it is denominated green or pickled cod; or it is dried and cured—in which state it is called dried cod. Ready access to the shore is indispensable to the prosecution of the latter species of fishery.

Distant Cod Fishery.—The great Bank of Newfoundland, discovered by John or Sebastian Cabot in 1497, was long, and perhaps still is, the principal seat of the distant cod fishery. The extraordinary abundance of codfish on its banks having been speedily ascertained, the French, Portuguese, and Spaniards soon after engaged in the fishery. The English were later in coming into the field. In 1578 France had on the Banks of Newfoundland 150 vessels, Spain 120 or 130, Portugal 50, and England from 30 to 50. During the first half of last century, the fishery was principally carried on by the English, including the Anglo-Americans and the French; but the capture of Cape Breton, and of their other possessions in America, gave a severe blow to the fishery of the latter. The American war divided the British fishery; that portion of it which had previously been carried on from New England being thereafter merged in that of the United States. During the last war, the French being excluded from the fisheries, those of England attained to an extraordinary degree of prosperity; the total value of the produce of the Newfoundland fishery in 1814 having exceeded £2,800,000. But since the peace, the British fishery on the Newfoundland banks has rapidly declined; and can hardly, indeed, be said, at this moment, to exist. It is now carried on almost entirely by the French and the Americans; the facilities enjoyed by the latter for its prosecution being greater than those of any other people, and the former being tempted to engage in it by the extraordinary encouragements offered by government. At present, the British fishery carried on by the inhabitants of Newfoundland is confined entirely to the shore or boat fishery. But this, though probably not so good a nursery of sailors as the bank fishery, is admitted to be "the most productive of merchantable fish and oil."—M'GREGOR's *Brit. Amer.*, 2d ed. vol. i.

American Cod Fishery.—The Americans have at all times prosecuted the cod fishery with great vigor and success. Their fishermen are remarkable for their activity and enterprise, sobriety and frugality; and their proximity to the fishing-grounds, and the other facilities they possess for carrying on the fishery, give them advantages with which it is very difficult to contend. In 1795 the Americans employed in the cod fishery about 31,000 tons of shipping; in 1807 they are said to have employed 70,306 tons; but it subsequently declined for several years, and was almost entirely suspended during the late war. According to the official returns (laid before Congress the 1st of January, 1853), the Americans had, in the year ending the 30th of June, 1852, 102,659 tons shipping engaged in the cod fishery. During the same year they exported 134,732 quintals of dried, and 19,379 barrels of pickled cod; their aggregate value being $453,610. "The Americans follow two or more modes of fitting out for the fisheries. The first is accomplished by six or seven farmers, or their sons, building a schooner during winter, which they man themselves (as all the Americans on the sea-coast are more or less seamen as well as farmers); and after fitting the vessel with necessary stores, they proceed to the banks, Gulf of St. Lawrence, or Labrador; and, loading their vessel with fish, make a voyage between spring and harvest. The proceeds they divide, after paying any balance they may owe for outfit. They remain at home to assist in gathering their crops, and proceed again for another cargo, which is salted down, and not afterward dried: this is termed mud-fish, and kept for home consumption. The other plan is, when a merchant or any other, owning a vessel, lets her to 10 or 15 men on shares. He finds the vessel and nets. The men pay for all the provisions, hooks and lines, and for the salt necessary to cure their proportion of the fish. One of the number is acknowledged master; but he has to catch fish as well as the others, and receives only about 20*s.* per month for navigating the vessel; the crew have five-eighths of the fish caught, and the owners three-eighths of the whole. The first spring voyage is made to the banks; the second either to the banks, Gulf of St. Lawrence, or the coast of Labrador; the third or fall voyage is again to the banks; and a fourth, or second fall voyage, is also made, sometimes, to the banks."—M'GREGOR, vol. i. p. 220. It is stipulated in the first article of a convention between Great Britain and the United States, signed at London, 20th of October, 1818, that the citizens of the United States shall have liberty to take all sorts of fish "on that part of the coast of Newfoundland from Cape Ray to the Rameau Islands, on the western and northern coasts of Newfoundland from Cape Ray to the Quirpon Islands, on the Magdalen Islands, and also on the coasts, bays, harbors, and creeks, from Mount Joly, on the southern coast of Labrador, to and through the Straits of Belleisle, and thence northward indefinitely along the coast, without prejudice, however, to any of the exclusive rights of the Hudson's Bay Company; and that the American fishermen shall also have liberty forever to dry and cure fish in any of the unsettled bays, harbors, and creeks of the southern parts of the coast of Newfoundland here above described, and of the coast of Labrador; but so soon as the same, or any portion thereof, shall be settled, it shall not be lawful for the said fishermen to dry or cure fish without previous agreement for such purpose with the inhabitants, proprietors, or possessors of the ground. And the United States hereby renounce forever any liberty heretofore enjoyed or claimed by the inhabitants thereof, to take, dry, or cure fish on or within three marine miles of any of the coasts, bays, creeks, or harbors of his Britannic majesty's dominions in

America not included within the above-mentioned limits." The American fishermen are, however, admitted into all bays, etc., for the purpose of shelter, of repairing damages, of purchasing wood, and of obtaining water, and for no other purpose whatever; and when there, they are to be placed under such restrictions as may be necessary to prevent their abusing the privileges hereby reserved to them.—*See* FISHERIES.

French Cod Fishery.—France has always enjoyed a considerable share of the cod fishery. The following table shows the extent to which she has carried it since the peace:

ACCOUNT OF THE NUMBER OF SHIPS, WITH THEIR TONNAGE, CREWS, AND CARGOES, THAT HAVE ENTERED THE DIFFERENT PORTS OF FRANCE FROM THE COD FISHERY DURING THE UNDER-MENTIONED YEARS.

Years.	Shipping.			Imports.		
	Ships.	Tons.	Men.	Codfish, green.	Codfish, dry.	Oil.
				Quintals.	Quintals.	Quintals.
1825	336	35,172	6,311	72,889	158,237	12,943
1830	377	45,036	8,174	104,003	136.457	11,560
1835	463	55,881	11,225	161,657	87,742	12,870
1840	458	54,583	9,897	336,740		17,962
1841	449	54,064	2,239	....	....	....

The quantities of oil are exclusive of *draches* (huiles non epurés); there are also sounds, etc. Marseilles, Granville, Dunkirk, Bordeaux, La Rochelle, and Nantes are the principal ports whence ships are fitted out for the fishery.

But notwithstanding the apparent prosperity of this branch of industry, it may be doubted whether it be really so beneficial to France as would at first sight appear. It depends more upon artificial regulations than upon any thing else. Foreign cod is excluded from the French markets by the oppressive duty with which it is loaded; and the comparatively great demand for dried fish in Catholic countries renders this a very great boon to the French fishermen. But it is admitted that this would not be enough to sustain the fishery; and high bounties are paid to those engaged in it. These, however, have been reduced of late years; and they will probably in no long time undergo still further alterations. St. Pierre and Miquelon, small islands on the coast of Newfoundland, belong to the French. Their right of fishing upon the shores of that island, and upon the great bank, was replaced in 1814, upon the footing on which it stood in 1792. This concession has been much objected to by Mr. M'Gregor and others: we believe, however, that they have materially overrated its influence.—For further information, *see* FISHERIES *and* FRANCE.

Cod-liver Oil. Pure cod-liver oil is obtained from the livers of codfish; and is best prepared when the liver is in a state most nearly approaching that in which it exists when alive, and is best adapted for medicinal use. The finest oil is devoid of color, taste, and smell, three physical characters that are more valuable than any chemical tests. The success which has attended the use of this oil in pulmonary complaints has led to the introduction of a spurious oil, chiefly prepared of bleached whale oil, etc., which does not possess the valuable medicinal properties of pure cod-liver oil.

Shark-liver Oil is an oil that has been lately imported from the coast of Africa. It gives the usual liver-oil reactions with sulphuric acid; its peculiar interest, however, comes from its low specific gravity. Until now, sperm oil, which has a specific gravity of ·875, was the lightest oil known; but the specific gravity of this oil is only ·866. It is prepared, as its name implies, from shark's liver.

Coffee (Ger. *Koffe*, *Koffebohnen*; Du. *Koffy*, *Koffiboonen*; Da. *Kaffe*, *Kaffebönner*; Swed. *Koffe*; Fr. It. and Port. *Caffè*; Sp. *Café*; Russ. *Kofé*; Pol. *Kawa*; Lat. *Coffea*, *Caffea*; Arab. *Bun*; Malay, *Kāwa*; Pers. *Tochem*, *Kéwéh*; Turk. *Chaube*). The coffee-tree is a native of Ethiopia and Abyssinia; but it was in Arabia that it first became an object of interest and importance to the civilized world. The plant is an evergreen, and is accurately described by La Roque as follows: "The coffee-tree is from six to twelve feet high; the stem ten, twelve, and fifteen inches in circumference. When it is full grown, it much resembles in figure our apple-trees of eight or ten years' standing. The lower branches ordinarily bend when the tree begins to grow old, and extend themselves into a round form, somewhat like an umbrella; and the wood is so very limber and pliable, that the ends of the longest branches may be bent down within two or three feet of the earth. The bark is whitish, and somewhat rough; its leaf is much like that of the citron-tree. It continues green all the year, and the tree is never without leaves, which are ranged almost opposite on each side of the bough, and at small distances from each other. Nothing is more singular in its kind than its productions; for almost in all seasons of the year blossoms, and green and ripe fruit, may be seen on the same tree at the same time. When the blossom falls off, there remains in its room, or rather springs from each blossom, a small fruit, green at first, but which becomes red as it ripens, and is not unlike a large cherry, and is very good to eat. Under the flesh of this cherry, instead of the stone, is found the bean or berry we call coffee, wrapped round in a fine thin skin. The berry is then very soft, and of a disagreeable taste; but as the cherry ripens, the berry in the inside grows harder, and the dried-up fruit, being the flesh or pulp of it, which was before eatable, becomes a shell or pod of a deep brown color. The berry is now solid, and of a clear transparent green. Each shell contains one berry, which splits into two equal parts. When the fruit is sufficiently ripe to be shaken from the tree, the husks are separated from the berries, and are used in Arabia by the natives; while the berries are exported for the European markets."

From Arabia the plant was taken by the Dutch about the year 1690 to Java, whence its culture spread slowly among the islands of the Indian Archipelago. In the early part of the eighteenth century it found its way to the West India Islands. The plant is now common in every botanical garden of Europe, and there are few private conservatories without good specimens of the tree. When cultivated with a view to trade, it is most productive on hills and mountains, where its root is almost always dry, and its head frequently watered with gentle showers. It prefers a westerly exposure and a loose gravelly soil, but freed from weeds and grass. The plants are inserted at distances of six or eight feet asunder, and in holes from twelve to eighteen inches deep.

If left to themselves they would rise to the height of sixteen or eighteen feet; but in extensive plantations the trees are topped and stunted to about five feet, for the convenience of having the fruit within reach of the gatherer. Thus dwarfed, they extend their branches until they cover the whole spot round about them. They begin to yield fruit the third year. By the fifth, sixth, or seventh year, according to the nature of the soil, they are at full bearing, and continue to bear for upward of twenty years.

It has but recently come to the knowledge of Europeans that the leaves of the coffee-plant contain the same essential principle for which the berries are so much valued, and that in the Dutch island of Sumatra, in the Indian Archipelago, the natives scarcely use any thing else, and greatly prefer a beverage made from the leaf to the berry itself. The leaves undergo a process of curing similar to tea, and they possess all the virtues of either tea or coffee. This may be looked upon as the introduction of a new element among the innocent and beneficial necessaries of life; for while the culture of the coffee plant for the sake of its fruit is limited to particular soils and high temperatures, the tree produces leaves in abundance any where within the tropics where the soil is sufficiently fertile. This extensive habitat, added to its nutritive qualities and freedom from any deleterious principle, points out the coffee plant as the best adapted for general consumption of all the productions affording caffein.

The coffee berry (for which the plant has hitherto been chiefly cultivated), when ripe, is cured in the West Indies, in Java, Ceylon, the East Indies, and South America, by a process called pulping and washing. In Arabia, Persia, etc., it is neither pulped nor washed, but cured in the ancient fashion by the labor of the hands and the action of the sun. The pulping process is performed by machinery, which greatly expedites the work; but practical experienced West India planters admit that this process is in some important respects inferior to the Oriental mode. "A manifest preference," says one, "is given in the leading European markets to coffee which has gone through the pulping and washing process; but, strange to say, the consumers of this beverage are totally ignorant of the fact that the produce which is cured in the pulp furnishes a stronger decoction than an equal quantity of the same coffee which has undergone the other process. The mucilaginous substance which is washed off by the pulping process is absorbed by the bean when cured in the pulp. This gives strength to the produce, and enhances its aromatic flavor." Before the berry is available for use, it undergoes a process called roasting. The valuable properties of coffee depend very much on the manner in which this process is performed. For the most recent and intelligent dissertation on this point, consult Dr. URE's *Dictionary of Arts, Manufactures, and Mines*, last edition, vol. i. p. 456.

Species of Coffee. Roasting, etc.—The coffees of Jamaica, Ceylon, and Mocha are generally esteemed the best; then follow the coffees of Costa Rica, Dominica, Berbice, Demerara, Bourbon, Java, Martinique, and Hayti. Arabian or Mocha coffee is produced in a very dry climate, the best being raised upon mountainous slopes and sandy soils. The most fertile soils are not suitable for the growth of very fine coffee. Mr. Bryan Edwards observes, that "a rich deep soil, frequently ameliorated by showers, will produce a luxuriant tree and a great crop; but the beans, which are large, and of a dingy green, prove for many years rank and vapid." And the same remark is made by Mr. Crawfurd with respect to the coffee of Java.—*East Indian Archipelago*, vol. i. p. 487. Coffee is improved by being kept; it then becomes of a paler color. Mocha, or, as it is commonly called, Turkey coffee, should be chosen of a greenish light olive hue, fresh and new, free from any mustiness, the berries of a middling size, clean, plump, and without any intermixture of sticks or other impurities. Particular care should be taken that it be not false packed. Good West India coffee should be of a greenish color, fresh, free from any unpleasant smell, the berries small and unbroken. Coffee berries readily imbibe exhalations from other bodies, and thereby acquire an adventitious and disagreeable flavor. Sugar placed near coffee will, in a short time, so impregnate the berries and injure their flavor, as to lower its value 10 or 20 per cent. Dr. Moseley mentions that a few bags of pepper on board a ship from India spoiled a whole cargo of coffee.

"The roasting of the berry to a proper degree requires great nicety: the virtue and agreeableness of the drink depend upon it; and both are often injured by the ordinary method. Bernier says, when he was at Cairo, where coffee is so much used, he was assured by the best judges that there were only two people in that great city who understood how to prepare it in perfection. If it be underdone, its virtues will not be imparted, and in use it will load and oppress the stomach; if it be overdone, it will yield a flat, burned, and bitter taste, its virtues will be destroyed, and in use it will heat the body, and act as an astringent."

Coffee also denotes the drink which is made from the coffee berries. This beverage has been familiar in Europe for the last two hundred years. The first human beings who appear to have used the coffee berries were the half savage tribes of the higher Ethiopia. According to Bruce, the berries were first parched like any other grain, bruised into powder, and mixed up with any sort of grease into paste rolled into little balls. The same authority declares that two or three of these balls were sufficient to support a man for a whole day in a marauding excursion, or in active war against some neighboring tribe. They merely preferred the coffee berry to other grain, because it fed them as well, and cheered them more.

From Ethiopia, both the coffee plant and the use of its fruit were introduced into Persia and Arabia, and it is to the Arabs that we are indebted both for the first written account of it and for the manner of using it in a liquid state. But though we derive the only authentic account of coffee from the Arabs, they admit that they were taught by the Persians: and it was in the city of Aden, in Arabia, about the middle of the fifteenth century, that the drinking of coffee first became general. The mufti of that city introduced the custom from Persia; his authority gave reputation to the practice—lawyers began to drink it—those who loved reading followed their example—artisans who were obliged to work in the night did the same thing, as well as travelers who journeyed in the night to avoid the heat of the day. In short, says M. Galland, "the whole inhabitants of Aden soon became drinkers of coffee, and not only at night to keep them awake, but even in the daytime for its other virtues."

From Aden the taste for coffee found its way to Mecca, from Mecca to Cairo, from Cairo to Damascus, from Damascus to Aleppo and from Aleppo to Constantinople; but it was not until 1615 that the use of coffee found its way from Constantinople to Venice.

In 1644 it was introduced to Marseilles, in 1652 to London, and in 1669 to Paris.

The first English author who mentioned coffee was Burton, in his *Anatomy of Melancholy* (vol. i. p. 130), published in 1621, thirty years before the introduction of the drink into London. "The Turks," says he, "have a drink called coffee (for they use no wine), so named of a berry as black as soot and as bitter, which they sip up as warm as they can suffer, because they find by experience that that kind of drink so used helpeth digestion and procureth alacrity."

It would be an error to infer that the mode of making coffee in Europe and Asia is the same. In Europe, an infusion or a decoction of the roasted berry is all that is consumed; but this is a refinement in cookery not appreciated in Asia: there the custom is now, and always has been, different.

A highly trustworthy traveler, Lamartine, in describing the ordinary khan in Palestine and Syria, says, "a charcoal fire is constantly burning on the hearth, and one or two copper coffee-pots are always full of *thick farinaceous coffee*, the habitual refreshment and only want of the Turks and Arabs."—*Travels in Syria and the East*, vol. i. p. 292. A cup of well-made coffee exhilarates, arouses, and keeps awake. It allays hunger, to a certain extent, gives to the weary increased strength and vigor, and imparts a feeling of comfort and repose. Its physiological effects upon the system, so far as they have been scientifically investigated, appear to be that, while it makes the brain more active, it soothes the body generally, makes the change and waste of matter much slower than usual, and the demand for food in consequence proportionately less.

All these effects are produced by the conjoined action of three ingredients, either identical with, or similar to, those contained in tea. There is a volatile oil produced during the roasting; a variety of tannic acid, which is also altered in some degree during the roasting; and the substance called thein or caffein, which is common to both tea and coffee, and is found in the leaves of *Guarana officinalis* and *Ilex paraguénsis*, both used by the aborigines of South America, as tea is in the Old Continent, a remarkable result of chemical investigation. The chemical constitution of caffein is $C_{19}H_{10}N_4O_4$.

Coffee-trade. The extent to which the cultivation of coffee has been carried in the British possessions, the vast amount of capital embarked in plantations suited to its growth, the multitude of hands engaged in its culture, and the shipping necessarily employed in connection with that trade, invest the article, in a commercial point of view, with great importance; while as a beverage, the tendency of which is to wean the community from indulgence in intoxicating liquors, it is second to no commodity in the British tariff. The history of the coffee-trade prior to 1850 is only valuable now as an example of a commodity for which there is a universal craving among mankind, struggling successfully, and at last triumphantly, over fiscal restrictions, high duties, differential duties, and an endless mass of antiquated obstructions. In common with other important necessaries of life, it has now attained to the natural state of unrestricted competition, though it still pays a customs duty of three-pence per pound.—E. B.

The cultivation of coffee met with great success in St. Domingo, and for many years that was the source whence Europe derived its chief supplies, having exported at one time about 38,000 tons, or about seventy-six million pounds; and it was supposed that, had not the revolution broken out in 1792, it would in that year have exported 42,000 tons, or about eighty-four million pounds. The devastation by that event caused almost a total cessation in the supplies. Being driven from St. Domingo, its culture was greatly augmented in Cuba, Jamaica, Surinam, and Java, and was subsequently introduced with great success into Brazil. As the culture advanced in Brazil, it declined in Cuba, the growth of sugar having been found capable of more rapid extension and being more profitable. It was some time after coffee was first planted in Brazil before it became an article of export to any great extent.

In 1774 a Franciscan friar, named Villaso, cultivated a single tree in the garden of the Convent of St. Antonio. Brazil was then governed by the Marquis de Lavadio as viceroy. The first fruits of the tree were presented to the marquis, who distributed them among the most respectable planters, explaining to them the advantages of adding another valuable article to the produce of the country; but being strong in their prejudices in favor of sugar and indigo, few took pains to cultivate it, and hence its progress was very slow. In 1808 Don Joas VI. fled from Portugal to Rio Janeiro, and soon after opened the port to foreign trade. The annual crop of coffee then did not exceed 30,000 bags of 160 pounds each, or 8,000,000 pounds. Although the revolution in St. Domingo had overthrown its culture there, Cuba and Jamaica continued, to some extent, to supply the trader. In 1820 its increase in Brazil had swelled to 100,000 bags. The decrease of supply, by the desolation of St. Domingo, caused it to reach the enormous price of 148*s.* per cwt., or nearly 37½ cents per pound, in London, in the years 1817 and 1821. This great price stimulated the production in Brazil. The fall of St. Domingo had caused the culture of indigo to be transferred to British India, and its culture was abandoned in Brazil, with sugar, for coffee. Hence emancipation in St. Domingo gave the monopoly of the cultivation and supply of indigo to British India, where it has remained ever since.

In 1789, just previous to the revolution, Hayti exported 76,835,219 pounds of coffee; in 1818 we find the exports fell to about 26,000,000 pounds, and at this time they do not probably exceed thirty or thirty-five millions. The export of sugars in 1789, just before the revolution, reached 140,000,000 pounds. It has now ceased, and the population actually import supplies from Cuba and Porto Rico. In 1834, the year in which the Emancipation Act went into effect, Jamaica exported to England,

	1834.	1839.
Sugar, cwt.	1,256,253	705,078
Coffee, pounds	18,268,883	9,423,197

We thus find that the exports of coffee fell off the first five years after emancipation about one-half, and sugar nearly in an equal ratio. In August, 1834, the negroes were emancipated by the English government in Jamaica, which struck a death-blow at its culture there, while sugar had measurably superseded its growth in Cuba. These causes combined, with the unrestricted supply of African slave labor, to give its culture a powerful impulse in Brazil. Hence we find by the year 1830 its crop had increased to 400,000 bags, or 64,000,000 pounds. The slave-trade, by convention with England, was to cease in February, 1830. This produced an enormous import of slaves, which could only be disposed of at low prices and on long credits. This, again, stimulated the planting of new estates, and the crop rapidly increased, so that in 1840 it actually reached 1,060,898 bags, or about 168,600,000 pounds. The cultivation being found profitable, the demand for slaves continued, and notwithstanding the attempts of the British government to put a stop to it, the slave-trade has been continually carried on clandestinely ever since, the importations from Africa having amounted to from 30,000 to 50,000 annually, the vessels supplied for which having been chiefly built and fitted out in the Northern cities of the United States, and sailing under whatever colors best answered their purpose.

The increase in the crop since 1840 has been very rapid, and in 1847 reached about 1,804,558 bags, about 288,333,000 pounds. The low prices in 1848 and 1849 had a tendency to check production. The difficulties of importing slaves, under a new treaty made with England in 1845, cut off the supply so far that those which were secretly introduced barely supplied the annual loss, which was 10 per cent., and sometimes more; and should the trade be stopped altogether, as aimed at by England, it will cause the cultivation of coffee to decrease in Brazil, to become augmented in the East Indies, and especially in British India; and should negro slavery be overthrown, coffee would to a great extent follow the course of indigo, and become to some extent an article of British production and control. The climate of Brazil is highly favorable to the cultivation of coffee, the trees yielding nearly double those of the West Indies.

The growth of Brazil, by 1854, reached the astonishing quantity of 400,000,000 pounds, while the production in the British West India Islands has rapidly declined since the emancipation of the slaves in 1834, as will be seen from the following table:

In the year 1848 the British West India Islands yielded	10,000,000 lbs.
In the years 1853, '54, and '55, they yielded only	5,000,000 lbs.
Jamaica alone, in 1834, the year the Emancipation Act was declared in the islands, amounted to	18,268,183 lbs.

We see by this the same result as that which followed emancipation in St. Domingo. Coffee, with other tropical products, has fluctuated with the supply, and cheapness, and reliability of African slave-labor. If coolies can be brought in under a voluntary apprenticeship, why can not Africans be allowed to come in by the same method, placed under proper regulations and guarantees on the coast of Africa?

The coffee-growing districts of Brazil are divided into the Serra Abaixo (or below the mountains) and Serra Acima (above the mountains). The produce of the former is about one-sixth part of the whole crop in good years, but is much more uncertain than the Serra Acima, being more liable to injury from drought, which is said of late years to have been frequent. The quality is also inferior, and seldom shipped to the United States. The trees usually flower three times each year, generally in August, September, and October, and are ready for picking, in favorable seasons, in March, April, and May, with considerable variation according to situation. In April small quantities of poor new coffee appear in market. In May and June the quantity is greater, but never abundant until July and August. The trees of Serra Acima bloom later, but the crop is more uniform, enabling planters to gather a crop at a single picking, which is a great saving of labor. Entire cargoes are not generally obtained from the Serra Acima district until August and September. Usually the supplies remaining over of the old crop are first sent to the market before planters clean out the new, and hence it is often as late as October and November before the bulk of the new crop is in market.

The cost of transporting the coffee to market is said to average the planter about two cents per pound, owing to imperfect facilities. The actual cost of production is said to be not much under 4½ cents per pound, and as negroes are decimated by cholera and other diseases, without new importations are required to supply their places, negroes must advance in value and enhance the cost of production.

The first import of Brazil coffee into the United States was made in 1809, which consisted of 1809 bags, landed at Salem, by the ship *Marquis de Someriulas.* Hence, within the brief period of forty-seven years, the exports from Brazil have increased to the large amount of 400,000,000 pounds in 1854, and 320,000,000 in 1853. From 1809 to 1849, or in a period of forty years, the imports of coffee from Brazil into the United States increased from 1809 bags to over 100,000,000 pounds.

For the fiscal year ending the 30th of June, 1855, the United States imported from Brazil 135,369,383 pounds of coffee, of the value of $11,815,818; other Brazilian products, including some sugars, amounted to $3,403,117.

Total imports..................................	$15,218,935
Total exports to Brazil	4,261,273
Balance of trade against the United States	$10,957,662

The imports of coffee alone from Brazil in 1854–'55 exceeded the exports of the United States to that country by $7,553,545.

The total importation of coffee into the United States for the year ending June 30th, 1855, amounted to 190,764,259 pounds, valued at $16,764,259. For the year ending June, 1856, the quantity has been much larger, and as prices have ruled high, the value has been much greater.

The consumption of coffee has rapidly increased within the past twenty-five years, the greatest augmentation having been in the United States, where it has averaged 7½ per cent. per annum, while in Europe it has been 2½ per cent. per annum, or at the rate of 4 per cent. per annum for the world.

We submit the following table, showing the production and consumption of coffee for the world at different periods:

COMPARATIVE STATEMENT OF THE PRODUCTION OF COFFEE IN THE WORLD AT DIFFERENT PERIODS. (THE PRODUCTION OF ONE YEAR ENTERS INTO THE CONSUMPTION OF THE SUCCEEDING YEAR.)

	1848.	1850.	1854.	1855.
	Pounds.	Pounds.	Pounds.	Pounds.
Brazil..............................	270,000,000	280,000,000	400,000,000	320,000,000
Java	110,000,000	115,000,000	140,000,000	120,000,000
St. Domingo	40,000,000	45,000,000	40,000,000	35,000,000
Cuba and Porto Rico	40,000,000	30,000,000	25,000,000	20,000,000
British West Indies	10,000,000	5,000,000	5,000,000	5,000,000
Sumatra.............................	10,000,000	15,000,000	15,000,000	15,000,000
Mocha, etc.	5,000,000	5,000,000	5,000,000	5,000,000
Ceylon, India.......................	25,000,000	35,000,000	40,000,000	50,000,000
Venezuela...........................	20,000,000	25,000,000	25,000,000	20,000,000
Costa Rica..........................	5,000,000	7,000,000	8,000,000	9,000,000
Total..........................	540,000,000	565,000,000	716,000,000	607,000,000

It will be seen from this table that the greatest increase in 1855 was in Ceylon, a British East India possession, where its future growth is to be most largely augmented should slavery be overthrown in Brazil; with regard to which attempts have already been made by a member of the Legislature. A bill was introduced for gradual emancipation, but it, of course, did not pass. The question arises, if negro slavery in Brazil should be overthrown, where will the cultivation of coffee next take refuge? Java can not materially augment the supplies. There are but two other points, viz., British India and the west coast of Africa. The tree is a native of the latter locality. The consumption of the world in time of peace, and increased wealth from the influx of gold, has overtaken the labor of production. The future consumption in England and in the United States is expected to be materially augmented.

France.—In France, also, owing to the failure of the vintage for several years, the consumption of coffee is likely to be increased. The annexed statement shows the present estimated consumption of the world:

	Pounds.
United States and British provinces	210,000,000
German Zolverein	110,000,000
Austria, and other German states...........	75,000,000
Holland and Belgium	90,000,000
France, Switzerland, and Southern Europe .	125,000,000
Great Britain	40,000,000
Denmark, Sweden, and Norway	30,000,000
Russia	15,000,000
Cape of Good Hope, Australia, and California	15,000,000
Total....................................	710,000,000

The question of labor in the cultivation of this and other tropical productions which have become commercial necessities to the populations of the temperate northern latitudes, which embrace the largest civilized portions of the human race, is becoming one of great importance. The growing deficiency must not only continue, but in time greatly enhance the prices of these products, which have become necessaries of life, and tend to drain the money from Northern nations, in order to secure them, or, in other words, place them under heavy tribute for articles which are, from habit, necessary to their comfort and well-being. England, through her East India possessions, is, no doubt, anxious to secure as large a share of this tribute as possible, and may, to a certain extent, succeed with indigo, sugar, and coffee; but she has failed, and will continue to fail, in the production of cotton. The United States have secured, and are likely to keep, and, if necessary, by the aid of England to back the South in securing this indispensable production to her prosperity, as well as the prosperity of Europe and the Northern States of this Union. The value of slaves in Brazil—the only South American state which has made any great progress, and that through African labor—has for several years steadily increased. Prior to 1830, when the slave-trade was legal, slaves were sold at 120||, or $66. From 1830 to 1850, when the trade was, under treaties with England, prohibited, and had to be conducted clandestinely, they advanced to 400||, or $220. Since 1850, the trade having been almost entirely suppressed, they have gradually advanced, aided by the decimation of 5 per cent. per annum, to 1100||, or $605, in 1853. Since then, 10 per cent., it is estimated, have died from cholera, as appears by a recent statement of the Minister of the Empire, and they are now stated to be worth 1500||, or $825 each. It was the low price of slaves prior to 1830 which stimulated the production of coffee, and caused prices to rule so low, which were in 1835 to 1840 not much over half the present prices.

It takes four to five years to mature coffee-trees after planting them before they will yield a crop of berries; hence the sudden rise or fall in prices can not so suddenly influence production, as is the case with annual crops from new plantations of sugar and cotton. At the present time, owing to the high prices of slaves, no new estates can be formed, and none have been for several years; and it is stated that there are not hands enough left in the country to pick out a full crop.

It may be remarked that the rise and fall of tropical productions have fluctuated with the supply of the only labor suitable for their production beneath a tropical sun, and that is African.

Estimated Supplies of Coffee for Europe and the United States.

From	1851.	1852.	1853.
	Tons.	Tons.	Tons.
Brazil	142,000	133,000	126,000
Java	60,000	69,000	62,000
St. Domingo	18,000	25,000	20,000
Cuba	5,000	4,000	5,000
Porto Rico	5,500	9,500	9,500
La Guyara and Venezuela	10,500	12,000	12,000
Costa Rica	3,000	3,000	3,000
British West Indies	1,500	1,500	1,500
British E. Indies and Ceylon	16,000	21,000	16,000
French colonies, East and West Indies	500	500	500
Dutch West Indies	500	500	500
Manilla 600, Arabia 1400	2,000	2,000	2,000
Total	264,500	281,000	258,000
Deduct United States	94,000	88,000	85,000
For Europe	170,500	193,000	172,000
Consumption in Europe	176,500	191,400	193,000
Surplus	....	1,600	....
Deficit	6,000	....	21,000

Estimated Consumption of Coffee.

Countries.	1851.	1852.	1853.
	Tons.	Tons.	Tons.
Great Britain (official)	14,500	15,700	17,500
France (official)	18,500	21,500	21,500
Belgium (official)	17,500	20,700	20,000
Holland, estimated	13,500	15,000	15,000
Germany, Zollverein, etc.	56,000	58,000	58,000
Bohemia, Gallicia, and Hungary	6,000	6,000	6,000
Austria	10,500	11,000	11,000
Switzerland	6,500	7,000	7,000
Italy, Greece, Levant, and North Africa	14,000	15,000	15,000
Spain and Portugal	6,000	6,000	6,000
Sweden, Norway, and Denmark	9,000	10,000	10,000
Russia, Finland, and Poland	4,500	5,500	6,000
Europe	176,500	191,400	193,000
United States	84,000	92,000	92,000
Total	260,500	283,400	285,000
Estimated fresh supplies in the year	264,500	281,000	258,000
Deficit	....	2,400	27,000
Surplus	4,000	....	....

The above quantities may be considered the nearest approximation to the truth which the present state of commercial statistics can supply; but any one familiar with the writings of modern travelers in the south of Europe and in Asia must be convinced that a very large quantity of coffee is consumed in Turkey, Syria, Palestine, Persia, Egypt, Abyssinia, etc., regarding which commerce takes no note.

Imports of Coffee into the United States since 1821.

Years.	Pounds.	Years.	Pounds.
1821	21.273,659	1836	93,790.507
1822	25,782,390	1837	88,140.403
1823	37,334,732	1838	88,139,720
1824	30,224,296	1839	106,693,992
1825	45,190,630	1840	94,996,095
1826	37,349,497	1841	114,984,783
1827	50,051,986	1842	112,865,927
1828	55,194,697	1843	92,914,557
1829	51,133,538	1844	160,461,943
1830	51,488,248	1845	107;860,911
1831	81,757,386	1846	132,611,596
1832	91,722,329	1847	156,716,575
1833	99,955,020	1848	150,559,138
1834	80,150,366	1849	165,334.700
1835	103,199,777	1850	144,986,895

Re-exports of Coffee from the United States for the Year ending June 30.

Re-exports to	1853.		1854.		1855.	
	Pounds.	Dollars.	Pounds.	Dollars.	Pounds.	Dollars.
Belgium	6,441,060	537,851	3,778,517	340,505	7,914,358	696,130
Hanse Towns	1,194.610	103,677	1,515,971	143.502	585,479	58.685
Italy	1,436,346	133.766	988,691	116.037	1,820,564	170.354
Turkey	827.586	70,193	549,246	55,028	959,995	80,157
Other places	3,449,717	318,388	5,173,475	516.298	5,024,921	447,361
Total	13,349,319	$1,163,875	12,005,800	$1,171,367	16,315,317	$1,452,687
Not excepted by treaty stipulations	19.483	1,728	3,790	379	12,900	1,290
Total	13,368,802	$1,165,603	12,009,590	$1,171,746	16,328,217	$1,453,977

Imports of Coffee into the United States for the Year ending June 30.

Imports from	1853.		1854.		1855.	
	Pounds.	Dollars.	Pounds.	Dollars.	Pounds.	Dollars.
Holland	747,978	86,873	1,755,121	81,520	3.052.410	325,526
Dutch East Indies	3,959,659	326,675	5,828,600	494,936	8,121,784	686,450
British East Indies	2,012,637	101,002	82,534	10,098	1,063,523	81,779
British West Indies	1,538,532	119,936	1,796,705	165,597	2,025,352	177,158
Cuba	2,058,997	158,160	2,855,523	294,134	335,168	35,782
Hayti	19,747,817	1,590,612	19,002,613	1,772,398	21,931,807	1,985,225
Venezuela	13.732.879	1,128,783	11.238,174	1,041,404	14,908,933	1,399,976
Brazil	153,338,464	11,844,414	116,794,773	10,329,992	135,369,383	11,815,818
Africa generally	861,741	84.629	716,323	69,724	407,986	42,014
Other places	891,119	84,870	8,030,455	277,142	3.547,913	483.101
Total	199,089,823	$15,525,954	162,100,822	$14,536,945	190,764,259	$16,872,929
Not excepted by treaty or non-producers.	318,222	20,032	155,171	12,773	714,398	67,471
Total	199,408,045	$15,545,986	162,255,993	$14,549,718	191.478.657	$16,940,400

According to Mr. Cook, the prices of Jamaica and St. Domingo (Hayti) coffee, exclusive of duty, in the London market, at the close of the following years, were,

Years.	Jamaica.	St. Domingo.	Years.	Jamaica.	St. Domingo.
1830	32*s.* to 78*s.* per cwt.	34*s.* to 35*s.* per cwt.	1837	75*s.* to 127*s.* per cwt.	42*s.* 6*d.* to 44*s.* per cwt.
1831	50*s.* to 86 “	45*s.* to 46 “	1838	77*s.* to 141 “	43*s.* to 45*s.* 6*d.* “
1832	60*s.* to 90 “	55*s.* to 57 “	1839	88*s.* to 148 “	47*s.* to 49 “
1833	77*s.* to 110 “	65*s.* to 66 “	1840	73*s.* to 148 “	41*s.* to 43*s.* 6*d.* “
1834	68*s.* to 124 “	48*s.* to 52 “	1841	54*s.* to 144 “	37*s.* to 42 “
1835	80*s.* to 113 “	51*s.* to 53 “	1842	47*s.* to 138 “	31*s.* to 34 “
1836	66*s.* to 120 “	46*s.* to 54 “			

Coffee-houses. The first in England was kept by a Jew, named Jacobs, in Oxford, 1650. In that year, Mr. Edwards, an English Turkey merchant, brought home with him a Greek servant named Pasquet, who kept the first house for making coffee in London, which he opened in George-yard, Lombard Street, in 1652. Pasquet afterward went to Holland, and opened the first house in that country.—ANDERSON. The Rainbow Coffee-house, near Temple-bar, was represented as a nuisance to the neighborhood, 1657. Coffee-houses were suppressed by proclamation, 26 Charles II., 1675. The proclamation was afterward suspended on the petition of the traders in tea and coffee.—HAYDN.

Coffer-dam. In architecture and bridge-building, a case of piling, water-tight, fixed in the bed of a river for the purpose of laying the bottom dry for a space large enough to build the pier on. Coffer-dams are formed in various ways, either by a single inclosure or a double one, with clay or chalk rammed in between the two to prevent the water from coming through the sides. They are also made either with piles only, driven close together, and sometimes notched or dovetailed into one another; or, if the water is not very deep, by piles driven at a distance of five or six feet from each other, and grooved in the sides, with boards let down between them in the grooves. In order to build in coffer-dams a very good natural bottom of solid earth or clay is required; for though the sides be made water-tight, if the bed of the river be of a loose consistence, the water will ooze up through it in too great a quantity to permit the operations to be carried on. It is almost needless to remark that the sides must be very strong, and well braced in the inside to resist the pressure of the ambient water.—HUTTON'S *Tracts*, vol. i.

Coffins. The Athenian heroes were buried in coffins of the cedar-tree, owing to its aromatic and incorruptible qualities.—THUCYDIDES. Coffins of marble and stone were used by the Romans. Alexander is said to have been buried in one of gold; and glass coffins have been found in England.—GOUGH. The earliest record of wooden coffins in England is that of the burial of King Arthur, who was buried in an entire trunk of oak, hollowed, A.D. 542.—ASSER. The patent coffins were invented in 1796.—HAYDN.

Cognac (*Conacum*,) a commune and town of France, capital of arrondissement, department of Charente, 21 miles west from Angoulême, on the left bank of the Charente. Population 4148. It has an old castle, in which Francis I. was born. It is the entrepôt of the brandy of the Charente, to which it gives its name, and which forms the object of a very extensive commerce. Manufactures, earthen-ware and paper.

Coins, pieces of metal, most commonly gold, silver, or copper, impressed with a public stamp, and frequently made legal tender in payment of debts, either to a limited or an unlimited extent. When the precious metals first began to be used as money, or as standards by which to measure the value of different articles, and the equivalents for which they were most commonly exchanged, they were in an unfashioned state, in bars or ingots. The parties having agreed upon the quantity of metal to be given for a commodity, the exact amount was then ascertained by weight. But it is obvious that a practice of this sort must have been attended with a great deal of trouble and inconvenience. There can, however, be little doubt that the greatest obstacle to the use of unfashioned metals as money would be found in the difficulty of determining their quality, or the degree of their purity, with sufficient precision. The operation of assaying is one of great nicety and difficulty; and could not be performed in the early ages otherwise than in a clumsy, tedious and inaccurate manner. It is, indeed, most probable that when the precious metals were first used as money their quality would be appreciated only by their weight and color. A very short experience would, however, be sufficient to show the extreme inexactness of conclusions derived from such loose and unsatisfactory criteria; and the devising of some method by which the fineness of the metal might be easily and correctly ascertained would very soon be felt as indispensable to the general use of gold and silver as money. Such a method was not long in presenting itself: it was early discovered that, to ascertain the purity of the metal, and also to avoid the trouble and expense of weighing it, no more was necessary than to mark each piece with a *stamp* declaring its weight and fineness. This invention was made at a very early period. According to Herodotus, the Lydians were the first who coined money.—*Lib.* i. c. 94. Other ancient authors say that the art of coining was invented during the period when Saturn and Janus reigned in Italy; that is, in a period antecedent to authentic history.—GOGUET, *De l'Origine des Loix, etc.* tome i. p. 267.

Metal used in the Manufacture of Coins.—Before the art of metallurgy was well understood, the baser metals were frequently used as money. Iron was the primitive money of the Lacedæmonians, and copper of the Romans. But both iron and copper deteriorate by being kept; and besides this defect, the rapid improvement of the arts, by lowering their price, rendered their bulk too great in proportion to their value to permit of their continuing to be used as money. Copper, indeed, is still used, in the form of tokens convertible into silver, in very small payments. In England, copper pence and halfpence are rated at about 72 per cent. above their real value; but as their issue is exclusively in the hands of government, and as they are only legal tender to the extent of one *shilling* in any one payment, this over-valuation is not productive of any bad effect. The use of copper in other countries is limited in much the same way; gold and silver being every where the only metals made use of in the manufacture of the coins used in considerable payments.

Standard of Coins.—By the standard of a coin is meant the degree of its purity and its weight; that is, the fineness of the metal of which it is made and the quantity of metal contained in it. *Silver Coins.*—A pound Troy, or 12 ounces, of the metal of which English silver coins are made, contains 11 oz. 2 dwts. pure silver, and 18 dwts. alloy. This pound is coined into 66 shillings; so that each shilling contains 80·727 grains fine silver, and 87·27 grains standard silver; and the *money pound*, consisting of 20 shillings, contains 1614·545 grains pure silver, and 1745·454 grains standard silver. From 1600 down to 1816, the pound weight of standard silver bullion was coined into 62 shillings. All the English silver coins have been coined out of silver of 11 oz. 2 dwts. fine, from the Conquest to this moment, except for the short period of 16 years, from the 34th Henry VIII. to the 2d Elizabeth. *Gold Coins.*—The purity of gold is not estimated by the weights commonly in use, but by an Abyssinian weight called a *carat*. The carats are subdivided into four parts, called grains, and these again into quarters; so that a *carat grain*, with respect to the common divisions of a pound Troy, is equivalent to 2½ dwts. Gold of the highest degree of fineness, or pure, is said to be 24 carats fine. When gold coins were first made at the English Mint, the standard of the gold put in them was of 23 carats 3½ grains fine and ½ grain alloy; and so it continued, without any variation, to the 18th of Henry VIII., who in that year first introduced a new standard of gold of 22 carats fine, and 2 carats alloy. The first of these standards was called the old, and the second the new standard, or crown gold; because crowns, or pieces of the value of 5*s*., were first coined of this new standard. Henry VIII. made his gold coins of both these standards under different denominations: and this practice was continued by his successors until 1633. From that period to the present, the gold of which the coins of England have been made has been invariably of the *new* standard, or crown gold; though some of the coins made of the old standard, previously to 1633, continued to circulate till 1732, when they were forbidden to be any longer current.

Variations of the Standard.—The value of all sorts of property being estimated, and the stipulations in almost all contracts for its purchase, sale, or hire, being made in money or coins, it is plain that no change can take place in the value of such money or coins without virtually subverting these estimates and contracts, and enriching the debtor portion of society at the expense of the creditor portion, or *vice versa.* As the cost of producing all commodities is liable to vary, from improvements in the arts, the exhaustion of the present or the discovery of new sources of supply, none can be selected to serve as money or coin that may not vary in its real value. It is believed, however, that the precious metals vary less than any material that could be suggested. And with the exception of the extraordinary fall in their value caused by the discovery of the American mines, it seems to have been remarkably constant at other periods. But in addition to the fluctuations naturally inherent in the value of coins, arising from variations in the cost of the metal of which they are made, their standard has been repeatedly changed. Notwithstanding that money or coin, from its being universally used as a scale by which to compute the value of all commodities, and as the equivalent for which they are commonly exchanged, is by far the most important of all measures used in society, and should, consequently, be preserved as invariable as possible, there is none that has been so frequently altered. The necessities or extravagance of governments have forced them to borrow; and to relieve themselves of the incumbrances thus contracted, they have almost universally had recourse to the disgraceful expedient of degrading the coin; that is, of *cheating* those who lent them money, to the extent of the degradation, and of enabling every other debtor in their dominions to do the same.

The ignorance of the public in remote ages facilitated this species of fraud. Had the names of the coins been changed when the quantity of metal contained in them was diminished, there would have been no room for misapprehension. But although the weight of the coins was undergoing perpetual, and their purity occasional, reductions, their ancient denominations were almost uniformly preserved; and the people, who saw the same names still remaining after the substance was diminished—who saw coins of a certain weight and fineness circulate under the names of florins, livres, dollars, and pounds; and who saw them continue to circulate as such, after both their weight and the degree of their fineness had been lessened—began to think that they derived their value more from the *stamp* affixed to them by the authority of government than from the quantity of precious metals they contained. This was long a very prevalent opinion. But the rise of prices which invariably followed every reduction of the standard, and the derangement that was thereby occasioned in every pecuniary transaction, undeceived the public, and taught them and their rulers the expediency of preserving the standard of money inviolate.

The standard may be reduced by simply raising the denomination of the coin; by ordering, for example, that a half-sovereign should pass for a sovereign, and the latter for a double sovereign, etc. If injustice be resolved upon, this is the least mischievous way in which it can be perpetrated, inasmuch as it saves all the trouble and expense of a recoinage. But as it renders the fraud obvious and glaring, it has rarely been resorted to; and most reductions have been effected either by diminishing the weight of the coins, or by increasing the proportion of alloy in the metal of which they are made, or both. Originally the coins of all countries seem to have had the same denomination as the weights commonly used in them, and contained the exact quantity of the precious metals indicated by their name. Thus the *talent* was a weight used in the earliest period of the Greeks, the *as* or *pondo* by the Romans, the *livre* by the French, and the *pound* by the English and Scotch; and the coins originally in use in Greece, Italy, France, and England, bore the same names, and weighed precisely a talent, a pondo, a livre, and a pound. The standard has not, however, been preserved inviolate, either in modern or ancient times. It has been less degraded in England than any where else; but even there the quantity of silver in a pound sterling is less than the *third* part of a pound weight—the quantity it contained in 1300. In France, the livre current in 1789 contained less than *one sixty-sixth* part of the silver implied in its name, and which it had actually contained previous to 1103. In Spain, and some other countries, the degradation has been carried still farther. From 1296 to 1355, the coins of England and Scotland were of the same weight and purity; but at the last-mentioned epoch the standard of Scotch money was for the first time sunk below that of England; and by successive degradations, the value of Scotch money, at the union of the crowns in 1600, was only a *twelfth* part of the value of the English money of the same denomination. It remained at this point till the union of the kingdoms canceled the separate coinage of Scotland. The gold and silver coins of Ireland have been for a considerable period the same as those of Great Britain; but, until 1825, they were nominally rated 8⅓ per cent. higher. This difference of valuation, which was attended with considerable inconveniences, was put an end to by the act 6 Geo. IV. c. 79, which assimilated the currency throughout the empire. The tables annexed to this article contain all the information that can be desired by mercantile men with respect to the weight, fineness, etc., of English and Scotch gold and silver coins, from the earliest periods to the present moment.

Mint, or Government Valuation of Gold and Silver Coins.—If both gold and silver coins be made legal tenders, it is obviously indispensable that their value with respect to each other should be fixed by authority; or that it should be declared that individuals shall be entitled to discharge the claims upon them by payments, either of gold or silver coins, according to some regulated proportion. The practice of making both metals legal tenders was long adopted in England. From 1257 to 1664, the value of gold coins was regulated by proclamation; or, which is the same thing, it was ordered that the gold coins then current should be taken as equivalent to certain specified sums of silver. From 1664 down to 1717, the relation of gold to silver was not fixed by authority; and silver being then the only legal tender, the value of gold coins fluctuated, according to the fluctuations in the relative worth of the metals in the market. But in 1717 the ancient practice was again reverted to; and it was fixed that the guinea should be taken as the equivalent of 21*s.*, and conversely. But the value of each of the precious metals is liable to perpetual change. And hence, how accurately soever their proportional value, as fixed by the Mint regulations, may correspond with the proportion which they actually bear to each other in the market when the regulation is made, the chances are ten to one that it will speedily cease to express their relation to each other. But the moment that such a change takes place, it becomes the obvious interest of every one who has a payment to make to make it in the *overvalued* metal; which, consequently, becomes the sole, or nearly the sole, currency of the country. Hence the reason why the coins of some countries are almost wholly of silver, and others almost wholly of gold. It is estimated, for example, that when it was fixed, in 1717, that the guinea should exchange for 21*s*., gold was overvalued as compared with silver to the extent of 1 19-31 per cent.; and as the real value of silver with respect to gold continued to increase during the greater part of last century, the advantage of paying in gold in preference to silver became more decided, and ultimately led to the universal use of gold in all large payments, and to the fusion or exportation of all silver coins of full weight.

In France, a different valuation of the metals has had a different effect. Previous to the recoinage in 1785, the *Louis d'or* was rated in the Mint proportion at only 24 livres, when it was really worth 25 livres 10 sols. Those, therefore, who should have discharged the obligations they had contracted by payments of gold coin instead of silver would plainly have lost 1 livre 10 sols on every sum of 24 livres. In consequence very few such payments were made; gold was almost entirely banished from circulation, and silver became almost the only species of metallic money used in France. In 1816, however, a new system was adopted in Great Britain; it being then enacted (56 Geo. III. c. 68) that *gold coins only should be legal tender in all payments of more than forty shillings*. The pound of silver bullion, that had previously been coined into sixty-two shillings, was then also coined into sixty-six shillings, the additional *four* shillings being retained by the government as a *seignorage* or duty (amounting to 6 14-31 per cent.) upon the coinage. To prevent the silver coins from becoming redundant, government has retained the power to issue them in its own hands. Under these regulations, silver has ceased to be a standard of value, and forms merely a subordinate or subsidiary species of currency or change, occupying the same place in relation to gold that copper occupies in relation to itself. This system has been found to answer exceedingly well. A good deal of difference of opinion has existed as to whether gold or silver coins are best fitted for being made legal tender. It does not seem that the one possesses any very striking advantage over the other; none, certainly, that would justify a change after a selection had been made and acted upon for any considerable period. Down to 1626, a seignorage or duty upon the coinage was usually charged upon the gold and silver coins issued by the Mint; and it may be easily shown that the imposition of such a duty, when it is not carried to an undue height, is advantageous. A coin is more useful than a piece of uncoined bullion of the same weight and purity; the coinage fitting it for being used as money, while it does not unfit it for being used for any other purpose. When, therefore, a duty or seignorage is laid upon coin equal to the expense of coinage, it circulates at its real value; but when this charge is defrayed by the public, it circulates at *less* than its real value, and is consequently either melted down or exported whenever there is any demand for bullion in the arts, or any fall in the exchange. It is, indeed, true, that were a seignorage to be laid on gold coins, it would be necessary, to prevent an enhancement of the value of the currency, that their weight should be proportionally reduced; and it is on this account better, perhaps, to let them remain on the present footing. But when a seignorage was laid on the silver coins in 1816, it was not necessary to take the circumstance now alluded to into consideration; for as they were made subordinate to gold, and were intended to serve as change merely, its imposition had no tendency to raise the value of the currency, at the same time that it was calculated effectually to prevent the fusion of the coins and to yield a small revenue to government.

Current Coin; loss by wear.—From very careful investigations made by the officers of the British Mint toward the close of the last century, it was found that 78 1-10 silver shillings, taken as a fair average from all those then in circulation, were required to make 1 lb. Troy; whereas 62 is the number when new. Eleven years afterward another fair average was taken, and another examination made, when it was found that 82 9-40 shillings were required to make a pound. But this diminution of weight is excessive, and is not likely to be exhibited by the less-worn and more frequently renewed silver coinage of the present day. Still it is unquestionable that the gold and silver coins are exposed to daily wear and diminution. The British government requested Mr. Cavendish and Mr. Hatchett, two distinguished fellows of the Royal Society, to make an extensive investigation respecting the power of metals to resist friction; and their results are highly curious. They made various alloys of silver, copper, platina, iron, tin, lead, bismuth, manganese, nickel, cobalt, zinc, antimony, and arsenic, with gold; they rubbed plates of different kinds of metal over each other half a million times, to determine which resist friction best; and they rotated similar pieces among each other in a barrel. The effects were such as to reflect no little credit on those, whoever they were, who established the standard of English gold coin; for the English standard (22 gold to 2 alloy) and the quality of the alloy (silver and copper combined) were found about the best of all the combinations subjected to experiment. In 1807 the Mint officers, wishing to ascertain how much the current coin had actually lost by wear, selected at random one thousand good guineas from a broker, and found that they had lost on an average 19*s*. per cent. in value. A hundred guineas from a shop-keeper's till had lost 22*s*. per cent. Two hundred half-guineas exhibited a loss of 42*s*. per cent.—the smaller coins being subjected to more severe wear than the larger. Mr. Jacob, a great authority on the subject of precious metals, stated it as his opinion that, taking the average of all the gold coins in this country, and an average of all the hard usage to which the coins are exposed, each one bears an *annual* loss of about 1-900 by friction, which is a little more than a farthing in the pound. In silver coins the loss is supposed to be five or six times greater, owing to the more unceasing circulation of silver than gold, and to the less fitness of the metal to bear friction. The matter may be stated thus: put 900 new sovereigns and 900 new shillings into average ordinary circulation; in twelve months' time the former will be worth about 899, and the latter about 894.

"*Recent Coins of the World.*—A coin, once set in circulation, retains its place and use longer than any other part of the machinery of life, and is extremely slow in going out of fashion; so that the information respecting it which the dealer, the collector, and the public at large require, does not soon become obsolete.

"Pieces are current among us a full century old; and all that space of time is included in the history of coinage, contained in our large manual. But new coins, or modifications of old ones, are continually appearing; and in the latter case, it often happens that the holder finds he has become, if we may so speak, an unconscious sufferer. Old names are retained, but essential properties are altered; and a new progeny of doubloons, dollars, francs, or shillings, is found by an assayer's scrutiny to be something different, most likely inferior, to the older stock. Keeping a steady watch on these, as it is impliedly our duty, we have collected a number of items which, as in our former publication, will be set forth in alphabetical order, and as briefly as possible."—*Manual of Coins, by* Eckfeldt and Du Bois.

The weight is expressed in grains, and the fineness in thousandth parts.

Belgium.—Gold coin, 25 francs: a new denomination: 1848 is the earliest date noticed. It expresses on its reverse the intended standards, 7·915 grammes (equal to 122·12 Troy grains), 900 fine. The average of twenty pieces tried is 121·9, fineness 899; value $4 72. This is a slight depreciation: it ought to be $4 79, to compare with the former series of Belgian gold coin, or $4 81, to be equivalent with the French.

We notice also, in silver, a piece of 2½ francs, 1849, weighing 192 grains; fineness (of a single specimen) 901; value 46½ cents.

Bolivia.—The dollars from 1841 to 1846, tried in parcels, vary in fineness from 896 to 901; a very large lot gave 897; showing some tendency downward. Weight, varying from 411 to 421, averages 416½; value on a general average, 100·6 cents.

Britain.—The new *florin*, or two-shilling piece, being one-tenth of a pound sterling, is understood to be an advance toward a decimal system. A considerable number have been coined, and the piece is fairly in circulation; but, like other silver coins of that country, it seldom makes its way out of the realm.

California.—See *Coins of United States*, p. 344.

Central America.—It is not easy to keep pace with the fluctuations in the coinage of this country, any more than with its political history. Nine years ago, we averaged the doubloon at $14 96, and the dollar at $1 00·1. The country now seems to be divided (we judge by the coins) into two distinct republics, Central America and Costa Rica.

Of the recent *gold* coinage of Central America, we have had opportunities of examining the quarter-doubloon, the eighth or escudo, and the sixteenth. The first, 1850, weighed 97 grains, fineness 863, value $3 60. The second, 1844 to 1849, 48 grains, 809 fine, value $1 67. The third, 1825 to 1849, 24 grains, 809 fine, value 83½ cents. In *silver*, the dollar of 1847 is found to vary from 880 to 820 thousandths in fineness; those of 1840 to 1842 averaged 887. It would, therefore, not be safe to give more than 92 cents for a single piece, or 95 by the quantity; the laws of wholesale and retail, in the coin market, being directly opposite to those in other branches of trade.

The coins of Costa Rica, the seceding state, are in several respects quite remarkable; and in this particularly, that the gold pieces are among the handsomest that are current in the world, while the silver are beyond comparison the rudest; at least the samples that we have seen. The specimens assayed here lately are the half-doubloon, weighing 208 grains, 851 fine, value $7 62; and the quarter-doubloon, 97 grains, 845 fine, value $3 53. The silver piece is the *real* (apparently shaped with hammer and chisel), 1846, 29 to 45 grains, 550 to 637 fine; average value $5\frac{8}{10}$ cents.

Chili.—In the dollar of 1848 we find a variation of weight from 415 to 419; fineness 901½, which is lower than former dates; but the average value is 101 cents.

Until lately, we had no opportunity of testing the fractional coins. The quarter-dollar, 1843 to 1845, weighs only 92, but is 903 fine; the eighth, or *real*, is strictly proportional. Values respectively, 22·4 and 11·2 cents; making a profit to government, and a loss to holders, of about 11 per cent.

The newspapers of the day contain the following statement, concerning which we have no other information:

"The Chilian Congress, now in session, has passed a new coinage law, article first of which states that three classes of gold are to be coined, of the standard of nine-tenths fine, to be denominated, respectively, condor, doubloon (doblon), and escudo.

"1. The condor to weigh three hundred and five $\frac{500}{1000}$ grains, and to correspond in value with ten silver dollars.

"2. The doubloon to weigh one hundred and fifty-two $\frac{750}{1000}$ grains, and to correspond in value with five silver dollars.

"3. The escudo to weigh sixty-one $\frac{108}{1000}$ grains, and be of the value of two silver dollars.

"Art. 2. There shall be five classes of silver money, also of the standard of nine-tenths fine; viz.:

"A dollar, weighing five hundred $\frac{768}{1000}$ grains, and divided into hundredth parts or cents.

"A piece of fifty cents, containing two hundred and fifty $\frac{384}{1000}$ grains.

"One of twenty cents, with one hundred $\frac{155}{1000}$ grains.

"One of ten cents, with fifty $\frac{75}{1000}$ grains.

"One of five cents, with twenty-five $\frac{38}{1000}$ grains.

"Art. 3d establishes two classes of copper coinage, to be termed cents and half cents, to be composed of pure copper without any alloy."

China.—The trashy coin of this great empire deserves notice only by way of recreation. In 1842 we quoted the *cash* (tong-tsien) at 800 to the Spanish dollar; in 1847 the equivalent varied from 1200 to 1300—so hard is it to fasten a value upon that which is valueless. A carpenter or tailor, we are told, receives 160 of them (say thirteen cents) for a day's work, of which sixty are required for his daily bread. The coin is extremely convenient for alms-giving, a single piece being the usual quietus for a beggar.

Ecuador.—The quarter-dollar, or two-real piece, 1847, weighs 104, and is only 675 fine; value 18·9 cents. This depreciation corresponds with what prevails in some of the fractional coins of Peru.

France.—The twenty and five-franc pieces of the republic, although entirely changed in face, are the same for weight and fineness as before.

Germany.—Here there is no change of standards, but we observe the denomination of double gulden, not in general circulation, value 79 cents. The whole German issue of the gulden series gives an average of 900 fine by actual assay.

Since the adoption of the new rate of charges at this Mint, the thaler of Northern Germany, 750 fine, yields a return of 67¼ to 68¼ cents, according to wear; the crown, 875 fine, 106 to 107 cents.

Hayti.—Large quantities of Haytian coins have been recoined here. They are so variable in weight and fineness that it is not easy to put a definite valuation upon them. They should, however, yield 76 to 78 cents per ounce, taken promiscuously and unwashed. The piece of 100 centimes, dignified with the name of dollar, bearing the head of President Boyer, is worth about 25 cents upon an average; while that of 25 centimes, both of Petion and Boyer, averages 7½ cents. In a large promiscuous deposit of all sizes, we found the average net value of the "dollar" to be 25·7 cents. The coins range from 600 to 625 fine, if free from counterfeits—a baser quality than is to be found in any other coinage on this side of the Atlantic. But since August, 1849, there has been a new order of things; and coin collectors and assayers are looking with impatience for the head of Faustin the First.

Mexico.—In 1842, we averaged recent dollars at 416½ grains, 898 fine, value 100·6 cents. The average fineness has since improved to 899, and value 100·75 cents.

The coins of two new Mints have recently been tried. The doubloon of Guadalupe y Calvo, in the state of Durango, 1847, varies in weight from 417 to 420; fineness 869 to 873; average value $15 69. The dollar of the same Mint, 1844 to 1847, averages in weight 420½, in fineness 908, and therefore in value as high as 102·8 cents. The Mint began operations in 1844; its distinctive mark is G. C., in the usual place in the legend.

The dollar of Culiacan, in Sinaloa, 1846 to 1848, averages 415½ grains, with a pretty wide variation in individual pieces; fineness 903; value 101 cents. The Mint-mark is the letter C.

Mexican dollars are not flowing so abundantly in this direction as in former years, although they are yielding a better return.

Milan.—The revolution of 1848 produced a new gold coin in Lombardy: it bears on the obverse a female figure with the legend, ITALIA LIBERA, DIO LO VUOLE—"Italy free, God wills it;" and on the reverse, a wreath, within which is the denomination, 20 LIRE ITALIANE—"20 Italian livres;" and outside of it the legend, GOVERNO PROVISORIO DI LOMBARDIA. It weighs the same as the twenty-franc piece of France, and was evidently meant as a return to the Milanese standard of 1805. The coin is more rare than could be wished: only a single specimen has reached us. Coin-collectors will consider it as a prize for its singular beauty and its scarcity, and as the monument of a great event in history.

Netherlands.—The new 2½-guilders piece was announced in our Manual as having been decreed, but had not then been received. The legal standards are, 25 grammes (385·8 grains) in weight, 945 thousandths in fineness. The actual results of dates 1842 to 1845 are, 386 grains, 944 fine; value 98·2 cents. The coin often appears here in mixed deposits. It is remarkable for its high grade of fineness; yet it is really a depreciated issue, since, to be equal to the former guilder series, it ought to be worth 100·2 cents.

New Granada.—This country continues to send a large supply of doubloons to our market, and this makes it the more important to notice a very recent and considerable reduction in the value of the coin. Within a few months a new piece has appeared, with new devices and standards; the latter being expressed on the face of the coin by "LEI 0,900—PESO 25,8064 G." That is, *fineness*, 900 thousandths; *weight*, so many *grammes*—a long-drawn fraction, corresponding to 398·31 Troy grains. At those rates, the piece would be worth $15 43·8, and would avowedly fall below the previous value of the doubloon; but upon actual trial it is still worse, as will be shown directly. This change must have taken place since the beginning of 1849, as we notice pieces of the old style bearing that date.

But as the doubloons of New Granada are alloyed almost entirely with silver, which is now profitably parted at this Mint, it is necessary to restate the Mint value of the older piece, as well as to give information respecting the new. The silver extracted makes a sensible addition to the values of both kinds; that is, if they are offered in sufficient quantities to meet the requirement that the net product of a parting must be not less than five dollars; below that limit the operation is not performed. The following terms must therefore be noticed. The doubloon of the old style, down to the early part of 1849, weighs on an average 416½ grains, and contains 870 thousandths gold, and about 120 silver; if presented in a quantity less than 58 ounces, its net Mint value will be $15 61; in a larger quantity than that, it will be $15 66. The new doubloon, beginning with 1849, weighs 398 grains, and contains in parcels 893½ to 895 thousandths gold, say 894, and of silver about 100; net Mint value, in any quantity less than 93 ounces, $15 31; in a larger quantity, $15 36.

Norway.—The immigration from this country brings us considerable parcels of Norwegian and Swedish silver coins. The *dalers* of these two realms, which have the same monarch, were stated in the Manual to be interchangeable as to value, although very different as to their standards. Under our new Mint charges there is some variation of value, since those of Sweden are of so much lower fineness, and are subjected to a greater charge for refining. They will be noticed in place. The daler, and half, of Norway, average 878 fine (the law calling for only 875, or seven-eights), and their weights, unworn, are respectively 446 and 223 grains; net Mint value of the daler, 105 cents; the half, 52½. This valuation is down to 1848, the latest date we have seen.

Peru.—A new half-dollar, with the word PASCO in the legend, 1844, gives an average weight of 203 (variation 200 to 210), fineness 906; value 49½ cents.

Prussia.—The years 1848 and 1849, in other respects unsettled, show no change in the gold coinage. It still maintains its superiority to the other classes of ten and five-thaler pieces. The double-Frederick, or ten-thaler, is 903 fine, weighs 206 grains, and is worth $8 01; practically, an even eight-dollar piece for us.

Russia.—Five-rouble pieces of 1848 and 1849 show the fineness of 916⅔; a proof that the assaying and alloying are conducted with admirable exactness, the standard being 916⅔. The coin is worth $3 96·7. As the Russian Mint depends, no doubt, upon the Russian mines, and not upon foreign coins, for its material, we felt an interest in examining as to what proportion of *silver* was left in the alloy of the coin, and found only 5½ thousandths. Hitherto we have found no gold coins so nearly desilvered.

Siam.—We were not sufficiently acquainted with the silver bullets of Siam to take account of them in the Manual. Some specimens of this curious money have since been examined. They are of different calibres, and tolerably well proportioned to each other. The *tical* weighs, without much variation, 235 grains, and is 928 fine; value 58·7 cents. The *salung*, 61 grains, 929 fine, 15·2 cents. The *prang*, 30 grains, 907 fine, 7·3 cents. Below this we have, as a present to the Mint collection, three varieties, weighing 10, 4, and 1½ grains; the last being worth about three-eighths of a cent, and very good silver withal. A sight of it would reconcile our people to the gold dollar. Siam may claim the merit of originality in the shape of her coin, which will not admit of piling, and scarcely of lying still—the lively emblem of a true circulating medium.

Sweden.—The specie daler of Oscar, 1847 and 1848, is 750 fine, weighs 525 grains, and yields 104·2 cents after Mint charges.

Turkey.—There was a new system of coinage promulgated in 1840, which did not prevail long; there is a still newer, beginning with 1845. The gold coins are evidently designed to be 22 carats (916·6) fine, as in the neighboring empire of Russia. By actual assay they are 915 fine; the piece of 100 piastres weighs 111 grains, and is worth $4 37·4; the piece of 50 piastres, 55½ grains, worth $2 18·7. In respect to value they compare with the former series of 20, 10, and 5 piastres, though entirely of different standards.

The silver coins are greatly improved in quality, and apparently based upon the Austrian standard of five-sixths (833⅓) fine. They are the piece of 20 piastres, 371½ grains, 828 fine, net value 82 cents; 10 piastres, 186 grains, 826 fine, 41 cents; and 5 piastres, 92½ grains, 824 fine, 20½ cents. These coins are well adjusted in their weight, and altogether show in their way a great advance in the progress of Turkish civilization. The piastre of commerce seems to be based upon the gold; the exchange in 1845, when these coins were received, rated the piastre at 4·3 cents.

United States.—By the law of March 3, 1849, two new gold coins, the double-eagle and the dollar, were added to the list; the former weighing 516 grains, or 21½ pennyweights, the latter 25$\frac{8}{10}$ grains; and both of the fineness of nine-tenths, as the other coinage. A very large number in both denominations have been issued.

The new postage law of March 3, 1851, provided for the coinage of a three-cent piece, composed of three-fourths silver and one-fourth copper, and weighing 12⅜ grains.

There are several classes of gold coin which are not of the United States, but which are struck within the national boundaries, and which ought to be noticed in this place. These are the BECHTLER's coins of *North Carolina*, and the various *California* coins. In the same connection, it will be proper to give some details respecting several varieties of stamped ingots.

The coins of C. Bechtler are fully described in the Manual (p. 160); but since the date of that publication, the mint has passed into the hands of A. Bechtler, as appears on the face of the coin; and there is a marked difference of value between the *C* and *A*. The five-dollar pieces of the former were deficient from 1 to 6 per cent. upon the alleged value, averaging 3 per cent., or $4 85; the one-dollar pieces were worth 95½ to 97 cents. The five-dollar pieces of the latter vary, from the full alleged value, to a deficit of 1½ per cent. There are no dates on the coins to enable us to mark the difference; but the pieces assayed in 1843 were better than those (apparently fresh) assayed in 1849. The last and newest lot gave $4 94 to the five-dollar piece. It is to be borne in mind, that as Bechtler's pieces are alloyed with silver, they will produce about a half of one per cent. more if offered in sufficient quantity. The dollars, as far as tried, are 2 per cent. below their nominal value. The coin appears to be considerable in amount, but it is not current in the Middle and Northern States; it is frequently brought to the Mint for recoinage.

The number of private Mints which have been in operation in California, as indicated by specimens received here, is fourteen. Some of these have issued but a single denomination of coin, others two, and one (the Mormon) four. Besides these, there are the stamped ingots of Moffatt & Co., and of F. D. Kohler, State Assayer; and lastly, the coin of Augustus Humbert, a United States assayer under a legal provision of 1850.

1. The coin of "N. G. & N." does not profess the same degree of accuracy as Bechtler's as to fineness. Its claim to be FULL WEIGHT OF HALF EAGLE is proved by a number of trials, the variation not exceeding one grain in any case; but the legend on the reverse, CALIFORNIA GOLD WITHOUT ALLOY, allows a pretty wide range. As far as our assays go, the truth of this stamp is proved; there is no alloy other than that already introduced by the hand of nature, and which is generally more than sufficient. Three pieces gave severally the fineness of 870, 880, and 892 thousandths; all were within the scope of "California gold." They consequently are worth $4 83, $4 89, and $4 95½ respectively, without the silver; and including that, 2½ cents more.

The coin is neatly executed, and besides the two legends above quoted, bears an eagle, a circle of stars, the date 1849, and the name SAN FRANCISCO. It wears the somewhat brassy tint which belongs to gold alloyed with silver only.

2. The Mint of the "Oregon Exchange Company" issues two denominations, 10 and 5 dollars. They respectively profess 260 and 130 grains weight of "native gold." One five-dollar piece was found to weigh 127½ grains, was 878 fine, and contained only the natural alloy; resulting value, $4 82; with the silver (in sufficiently large lots), 2½ cents more.

The coin is not well struck, but is pleasantly distinguished by the picture of a beaver, a good emblem of mining industry and of Western life.

3. Next is the mintage of the "Miners' Bank, San Francisco;" a ten-dollar piece, of plain appearance. The average weight is 263½ grains, the fineness about 865 thousandths, part of the alloy being copper. Average value $9 87, with a risk of having it as low as $9 75.

4. Coinage of Moffatt & Co., 1849, 1850; pieces of 10 and 5 dollars, in imitation of the national coinage. Several of the coining establishments, as will be seen, have adopted the same device, but evidently without evil intent, as most of their coins are worth what is professed, and some even more. The fineness, however, is in every case inferior to the standard of the Mint, and this is likely to prove a source of discredit from European assayers, who will not take the trouble to assort. A large promiscuous lot of both kinds of Moffatt & Co.'s coins, dates 1849, 1850, shows an average of 897; average weight, to the ten-dollar piece, 258¼ grains; average value, $9 97·7.

The S. M. V. on this and other coins is said to mean "Standard Mint Value."

5. Ten-dollar piece of J. S. O. (said to be Dr. Ormsby, of Pennsylvania); one piece assayed gave 842 fine; weight 258½ grains; value $9 37. Very few have come to hand.

6. Twenty-five dollar and ten-dollar pieces of Templeton Reid; weigh respectively 649 and 260 grains. Being the only two specimens received, they have not been cut for assay, but appear to be of California gold without artificial alloy. Assuming this, the values would be about $24 50 for the first, and $9 75 for the second.

7. Ten-dollar and five-dollar pieces of the "Cincinnati Mining and Trading Company," 1849. These also have not been cut on account of their rarity, but appear to be of native gold, and, at the weights of 258 and 132 grains, may be rated at $9 70 and $4 95 respectively.

8. Ten and five-dollar pieces of the "Pacific Company," 1849; very irregular in weight, and debased in fineness; a ten-dollar piece weighed 229 grains, a five-dollar, 130; assay of a third, 797 thousandths. At those rates, the larger piece would be worth $7 86, the smaller $4 48; but the valuation is altogether uncertain.

9. Five-dollar piece of the "Massachusetts and California Company," 1849; a very pretty coin, but apparently debased with copper. Only one specimen has been noticed here; it weighs 115½ grains; has not been assayed.

10. Coins of Baldwin & Co., four varieties; 1. A ten-dollar piece, 1850, distinguished by a horse and his rider, with a lasso; 2. Twenty-dollar piece; 3. Ten-dollar, 1851; 4. Five-dollar, 1850; the last two in imitation of United States coinage. Of the first, one piece tried weighed 263 grains, fineness 880, value $9 96. Of the second, four pieces tried varied from 511 to 523 grains; but one hundred pieces averaged 517; the fineness varied from 861 to 871; average fineness 868½, average value $19 33. Of the third, ten pieces averaged 259½ grains; average fineness 870; average value $9 72. Of the fourth, average value $4 92. The Baldwin coins contain some copper; about 20 thousandths.

11. Ten and five-dollar pieces of Dubosq & Co., 1850, also in imitation of the national coinage. The larger piece averages 262 grains, and three specimens gave the fineness of 899½, which is a mere shade below standard; consequent value, $10 15. A single five-dollar piece yielded $4 92. But a mixed parcel containing $1000, gave the fineness of 887, and the close value of $1000 20. Consequently the pieces may be averaged at par.

12. Five-dollar piece of Shultz & Co., 1851. Average weight, 128¾ grains; fineness of three pieces, 879; value, $4 97·4. The devices are in imitation of United States coin.

13. The Mormon coinage, although executed in the Territory of Utah, is without impropriety classed among California coins, on account of neighborhood, and the source whence the material is derived. These are the four denominations of twenty, ten, five, and two and a half dollars. Although there is much irregularity both in weight and fineness, the denominations are tolerably in proportion to each other. A parcel made up of all sizes, and counting $562 50, yielded at the Mint $479 20; say $8 52 to the ten-dollar piece. The fineness was 886.

14. Five-dollar piece of Dunbar & Co., in imitation of United States coin. A lot of 111 pieces averages 131 grains weight, 883 fineness, value $4 98.

15. Fifty-dollar piece of the United States Assay-Office at San Francisco, established by act of Congress of 1850. It first appeared here in April, 1851. The coin is prepared and issued by Messrs. Moffatt & Co. as contractors, and bears the stamp of Augustus Humbert, assayer. The two professed rates of fineness, 880 and 887 thousandths, are found upon assay here to be duly maintained, whether in single pieces or in large quantities. But some irregularity in the weight of so heavy a piece, alloyed with silver only, and offering eight corners to wear is to be expected. When presented in quantities sufficient to allow for parting the silver, say 70 ounces, the average Mint value is about $50 10; in less quantities, the silver not being allowed for, the average value is about $49 90. But even with-

out the silver they occasionally come up fully to the alleged value. This coinage is understood to have put a stop to all private issues in California.

The foregoing comprehend all the varieties of *coin* that have been brought to this Mint. There have been, besides, two sorts of stamped bars or ingots, evidently intended for currency.

1. The ingots of Moffatt & Co., of various sizes, from about $9 to $260. It may be stated, in general, that some were found to be rated too high, and others too low. The sixteen-dollar ingot yields about $15 75, but is irregular.

2. The issue of bars by F. D. Kohler, Assayer of the State of California, commenced in May, 1850. They are of various sizes, from $40 to $150. We find a slight undervaluing in his basis of calculation, and generally an error of assay in the same direction; so that on the average his bars are worth at the mint 1 per cent., perhaps 1½, more than the value stamped upon them.

Recapitulation of the net Mint Value of Gold and Silver Coins issued within twenty-five Years past.—Inquiry has been frequently made at the Mint for a compend of the values of foreign coins, without a due consideration of the difficulty of putting in a small space such a statement as would be satisfactory. The quarto volume, now entirely out of print, was not found too large for its purpose, which was to supply such information as dealers, amateurs, and legislators would from time to time be likely to require. Still, a condensed table of the coins more usually seen, and within a contracted range of date, would certainly be useful to dealers and others, and especially with the modifications occasioned by the new Mint tariff of charges. We therefore offer the following, inserting values only, and leaving the details of legal weight and fineness, and of actual weight and fineness, to be sought for elsewhere; as also the particulars concerning coinage of older date than just specified.

GOLD COINS.

	D. C. M.
Austria.—Quadruple ducat	9 12
Ducat	2 27 5
Sovereign (for Lombardy)	6 75
Baden.—Five gulden	2 04
Bavaria.—Ducat	2 27
Belgium.—Twenty-franc piece	3 83 2
Twenty-five-franc piece	4 72
Bolivia.—Doubloon	15 58
Brazil.—Piece of 6400 reis	8 72
Britain.—Sovereign	4 84 5
Brunswick.—Ten thaler	7 89
California.—*See* UNITED STATES.	
Central America.—Doubloon	14 96
Escudo	1 67
Costa Rica.—Half-doubloon, 1850	7 62
Chili.—Doubloon (before 1835)	15 57
" (1835 and since)	15 66
Denmark.—Double Fred., or ten-thaler	7 88
Ecuador.—Half-Doubloon	7 60
Egypt.—Hundred Piastres	4 97
France.—Twenty francs	3 85
Greece.—Twenty drachms	3 45
Hanover.—Ten-thaler, George IV.	7 84
Do. William IV. and Ernest	7 89
Hindostan.—Mohur, East India Company	7 10
Mecklenburg.—Ten-thaler	7 89
Mexico.—Doubloon, average	15 53
Netherlands.—Ducat	2 26 5
Ten guilders	4 00 7
New Granada.—Doubloon, 21 carat standard	15 61
" including the silver	15 66
" nine-tenths standard	15 31
" including the silver	15 36
Persia.—Tomaun	2 23
Peru.—Doubloon, Lima, to 1833	15 55
" Cuzco, to 1833	15 62
" " 1837	15 53
Portugal.—Half-joe (full weight)	8 65
Crown	5 81
Prussia.—Double Frederick	8 00
Rome.—Ten scudi	10 37
Russia.—Five roubles	3 96 7
Sardinia.—Twenty lire	3 84 5
Saxony.—Ten-thaler	7 94
Ducat	2 26
Spain.—Pistole (quarter doubloon)	3 90 5
Turkey.—Hundred piastres	4 37 4
Turkey.—Twenty piastres (new)	82
Tuscany.—Sequin	2 30
United States.—Eagle (before June, 1834)	10 62
Five-dollar piece of C. Bechtler, average	4 85
Dollar of the same, average	98
Five-dollar piece of A. Bechtler	4 92 to 5 00
Dollar of the same	96
Oregon Exchange Company, five dollars	4 82
N. G. and N., San Francisco, five dollars	4 83 to 4 95
Miners' Bank, San Franc., ten dollars, average	9 87
Moffatt's ten-dollar piece	9 75
" five-dollar piece	5 00
" sixteen-dollar ingot	15 75
J. S. O., ten-dollar piece	9 37
T. Reid, twenty-five dollar piece	24 50
" ten-dollar piece	9 75
Pacific Company, ten and five, uncertain.	
Massachusetts Company, five, uncertain.	
Cincinnati Company, ten, estimated	9 70
" five, estimated	4 95
Baldwin, twenty dollars	19 33
" ten " with horsemen	9 96
" ten " second issue	9 72
" five " "	4 92
Dubosq, ten "	10 00
" five "	5 00
Shults, " "	4 97
Dunbar, " "	4 98
Humbert, United States Assayer, fifty dollars	50 00
Mormon coinage, twenty dollars, average	17 00
" ten dollars, average	8 50
" five dollars, average	4 25
" two and a half dollars, average	2 12

Kohlers's bar, about 1 per cent. higher than his valuation.

SILVER COINS.

Austria.—Rix dollar	97
Florin	48 5
Twenty kreutzers	16
Lira (for Lombardy)	16
Baden.—Crown	1 07
Gulden or florin	39 5
Bavaria.—Crown	1 06 5
Florin	39 5
Six kreutzers	03
Belgium.—Five francs	93
Two and a half francs	46 5
Two francs	37
Franc	18 5
Bolivia.—Dollar	1 00 6
Half dollar, debased, 1830	37 5
Quarter dollar, debased, 1830	18 7
Brazil.—Twelve hundred reis	99 2
Eight "	66
Four "	33
Bremen.—Thirty-six grote	35 6
Britain.—Half crown	54
Shilling	21 7
Fourpence	07 1
Brunswick.—Thaler	68
Central America.—Dollar, uncertain; say	97
Costa Rica, new real of	05 8
Chili.—Dollar	1 01
Quarter dollar	22 4
Eighth dollar, or real	11 2
Denmark.—Rigsbank daler	52 3
Specie daler	1 04 7
Thirty-two skillings	17
Ecuador.—Quarter dollar	18 7
Egypt.—Twenty piastres	96
France.—Five francs	93 2
Franc	18 5
Frankfort.—Florin	39 5
Greece.—Drachm	16 5
Guiana, British.—Guilder	26 2
Hanover.—Thaler, fine silver	69 2
" 750 fine	68
Hayti.—Dollar, or 100 centimes	25 7
Hesse Cassel.—Thaler	67 5
One-sixth thaler	11
Hesse Darmstadt.—Florin or gulden	39 5
Hindostan.—Rupee	44 5
Mexico.—Dollar, average	1 00 7
Naples.—Scudo	94
Netherlands.—Three guilders	1 20
Guilder	40
Twenty-five cents	09 5
Two and a half guilders	98 2
New Granada.—Dollar, usual weight	1 02
Dollar, or ten reals, 1851	93
Norway.—Rigsdaler	1 05
Persia.—Sahib koran	21 5
Peru.—Dollar, Lima Mint	1 00 6
" Cuzco	1 00 8
Half dollar, Cuzco, debased	36
" Arequipa, debased	36
" Pasco	49 5
Poland.—Zloty	11 2

SILVER COINS.

	D.	C.	M.
Portugal.—Cruzado		55	2
Crown, of 1000 reis	1	12	
Half crown		56	
Prussia.—Thaler, average		68	
One-sixth thaler, average		11	
Double thaler, or 3½ gulden	1	39	
Rome.—Scudo	1	00	5
Teston (3-10 scudo)		30	
Russia.—Rouble		75	
Ten zloty	1	13	5
Thirty copecks		22	
Sardinia.—Five lire		93	2
Saxony.—Species thaler		96	
Thaler (XIV. F. M.)		68	
Siam.—Tical		58	5
Spain.—Pistareen (4 reals vellon)		19	5
Sweden.—Species daler	1	04	2
Half daler		52	
Turkey.—Twenty piastres, new coinage		82	
Tuscany.—Leopoldone	1	05	
Florin		26	2
Wurtemberg.—Gulden, 1824		38	5
" 1838 and since		39	5
Double thaler, or 3½ gulden	1	39	

Comparison of American and Foreign Weights used for Precious Metals.—The normal weight of the United States Mint is the Troy ounce, for considerable quantities, and the Troy grain, for single coins. This ounce is equal to 480 grains; to 31·09815 French grammes; to 1·08108 Spanish ounce. The grain is 64·788 milligrammes. Our standard French kilogramme weighs 15,435 grains, or 32·15625 ounces. The gramme is 15·435 grains. The milligramme ·0154 grain. The average estimate of the Spanish mark is 3552 Troy grains, or 7·40 ounces Troy. It is differently subdivided, according as it is applied to the weighing of gold or silver. For gold, it is divided into 50 castellanos; each castellano into 8 tomines; each tomine into 12 granos. For silver, the mark is divided into 8 ounces; each ounce into 8 ochavos; each ochavo into 6 tomines; each tomine into 12 granos. Consequently, in gold weighings there are 4800 grains, and in silver 4608 grains to the mark. The castellano is much used, however, as a normal weight for gold bullion. By deduction from the above, it should weigh 71·04 Troy grains; by an invoice from New Granada, we have found it to correspond with 70·935; so that 71 grains might be taken as the equivalent, accurate enough in practice. This is just one grain less than three pennyweights; or ·1479 of a Troy ounce. This mark, being employed not only in Spain, but in all Spanish America, is of course a very important weight to the bullion and coin dealer, and should be duly understood. It is, perhaps, not more difficult to master than the pounds Troy and avoirdupois, with their respective trains. The Cologne mark, normal money-weight of Germany, by the German Convention of 1838, was estimated at 233·855 grammes, answering to 3609·55 grains Troy. It was before rated usually at 3609. Our silver dollar, since 1837, weighs 26·725 grammes. A kilogramme of standard $(\frac{9}{10})$ gold is worth $598 25 5.

Bulk and Packing of Precious Metals.—A solid or cubic inch of fine gold weighs 10·1509 ounces, and is worth $209 84. A cubic foot of the same, $362,600. A cubic inch of standard gold weighs 9·0989 ounces, and is worth $169 28. A cubic foot of the same, $292,500. A cubic inch of fine silver weighs 5·5225 ounces, and is worth $7·14. A cubic foot of the same, $12,338. A cubic inch of standard silver weighs 5·4173 ounces, and is worth $6 30 3. A cubic foot of the same, $10,891. These calculations are based upon the weight of water as 252·458 grains to the cubic inch, the thermometer being at 60° and the barometer 30 inches.—SILLIMAN'S *First Prin. Chem.*, 1848. The specific gravity of fine gold is taken at 19·3, standard at 17·3; fine silver 10·5, standard 10·3. As these gravities are only approximate, we may be excused for not carrying out the decimals very far, as is rather too often done in works of science. Gold is not measured by the *pint*, at least out of California; yet it may be interesting to know that a dry-measure pint of California grains is found to weigh from 141 to 143½ ounces; value about $2560. The average specific gravity is consequently 9·61; so that it occupies about twice as much bulk, in that form, as when melted and cast into bars. A pint of African dust was found to weigh 148 ounces. The advantage of having gold grains or dust cast into bars as a preparative for exportation, is perhaps overrated. True, it has rather an insufficient outfit, if packed in paper, leather, muslin, Seidlitz-boxes, or porter-bottles, as it came at first from San Francisco. A good tin box, well soldered, will hold fast and keep dry; and the Mint charges nothing for melting. This is the most general kind of packing now used; but the tin case, if large, requires to be inclosed in a wooden box, and after that there is need of a vigilant watch and care. A most daring theft was lately committed, somewhere on the route, by boring through box and case; and about $9000 worth was abstracted. A keg 13½ inches high, including the chine, and with a diameter of 10 inches at the head and 11½ at the bilge (outside measures), is a convenient size for $2000 in silver coin, or $50,000 in gold coin. A keg whose measurements are 19, 11, 13, as above, is a proper size for $5000 in silver coin. A rectangular box, measuring inside 10 by 8 inches by 5 in depth, is the size used at the Mint for $1000 in silver coin. This allows the coin to be thrown in promiscuously; if piled, at least one-third more can be put in. Such a box would hold $36,000 in gold coin, laid in order; or $27,000 in disorder. A bag 6 inches by 9 holds $5000 in gold coin, with room to tie. A bag 14 by 18 is a good size for $1000 in silver coin. One thousand pieces of our three-cent coin ($30 worth) make a smaller budget than many of our customers seem to anticipate. A bag 3½ inches by 5 easily contains them.—See *Manual of Coins*, by ECKFELDT and DU BOIS of United States Mint. Published, New York, 1853, by G. P. Putnam & Co.

Privilege of Coining.—The privilege of coining money has always been claimed as a prerogative of the executive power, which was guarded with extreme jealousy. "The legitimation of money," says Sir Matthew Hale, "and the giving it its denominated value, is justly reckoned *in jura majestatis*, and in England it is one special part of the king's prerogative." And Ruding observes, "As to the impression of the coins, the stamping thereof is the unquestionable prerogative of the crown, and it was in very few instances communicated to those persons on whom the privilege was conferred; for, in general, the dies were sent either from the Exchequer, or from the master of the mint in the Tower." The privilege implied that the authority of the crown was necessary to give legal currency to the coin; and although Blackstone thinks it did not extend to the debasement of the coin to the injury of the people, no one can doubt that the power was not always legitimately exercised. In truth, it is only in the case of a depreciated currency that the king's proclamation is necessary to give legal circulation to the coin of the realm; and, as a better protection to his subjects, the tender is limited within very narrow bounds.

Ancient Constitution of the Mints.—The constitution of the mints in the earliest times of British history, and the regulations applied to the coinage, are questions of antiquarian research which will be deemed more curious than profitable. The materials for such an inquiry are extremely meagre and incomplete; for, according to Ruding, both the Anglo-Saxon laws and Domesday-Book are silent on the subject. They frequently mention the moneyers, but make no allusion to any other officers of the mint; though it is reasonable to suppose that the crown, whose prerogative it was to coin money, must have had some jurisdiction over those who were employed in the practical operations.—E. B.

TABLES RELATIVE TO THE COINS OF GREAT BRITAIN AND OTHER COUNTRIES.

ENGLISH COINS.—Account of the Quantity of *Fine* Silver contained in 20*s.* or the Pound Sterling; the Quantity of *Standard* Silver, of 11 oz. 2 dwts. Fine and 11 dwts. Alloy, contained in 20*s.* or the Pound Sterling, in the different Reigns, from the Time of Edward III. to the Reign of George III.—A similar Account with respect to Gold.—And an Account of the proportional Value of Fine Gold to Fine Silver, according to the Number of Grains contained in the Coins.—*Calculated in Grains and 1000th Parts, Troy Weight.*

A. D.	Anno Regni.	Silver.		Gold.		
		1. Number of Grains of Fine Silver in 20 Shillings, or the Pound Sterling, as Coined by the Mint Indentures.	2. Number of Grains of Standard Silver, 11 oz. 2 dwts. Fine, in 20 Shillings, or the Pound Sterling, as Coined by the Mint Indentures.	3 Number of Grains of Fine Gold in 20 Shillings, or the Pound Sterling, as Coined by the Mint Indentures.	4. Number of Grains of Standard Gold 22 Carats Fine, in 20 Shillings, or the Pound Sterling, as Coined by the Mint Indentures.	5. Proportionate Value of Fine Gold to Fine Silver, according to the Quantity of each Metal contained in the Coins.
		Grains.	Grains.	Grains.	Grains.	Gold to Silver.
1344	18 Edward III.	4933·333	5333·333	407·990	445·080	1 to 12·091
1349	23 Edward III.	4440·000	4800·000	383·705	418·588	1 to 11·571
1356	30 Edward III.	3996·000	4320·000	358·125	390·682	1 to 11·158
1401	3 Henry IV...	3996·000	4320·000	358·125	390·682	1 to 11·158
1421	9 Henry V....	3330·000	3600·000	322·312	351·613	1 to 10·331
1464	4 Edward IV.	2664·000	2880·000	257·850	281·291	1 to 10·331
1465	5 Edward IV.	2664·000	2880·000	238·750	260·454	1 to 11·158
1470	49 Henry VI...	2664·000	2880·000	238·750	260·454	1 to 11·158
1482	22 Edward IV.	2664·000	2880·000	238·750	260·454	1 to 11·158
1509	1 Henry VIII.	2664·000	2880·000	238·750	260·454	1 to 11·158
1527	18 Henry VIII.	2368·000	2560·000	210·149	229·253	1 to 11·268
1543	34 Henry VIII.	2000·000	2162·162	191·666	209·090	1 to 10·434
1545	36 Henry VIII.	1200·000	1297·297	176·000	192·000	1 to 6·818
1546	37 Henry VIII.	800·000	864·864	160·000	174·545	1 to 5·000
1547	1 Edward VI.	800·000	864·864	160·000	174·545	1 to 5·000
1549	3 Edward VI.	800·000	864·864	155·294	169·412	1 to 5·151
*1551	5 Edward VI.	400·000	....	....	....	......
1551	5 Edward VI.	1760·000	1902·702	160·000	174·545	1 to 11·000
1552	6 Edward VI.	1768·000	1911·351	160·000	174·545	1 to 11·050
1553	1 Mary	1760·000	1902·702	159·166	173·636	1 to 11·057
1560	2 Elizabeth ..	1776·000	1920·000	160·000	174·545	1 to 11·100
1600	43 Elizabeth ..	1718·709	1858·064	157·612	171·940	1 to 10·904
1604	2 James I. ...	1718·709	1858·064	141·935	154·838	1 to 12·109
1626	2 Charles I...	1718·709	1858·064	128·780	140·487	1 to 13·346
1666	18 Charles II. .	1718·709	1858·064	118·651	129·438	1 to 14·485
1717	3 George I. ..	1718·709	1858·064	113·001	123·274	1 to 15·209
1816	56 George III.	1614·545	1745·454	113·001	123·274	1 to 14·287

ENGLISH COINS.—Account of English Silver and Gold Coins; showing their Value, the Seignorage or Profit upon the Coinage, and the Price of the Pound Troy of Standard Gold and Silver, from the Reign of Edward III. to the Reign of George III.

A. D.	Anno Regni.	Silver.				Gold.			
		1. Fineness of the Silver in the Coins.	2. Pound Weight of such Silver coined into	3. Profit or Seignorage on the Coinage.	4. Equal to the Mint Price for Standard Silver of 11 oz. 2 dwts. fine, Troy Weight.	5. Fineness of the Gold in the Coins.	6. Pound Weight of such Gold coined into	7. Profit or Seignorage on the Coinage.	8. Equal to the Mint Price for Standard Gold of 22 Carats fine, Troy Weight.
		Oz. dwts.	£ s. d.	£ s. d.	£ s d.	Crts. grs.	£ s. d.	£ s. d.	£ s. d.
1344	18 Edward III....	11 2	1 0 3	0 1 3	1 0 3¼	23 3½	13 3 4	0 8 4	12 10 8
1349	23 Edward III....	11 2	1 2 6	0 1 3	1 2 8	23 3½	14 0 0	0 11 8	13 3 9
1356	30 Edward III....	11 2	1 5 0	0 0 10	1 5 9¼	23 3½	15 0 0	0 6 8	14 8 4
1394	18 Richard II. ...	11 2	1 5 0	0 0 10	1 5 9¼	23 3½	15 0 0	0 5 0	14 9 11
1401	3 Henry IV.....	11 2	1 5 0	0 0 10	1 5 9¼	23 3½	15 0 0	0 5 0	14 9 11
1421	9 Henry V......	11 2	1 10 0	0 1 0	1 10 11¼	23 3½	16 13 4	0 5 0	16 2 9
1425	4 Henry VI.	11 2	1 10 0	0 1 0	1 10 11¼	23 3½	16 13 4	0 5 10	16 1 11
1464	4 Edward IV....	11 2	1 17 6	0 4 6	1 15 2¼	23 3½	20 16 8	2 10 0	18 0 5
1465	5 Edward IV....	11 2	1 17 6	0 4 6	1 15 2¼	23 3½	22 10 0	1 0 10	21 1 10
1470	49 Henry VI.	11 2	1 17 6	0 2 0	1 17 10¼	23 3½	22 10 0	0 13 0	21 9 7
1482	22 Edward IV....	11 2	1 17 6	0 1 6	1 18 4¾	23 3½	22 10 0	0 7 6	21 15 0
1483	1 Richard III....	11 2	1 17 6	0 1 6	1 18 4¾	23 3½	22 10 0	0 7 6	21 15 0
1485	1 Henry VII. ...	11 2	1 17 6	0 1 6	1 18 4¾	23 3½	22 10 0	0 7 6	21 15 0
1509	1 Henry VIII. ..	11 2	1 17 6	0 1 0	1 18 11¼	23 3½	22 10 0	0 2 6	22 0 0
†1527	18 Henry VIII. ..	11 2	2 0 0	0 1 0¼	1 18 11¼	23 3½	24 0 0	0 2 8	22 0 0
1527	18 Henry VIII. ..	11 2	2 5 0	0 1 0	2 4 0	23 3½	27 0 0	0 2 9	....
1527	18 Henry VIII. ..	.....	....	....	....	22 0	25 2 6	0 3 0	24 19 6
1543	34 Henry VIII. ..	10 0	2 8 0	0 8 0	2 4 4¾	23 0	28 16 0	1 4 0	26 8 0
1545	36 Henry VIII. ..	6 0	2 8 0	2 0 0	2 11 9¼	22 0	30 0 0	2 10 0	27 10 0
1546	37 Henry VIII. ..	4 0	2 8 0	4 4 0	2 15 6	20 0	30 0 0	5 0 0	27 10 0
1547	1 Edward VI....	4 0	2 8 0	4 4 0	2 15 6	20 0	30 0 0	1 10 0	31 7 0
1549	3 Edward VI....	6 0	3 12 0	4 0 0	2 19 2½	22 0	34 0 0	1 0 0	33 0 0
1551	5 Edward VI....	3 0	3 12 0	....	....	.....	.....	....	....
1551	5 Edward VI....	11 0	3 0 0	....	....	23 3½	36 0 0	....	....
1551	5 Edward VI....	.....	....	....	....	22 0	33 0 0	....	....
1552	6 Edward VI....	11 1	3 0 0	0 1 0	2 19 3¼	23 3½	36 0 0	0 2 9	....
1552	6 Edward VI....	.....	....	...	....	22 0	33 0 0	0 3 0	32 17 8
1553	1 Mary	11 0	3 0 0	0 1 0	2 19 6¼	23 3½	36 0 0	0 3 0	33 0 8
1560	2 Elizabeth	11 2	3 0 0	0 1 6	2 18 6	23 3½	36 0 0	0 5 0	....
1560	2 Elizabeth	.....	....	....	....	22 0	33 0 0	0 4 0	32 16 0
1600	43 Elizabeth	11 2	3 2 0	0 2 0	3 0 0	23 3½	36 10 0	0 10 0	....
1600	43 Elizabeth	.....	....	....	....	22 0	33 10 0	0 10 0	33 0 0
1604	2 James I.......	11 2	3 2 0	0 2 6	2 19 6	22 0	37 4 0	0 10 0	35 14 0
1626	2 Charles I......	11 2	3 2 0	0 2 0	3 0 0	22 0	41 0 0	1 1 5	39 18 7
‡1666	18 Charles II....	11 2	3 2 0	0 0 0	3 2 0	22 0	44 10 0	....	44 10 0
1717	3 George I......	11 2	3 2 0	0 0 0	3 2 0	22 0	46 14 6	....	46 14 6
1816	56 George III. ...	11 2	3 6 0	0 4 0	....	22 0	46 14 6	....	46 14 6

* 1551—5 Edward VI.] The coinage of debased silver money, in the 5th year of Edward VI., of 3 oz. fine, ought more properly to be considered as Tokens. The sum of £120,000 only was so coined.—*See* JAMES's *Essays*, chapter iv.

† 1527—Henry VIII.] The Saxon or Tower pound was used at the Mint up to this time, when the pound Troy was substituted in its stead. The Tower pound was but 11 oz. 5 dwts., Troy; so that, from the Conquest to the 28th of Edward I., 20 shillings in tale were exactly a pound in weight.

‡ 1666—18 Charles II.] The seignorage on the coinage was at this time given up, and the gold bullion brought to the Mint has ever since been coined free of expense. A seignorage of 6$\frac{1}{3}\frac{1}{1}$ per cent. was imposed on the coinage of silver by 56 Geo. III.

Gold Coins of different Countries.—A Table containing the Assays, Weights, and Values of the principal Gold Coins of all Countries, computed according to the Mint Price of Gold in England, and allowing £1 to equal $4·84, which is an Average Value, will give the Value of the Coin in United States Decimal Currency. Assays have been made both at London and Paris, which have been found to verify each other.

Coins.		Assay.	Weight.	Standard Weight.	Contents in Pure Gold.	Value in Sterling.
		Car. gr.	Dwt. gr.	Dwt. gr. mi.	Grains.	s. d
AUSTRIAN DOMINIONS	Souverain	W. 0 0¼	3 14	3 13 15	78·6	13 10·92
	Double ducat	B. 1 2¾	4 12	4 20 5	106·4	18 9·97
	Ducat Kremnitz, or Hungarian	B. 1 3	2 5¾	2 10 3	53·3	9 5·91
BAVARIA	Carolin	W. 3 2	6 5¼	5 5 10	115·	20 4·26
	Max d'or, or Maximilian	W. 3 2¼	4 4	3 14 0	77·	13 7·44
	Ducat	B. 1 2¼	2 5¾	2 19 11	52·8	9 4·12
BERN	Ducat (double, etc., in proportion)	B. 1 1¾	1 23	2 2 1	45·9	8 1·48
	Pistole	W. 0 1½	4 21	4 19 0	105·5	18 7·86
BRUNSWICK	Pistole (double in proportion)	W. 0 1½	4 21¼	4 19 5	105·7	18 8·48
	Ducat	B. 1 0½	2 5¾	2 8 9	51·8	9 2·
COLOGNE	Ducat	B. 1 2	2 5¾	2 9 8	52·6	9 3·70
DENMARK	Ducat current	W. 0 3¾	2 0	1 21 19	42·2	7 5·62
	Ducat specie	B. 1 2	2 5¾	2 9 8	52·6	9 3·70
	Christian d'or	W. 0 1	4 7	4 5 16	93·3	16 6·14
ENGLAND	Guinea	Stand.	5 9¼	5 9 10	118·7	21 0·
	Half-guinea	Stand.	2 16¾	2 16 15	59·3	10 6·
	Seven-shilling piece	Stand.	1 19	1 19 0	39·6	7 0·
	Sovereign	Stand.	5 3¼	5 3 5	113·1	20 0·
FRANCE	Double Louis (coined before 1786)	W. 0 2	10 11	10 5 6	224·9	39 9·64
	Louis	W. 0 2	5 5½	5 2 12	112·4	10 10·71
	Double Louis (coined since 1786)	W. 0 1½	9 20	9 15 19	212·6	37 7·53
	Louis	W. 0 1½	4 22	4 19 19	106·3	18 9·75
	Double Napoleon, or piece of 40 francs	W. 0 1¾	8 7	8 3 0	179·	31 8·36
	Napoleon, or piece of 20 francs	W. 0 1¾	4 3½	4 1 10	89·7	15 10·5
	New Louis (double, etc.), the same as the Napoleon.					
FRANKFORT-ON-THE-MAINE	Ducat	B. 1 2½	2 5¾	2 9 14	52·9	9 4·34
GENEVA	Pistole, old	W. 0 2	4 7¼	4 4 18	92·5	16 4·45
	Pistole, new	W. 0 0½	3 15¾	3 15 4	80·	14 1·9
GENOA	Sequin	B. 1 3½	2 5¾	2 10 6	53·4	9 5·41
HAMBURG	Ducat (double in proportion)	B. 1 2½	2 5¾	2 9 14	52 9	9 4·35
HANOVER	George d'or	W. 0 1¼	4 6½	4 5 3	92·6	16 4·66
	Ducat	B. 1 3¼	2 5¾	2 10 3	53·3	9 5·19
	Gold florin (double in proportion)	W. 3 0½	2 2	1 18 6	39·	6 10·83
HOLLAND	Double ryder	Stand.	12 21	12 21 0	283·2	50 1·46
	Ryder	Stand.	6 9	6 9 0	140·2	24 9·75
	Ducat	B. 1 2¼	2 5¾	2 9 12	52·8	9 4·13
MALTA	Double Louis	W. 1 3¼	10 16	9 18 18	215·3	38 1·25
	Louis	W. 1 3	5 8	4 21 16	108·	19 1·37
	Demi Louis	W. 1 2¼	2 16	2 11 3	54·5	9 7·75
MILAN	Sequin	B. 1 3	2 5¾	2 10 0	53·2	9 4·98
	Doppia or pistole	W. 0 1	4 1½	4 0 8	88·4	15 7·74
	Forty-lire piece of 1808	W. 0 1¾	8 8	8 4 0	179·7	31 9·64
NAPLES	Six-ducat piece of 1783	W. 0 2¼	5 16	5 12 18	121·9	21 6·89
	Two-ducat piece, or sequin, of 1762	W. 1 2¾	1 20¼	1 16 6	37·4	6 7·42
	Three-ducat piece, or oncetta, of 1818	B. 1 3½	2 10¼	2 15 1	58·1	10 3·40
NETHERLANDS	Gold lion, or fourteen-florin piece	Stand.	5 7¾	5 7 16	117·1	20 8·69
	Ten-florin piece (1820)	W. 0 1¾	4 7¾	4 5 15	93·2	16 5·93
PARMA	Quadruple pistole (double in proportion)	W. 1 0	18 9	17 12 18	386·	68 3·78
	Pistole or doppia of 1787	W. 0 3	4 14	4 10 4	97·4	17 2·85
	Ditto of 1796	W. 1 0¼	4 14	4 8 14	95·9	16 11·67
	Maria Theresa (1818)	W. 0 1¾	4 3½	4 1 10	89·7	15 10·5
PIEDMONT	Pistole coined since 1785 (½, etc., in prop.)	W. 0 1¼	5 20	5 17 0	125·6	22 2·75
	Sequin (½ in proportion)	B. 1 2½	2 5¾	2 9 12	52·9	9 4·34
	Carlino, coined since 1785 (½, etc., in prop.)	W. 0 1¼	29 6	28 20 0	634·4	112 3·33
	Piece of 20 francs, called *Marengo*	W. 2 0	4 3¼	3 18 4	82·7	14 7·63
POLAND	Ducat	B. 1 2½	2 5¾	2 9 12	52·9	9 4·34
PORTUGAL	Dobraon of 24,000 rees	Stand.	34 12	34 12 0	759·	134 3·96
	Dobra of 12,800 rees	Stand.	18 6	18 6 0	401·5	71 0·70
	Moidore or Lisbonnine (½., etc., in prop.)	Stand.	6 22	6 22 0	152·2	26 11·24
	Piece of 16 testoons, or 1600 rees	W. 0 0⅜	2 6	2 5 14	49·3	8 8·70
	Old crusado of 400 rees	W. 0 0½	0 15	0 14 18	13·6	2 4·88
	New crusado of 480 rees	W. 0 0⅝	0 16¼	0 16 2	14·8	2 7·43
	Milree (coined for African colonies, 1755)	Stand.	0 19¾	0 19 15	18·1	3 2·44
PRUSSIA	Ducat of 1748	B. 1 2½	2 5¾	2 9 14	52·9	9 4·04
	Ducat of 1787	B. 1 2	2 5¾	2 9 6	52·6	9 3·71
	Frederick (double) of 1769	W. 0 1¾	8 14	8 9 18	185·	32 8·90
	Frederick (single) of 1778	W. 0 1½	4 7	4 5 4	92·8	16 5·08
	Frederick (double) of 1800	W. 0 2	8 14	8 9 6	184·5	32 7·84
	Frederick (single) of 1800	W. 0 2	4 7	4 4 13	92·2	16 3·42
ROME	Sequin (coined since 1760)	B. 1 3½	2 4½	2 9 0	52·2	9 2·56
	Scudo of the Republic	W. 0 1¾	17 0¼	16 16 6	367·	64 11·43
RUSSIA	Ducat of 1796	B. 1 2½	2 6	2 10 0	53·2	9 4·98
	Ducat of 1763	B. 1 2	2 5¼	2 9 8	52·6	9 3·71
	Gold ruble of 1756	Stand.	1 0½	1 0 10	22·5	3 11·78
	Ditto of 1799	W. 0 0¼	0 18¾	0 18 14	17·1	3 0·31
	Gold poltin of 1777	Stand.	0 9	0 9 0	8·2	1 5·41
	Imperial of 1801	B. 1 2¼	7 17¼	8 6 8	181·9	32 2·31
	Half Imperial of 1801	B. 1 2¼	3 20½	4 3 4	90·9	16 1·05
	Ditto of 1818	B. 0 0⅛	4 3½	4 3 12	91·3	16 1·98
SARDINIA	Carlino (½ in proportion)	W. 0 2¾	10 7½	9 23 16	219·8	30 8 10
SAXONY	Ducat of 1784	B. 1 2	2 5¾	2 9 8	52·6	9 3·71
	Ducat of 1797	B. 1 2½	2 5¾	2 9 14	52·9	9 4·34
	Augustus of 1754	W. 0 2⅝	4 6½	4 3 8	91·2	16 1 69
	Augustus of 1784	W. 0 1¾	4 6¼	4 4 12	92·2	16 3·81
SICILY*	Ounce of 1751	W. 1 2¼	2 20½	2 15 8	58·2	10 3·60
	Double ounce of 1758	W. 1 2	5 17	5 7 14	117·	20 8·48
SPAIN	Doubloon of 1772 (double and single in proportion)	W. 0 2¼	17 8½	16 21 16	372·	65 10·05

---

* Much variation is found in the fineness of the Sicilian gold coins.

Coins.		Assay.	Weight.	Standard Weight	Contents in Pure Gold.	Value in Sterling.
		Car. gr.	Dwt. gr.	Dwt. gr. mi.	Grains.	s. d.
SPAIN	Quadruple pistole of 1801	W. 1 1	17 9	16 9 6	360·5	63 9·62
	Pistole of 1801	W. 1 1	4 8¼	4 2 6	90·1	15 11·35
	Coronilla, gold dollar, or vintem of 1801.	W. 1 2½	1 3	1 0 18	22·5	4 0·42
SWEDEN	Ducat	B. 1 2	2 5	2 8 12	51·9	9 2·22
SWITZERLAND	Pistole of the Helvetic Republic of 1800	W. 0 1½	4 21½	4 19 9	105·9	18 8·91
TREVES	Ducat	B. 1 2	2 5¼	2 9 8	52·6	9 3·71
TURKEY	Sequin fonducli of Constantinople of 1773	W. 2 2¼	2 5¼	1 23 6	43·3	7 7·94
	Sequin fonducli of 1789	W. 2 3¼	2 5¾	1 22 16	42·9	7 7·11
	Half missier (1818)	W. 5 3¼	0 18¼	0 13 5	12·16	2 1·82
	Sequin fonducli	W. 2 3	2 5	1 22 7	42·5	7 6·26
	Yermeebeshlek	B. 0 3¼	2 1¾	3 4 13	70·3	12 5·32
TUSCANY	Zecchino or sequin	B. 1 3¾	3 5¼	2 10 14	53·6	9 5·53
	Ruspone of the kingdom of Etruria	B. 1 3¾	6 17¼	7 7 13	161·	28 5·93
UNITED STATES	Eagle (½ and ¼ in proportion)	W. 0 0¼	11 6	11 4 8	246·1	43 6·66
VENICE	Zecchino or sequin (½ and ¼ in proportion)	B. 1 3¼	2 6	2 10 10	53·6	9 5·83
WIRTEMBERG	Carolin	W. 3 2	6 3½	5 4 0	113·7	20 1·47
	Ducat	B. 1 2	2 5	2 8 12	51·9	9 2·22
	Ducat (double and ½ ducat in proportion)	B. 1 2	2 5¼	2 9 8	52·6	9 3·71
EAST INDIES	Mohur of 1770	B. 1 2¼	7 22¼	8 11 15	186·8	33 0·72
	Mohur, Half (1787) (¼ in proportion)	B. 1 2¼	3 23¼	4 16 10	94·	16 7·64
	Mohur Sicca of Bengal	B. 1 3¾	7 23	8 15 0	189·8	30 1·04
	Mohur of the Dutch East India Company (1783)	W. 3 3¼	10 2	8 8 0	183·4	32 5·50
	Mohur, Half Ditto (1801)	W. 3 1¼	5 3½	4 18 18	96·2	17 0·30
	Rupee, Bombay (1818)	B. 0 0½	7 11	7 11 13	164·7	29 1·78
	Rupee of Madras (1818)	Stand.	7 12	7 12 0	165·	29 2·42
	Pagoda, star	W. 3 0	2 4¾	1 21 11	41·8	7 4·77

The London Assays in this Table were made by Robert Bingley, Esq., F.R.S., the Assay Master of the Royal Mint, and those at Paris by Pierre Frédérick Bonneville, Essayer du Commerce, as published in his elaborate work on the coins of all nations. Specimens of all the foreign coins brought to London for commercial purposes have been supplied for this Table from the Bullion-office, Bank of England, by order of the Bank Directors, and have been selected by John Humble, Esq., the chief clerk of that office, who also examined the Tables in their progress. It may likewise be added, that the Mint Reports of these commercial coins are chiefly from average assays; and that all the computations have been carefully verified by different calculators.—Note by Dr. KELLY, to second edition of the *Cambist*, published in 1821.

"By one of the articles of the Zollverein, or Customs-union of Germany, it was stipulated that the settlements for the duties should be made either in Prussian dollars or in florins, at the rate of 7 florins for four Prussian dollars. There were, however, no florins in existence exactly of this value; but as the nearest approach to it was a valuation called the 24 guldenfuss, or florin-foot, these Zollverein florins were nominally reckoned to be in this rate, though the difference amounts to more than 2 per cent. The term 24 guldenfuss implies that the mark weight of fine silver is rated at 24 gulden or florins. It was formed by giving to the coins minted or valued in 20 guldenfuss an increased value of one-fifth, as rating the 20-kreutzer piece at 24 kreutzers. At 60*d.* per ounce standard, the value of this mark of fine silver is worth 40*s.* 7½*d.* sterling, from which the value of the different German monetary integers is readily obtained; as reckoning 27¾ marks banco or 34 marks current of Hamburg, 14 dollars of Prussia, 24½ florins of South Germany, 20 florins of Austria, and also 60 lire of Austriache of Lombardy, to be of this amount. In order, therefore, to prevent the loss or inconvenience which would attend their adhering to this mode of valuation, a money convention was entered into on the 25th of August, 1837, among the states forming the union, by which it was agreed upon that a new basis of valuation should be adopted for their coins, under the term of Süddeutscher Währung, or South German valuation, at the rate of 24½ gulden or florins from the mark's weight of fine silver. Bavaria, Wirtemberg, Baden, and Saxony have since issued their coins at this rate, and the other states of the confederation are doing or preparing to do the same. Among them Frankfort, in 1840, began the mintage of coins of this value; and by a regulation of the Chamber of Commerce of this free city, all the rates of exchange, as well as the values of bullion and foreign coins, were ordered to be expressed in this Süddeutscher Währung from the commencement of the year (1843). One of these new and very exactly-minted florins was assayed by Messrs. Johnson and Cock, of Hatton Garden, who reported it to be, full weight, 6 dwts. 19½ grains, worse 6 dwts., gold under 2 grains; from which the value, at 60*d.* per ounce standard, is very exactly 19¾*d.* sterling, making the par of exchange with London 120¾ florins in S. D. W. for £10 sterling. I have been thus particular in these explanations, partly because several persons imagine that the late alteration in the rate of exchange with Frankfort was made in compliance with the wishes, or to suit the convenience, of one or more of our leading houses in exchange negotiations, but more particularly because it is maintained by many that the valuation of this rate is not merely nominally, but really, in 24 guldenfuss. This is a point of no small importance to the commercial world, for had it been so, the par of exchange with London would have been only 118 florins for £10 sterling, and the difference between this and the present price of sight bills on Frankfort would have exceeded 2¾ per cent.; a variation which every practical cambist well knows could not exist, except under very extraordinary circumstances, and with nearly corresponding differences in the other rates of exchange; neither of which causes is now in operation."—*Letter of William Tate, Esq., cambist to the Times.*

Sterling silver remained in high repute all over the Continent, because it was superior to any other currency; and even in England the words conveyed for centuries the ideas of goodness and purity. And we may remark here that the gold coins of England, from the reign of Henry III., when they were generally introduced, to the reign of Henry VIII., who debased their purity, were made of fine gold. This is a remarkable circumstance, because as gold in its native state is rarely discovered so pure, the existence for a long period of a coinage fabricated of that metal in a state of purity necessarily implies the knowledge of the art of refining, which must have been practiced at a very early period. Pliny, indeed, says that in his time gold was refined by mercury, which mingled with it, but rejected all alloy, and the gold was freed from the mercury by squeezing both in skins, in which operation the mercury ran through and left the gold in a pure state. Some of the Greek gold coins were also of great purity, as those of Philip of Macedon, and his son Alexander the Great, rivaled by those of the other princes and cities which immediately followed. Those of the successors of Alexander in Egypt were 23 carats 3 grains fine, and 1 carat grain alloy, which we give on the authority of Jacob in his book on the "Precious Metals." The Greek silver coins were inferior to ours; as also the Roman of the earliest period.—E. B.

Silver Coins of different Countries.—A Table containing the Assays, Weights, and Values of the principal Silver Coins of all Countries, computed at the rate of 5*s.* 2*d.* per Ounce Standard, from Assays made both at the London and Paris Mints.

Coins.		Assay.	Weight	Standard Weight.	Contents in Pure Silver	Value in Sterling.
		Oz. dwt.	Dwt. gr.	Dwt. gr. mi	Grains.	*s.* *d.*
Austria	Rix dollar of Francis II. (1800)	W. 1 5	18 1	16 0 4	355·5	4 1·64
	Rix dollar of the kingdom of Hungary	W. 1 2	18 1	16 6 1	360·9	4 2·39
	Half rix dollar, or florin, *Convention*	W. 1 3	9 0½	8 2 1	179·6	2 1·07
	Copftsuck, or 20-creutzer piece	W. 4 3	4 6½	2 16 3	59·4	0 8·29
	17-creutzer piece	W. 4 8	4 0	2 9 18	53·5	0 7·47
	Halbe copf, or 10-creutzer piece	W. 5 5	2 11	1 7 1	28·8	0 4·01
Baden	Rix dollar	W. 1 4	18 2	16 3 1	358·1	4 2·
Bavaria	Rix dollar of 1800 (½ in proportion)	W. 1 4½	17 12	15 13 13	345·6	4 0·25
	Copftsuck	W. 4 3	4 6½	2 16 3	59·4	0 8·29
Bern	Patagon or crown (½ in proportion)	W. 0 7	18 22	18 7 14	406·7	4 8·79
	Piece of 10 batzen	W. 1 2	5 3	4 14 17	102·5	1 2·31
Bremen	Piece of 48 grotes	W. 2 2	11 0	8 22 1	198·	2 3·64
Brunswick	Rix dollar, *Convention*	W. 1 3	18 1	16 4 4	359·2	4 2·15
	Half rix dollar	W. 1 3	9 0½	8 2 2	179·6	2 1·07
	Gulden, or piece of ⅔, fine, of 1764	B. 0 16	8 10½	9 1 1	200·8	2 4·03
	Gulden, common, of 1764	W. 1 2	9 0	8 2 10	180·	2 1·13
	Gulden, ditto, of 1795	W. 2 2	11 1½	8 23 7	199·1	2 3·80
	Half gulden, or piece of ⅓, of 1764	W. 1 2	4 12	4 1 5	90·	1 0·56
Denmark	Ryksdaler, specie, of 1798	W. 0 13	18 14	17 11 17	388·4	4 6·23
	New piece of 4 marks	W. 0 12	12 9	11 16 14	259·8	3 0·27
	Half ryksdaler	W. 0 13	9 7	8 17 8	194·2	2 3·11
	Mark, specie, or ⅙ ryksdaler	W. 3 1	4 0	2 21 12	64·4	0 7·59
	Rix dollar, specie, of Sleswick and Holstein (pieces of ⅔ and ⅓ in proportion)	W. 0 12	18 13	17 12 6	389·4	4 6·37
	Piece of 24 skillings	W. 4 7	5 2½	3 2 10	68·9	0 9·62
England	Crown (*old*)	Stand.	19 8½	19 8 10	429·7	5 0·
	Half-crown	Stand.	9 16¼	9 16 5	214·8	2 6·
	Shilling	Stand.	3 21	3 21 0	85·9	1 0·
	Sixpence	Stand.	1 22½	1 22 10	42·9	0 6·
	Crown (*new*)	Stand.	18 4¼	18 4 7	403·6	4 8·36
	Half-crown	Stand.	9 2	9 2 4	201·8	2 4·18
	Shilling	Stand.	3 15¼	3 15 6	80·7	0 11·27
	Sixpence	Stand.	1 19¾	1 19 14	40·3	0 5·63
France	Ecu of 6 livres	W. 0 7	18 18	18 7 16	403·1	4 8·28
	Demi ecu	W. 0 7	9 9	9 1 18	201·5	2 4·13
	Piece of 24 sous (divisions in proportion).	W. 0 7	3 20	3 16 19	83·4	0 11·64
	Piece of 30 sous (½ in proportion)	W. 3 8	6 12	4 12 4	100·2	1 1·99
	Piece of 5 francs	W. 0 7	16 1	15 12 4	344·9	4 0·16
	Piece of 2 francs	W. 0 7	6 11	6 6 2	138·8	1 7·38
	Franc	W. 0 7	3 5½	3 3 1	69·4	0 9·69
	Demi franc	W. 0 8½	1 15	4 13 6	34·7	0· 4·84
Geneva	Patagon	W. 1 0	17 9	15 19 8	351·	4 1·03
	Piece of 15 sous of 1794	W. 2 6	2 1¼	1 15 1	36·1	0 5·04
Genoa	Scudo, of 8 lire, of 1796 (½, ¼, etc., in prop.)	W. 0 8	21 9	20 14 10	457·4	5 3·87
	Scudo of the Ligurian Republic	W. 0 9½	21 9	20 11 2	454·3	5 3·43
Hamburg	Rix dollar, specie	W. 0 10	18 18	17 21 12	397·5	4 7·49
	Double mark, or 32-schilling piece (single in proportion)	W. 2 3	11 18	9 11 8	210·3	2 5·36
	Piece of 8 schillings	W. 3 12	3 8¼	2 6 4	50·1	0 6·99
	Piece of 4 schillings	W. 4 6	2 2	1 6 12	28·3	0 3·95
Hanover	Rix dollar, *Constitution*	W. 0 9	18 19	18 0 14	400·3	4 7·89
	Florin, or piece of ⅔, fine	B. 0 16	8 10	9 0 10	200·3	2 3·96
	Half florin, or piece of ⅓, ditto	B. 0 16	4 4	4 11 4	99·2	1 1·85
	Quarter, or piece of 6 good groschen, ditto	B. 0 16	2 1	2 4 10	48·6	0 6·78
	Florin, or piece of ⅔, base	W. 2 1	11 0¾	8 23 15	199·6	2 3·87
Hesse Cassel	Rix dollar, *Convention*	W. 1 6	18 1	15 22 6	353·	4 1·39
	Florin, or piece of ⅔ (⅓ in proportion)	W. 1 6	9 0½	7 23 3	176·8	2 0·68
	Thaler of 1789	W. 0 10½	12 7¼	11 17 5	259·7	3 0·26
	Ecu, *Convention* (1815)	W. 1 6	17 23¾	15 21 2	349·3	4 0·77
	Bon gros	W. 6 14	1 4	0 11 5	10·3	0 1·43
Holland	Ducatoon	B. 0 3	20 22	21 4 15	471·6	5 5·85
	Piece of 3 florins	W. 0 2	20 7	20 2 12	446·4	5 2·33
	Rix dollar (the assay varies)	W. 0 16	18 6	16 20 8	375·9	4 4·99
	Half rix dollar	W. 0 16	9 0	8 8 8	185·4	2 1·88
	Florin or guilder (½ in proportion)	W. 0 4½	6 18	6 14 14	146·8	1 8·49
	12-stiver piece	W. 0 16½	4 12	4 3 18	92·4	1 0 90
	Florin of Batavia	W. 0 5½	6 13	6 9 2	141·6	1 7·77
	Rix dollar, or 50-stiver piece	W. 0 5½	17 0	16 13 18	367·9	4 3·37
Lubec	Rix dollar, specie	W. 0 13	18 8	17 15 12	391·9	4 6·72
	Double mark	W. 2 3	11 18	9 11 8	210·3	2 5·36
	Mark	W. 2 3	5 21	4 17 14	105·1	1 2·67
Lucca	Scudo	W. 0 3	17 0	16 18 10	372·3	4 3 98
	Barbone	W. 3 3	1 20¼	1 7 14	29·3	0 4·09
Malta	Ounce of 30 tari of Emmanuel Pinto	W. 2 5	19 1½	15 4 14	337·4	3 11·11
	2-tari piece	W. 2 19	1 2	0 19 2	17·7	0 2·41
Milan	Scudo of 6 lire (½ in proportion)	W. 0 7	14 20¾	14 9 10	319·6	3 8·62
	Lira, new	W. 4 10	4 0	2 9 0	52 8	0 7·37
	Lira, old	W. 0 3	2 10	2 9 4	52·9	0 7·38
	Scudo of the Cisalpine Republic	W. 0 7	14 21¼	14 10 4	320·2	3 8·71
	Piece of 30 soldi of ditto	W. 2 18	4 17	3 11 8	77·2	0 10·78
Modena	Scudo of 15 lire, 1739 (double, etc., in proportion)	W. 0 14	18 12½	17 8 9	385·2	4 5·78
	Scudo of 5 lire, of 1782	W. 0 3	5 19	5 17 2	126·8	1 5·70
	Scudo of 1796	W. 3 3	18 1¾	12 22 12	287·4	3 4·13
Naples	Ducat, new (½ in proportion)	W. 1 0	14 15	13 7 8	295·4	3 5·24
	Piece of 12 Carlini of 1791	W. 1 0	17 15	16 0 18	356·	4 1·71
	Ditto of 1796	W. 1 2	17 16¾	15 22 12	353·9	4 1·41
	Ditto of 1805 (½ in proportion)	W. 1 2	17 18¼	15 23 18	355·2	4 1·60
	Ditto of 10 Carlini (1818)	W. 1 2	14 18	13 7 0	295·1	3 5·20
Netherlands	Crown (½, etc., in proportion)	W. 0 14	19 0	17 19 4	395·2	4 7·18
	5-stiver piece	W. 6 3	3 4	1 9 18	31·3	0 4·37

Coins.		Assay	Weight.	Standard Weight.	Contents in Pure Silver.	Value in Sterling.
		Oz. dwt.	Dwt gr.	Dwt. gr. mi.	Grains.	s. d.
NETHERLANDS	Florin of 1816	W. 0 7½	6 22	6 16 6	145·4	1 8·72
	Half florin (with divisions in proportion)	W. 4 5¼	5 11	3 9 2	75·	0 10·46
PARMA	Ducat of 1784	W. 0 9	16 11	15 18 18	350·6	4 0·95
	Ducat of 1796 (½ in proportion)	W. 0 5¼	16 12¾	16 2 18	357·9	4 1·97
	Piece of 3 lire	W. 1 4	4 14	4 2 2	90·7	1 0·66
PIEDMONT	Scudo, 1755 (½, etc., in proportion)	W. 0 5¼	22 14	22 0 10	488·9	5 8·26
	Scudo, 1770 (½ and ¼ in proportion)	W. 0 5	22 14	22 1 16	490·	5 8·42
	Piece of 2 lire (1714)	W. 0 4¼	7 20¼	7 16 13	170·8	1 11·85
	5-franc piece (1801)	W. 0 8	16 1¼	15 11 12	343·7	3 11·99
POLAND	Rix dollar, old	W. 1 2	18 1	16 6 0	360·8	4 2·38
	Rix dollar, new (1794)	W. 2 17	15 10¼	11 11 6	254·3	2 11·51
	Florin, or gulden	W. 4 2	6 0	3 18 16	84·	0 11·72
PORTUGAL	New crusado (1690)	W 0 4	11 0	10 19 0	239·2	2 9·40
	Ditto (1718)	W. 0 6¼	9 8	9 1 0	200·2	2 3·95
	Ditto (1795)	W. 0 7	9 9	9 1 18	201·6	2 4·15
	Doze vintems, or piece of 240 rees (1799).	W. 0 7	4 16	4 12 10	100·4	1 2·01
	Testoon (1799)	W. 0 7	2 0½	1 22 18	43·4	0 6·06
	New crusado (1809)	W. 0 4	9 3	8 23 0	198·2	2 4·67
	Seis vintems, or piece of 120 rees (1802)	W. 0 9	2 4½	2 2 8	46·6	0 6·50
	Testoon (1802)	W. 0 9	2 0	1 22 0	42·5	0 5·93
	Tres vintems, or piece of 60 rees (1802)	W. 0 9	1 2¼	1 1 4	23·3	0 3·25
	Half testoon (1802)	W. 0 9	0 23	0 22 0	20·4	0 2·84
PORTUGUESE COLONIES	Piece of 8 macutes, of Portuguese Africa	W. 0 9	7 12	7 4 14	159·8	1 10·31
	Ditto of 6 ditto	W. 0 9	5 13	5 7 12	118·	0 4·47
	Ditto of 4 ditto	W. 0 9	3 16	3 12 8	78·1	1 10·90
PRUSSIA*	Rix dollar, Prussian currency (½ in prop.)	W. 2 5	14 6¼	11 9 0	252·6	2 11·27
	Rix dollar, *Convention*	W. 1 3	18 1	16 4 2	359·	4 2·13
	Florin, or piece of ⅔	W. 2 3	11 2	8 22 8	198·4	2 3·70
	Florin of Silesia	W. 2 2	9 11	7 16 0	170·3	1 11·78
	Drittel, or piece of 8 good groschen	W. 3 3	5 8¾	3 20 4	85·3	0 11·91
	Piece of 6 groschen	W. 2 8	3 14	2 19 6	62·3	0 8·69
ROME	Scudo, or crown (coined since 1753)	W. 0 4	17 1	16 17 13	371·5	4 3·87
	Mezzo scudo, or half-crown	W. 0 4	8 12½	8 8 16	185·7	2 1·93
	Testone (1785)	W. 0 5	5 2	4 23 4	110·3	1 3·40
	Paolo (1785)	W. 0 4	1 17	1 16 4	37·2	0 5·19
	Grosso, or half Paolo (1785)	W. 0 5	0 20¼	0 20 0	18·5	0 2·58
	Scudo of the Roman Republic (1799)	W. 0 6	17 1	16 13 18	368·1	4 3·40
RUSSIA	Rouble of Peter the Great	W. 2 7	18 1	14 1 8	312·1	3 7·58
	Ditto of Catharine I. (1725)	W. 2 4½	17 11	13 23 0	309·9	3 7·27
	Ditto of Peter II. (1727)	W. 2 12	18 5¾	13 23 4	310·	3 7·28
	Ditto of Anne (1734)	W. 1 11	16 14¼	14 6 16	317·2	3 8·29
	Ditto of Elizabeth (1750)	W. 1 7	16 12	14 11 16	321·8	3 8·93
	Ditto of Peter III. (1762)	W. 2 2	15 10	12 12 0	277·5	3 2·75
	Ditto of Catharine II. (1780)	W. 2 4	15 12	12 10 6	275·9	3 2·52
	Ditto of Alexander	W. 0 16	13 12	12 12 12	278·1	3 2·83
SARDINIA	Scudo, or crown (½ and ¼ in proportion).	W. 0 7	15 2¼	14 15 0	324·7	3 9·34
SAXONY	Rix dollar, *Convention*, (½ and ¼ in proportion)	W. 1 3	18 0	16 3 4	358·2	4 2·01
	Piece of 16 groschen of Leipsic	W. 2 2	9 9½	7 14 16	169·1	1 11·61
	Rix dollar current of Saxe Gotha	W. 4 4½	18 1	11 4 2	248·1	2 10·64
	⅙ thaler of 1804	W. 4 11	3 11	2 0 19	45·3	0 6·32
	Ditto of 1808	W. 4 11½	3 5½	1 21 8	42·1	0 5·87
	Ditto of Jerome Bonaparte of 1809	W. 5 4	3 17	1 23 6	43·7	0 6·10
SICILY	Scudo (½ in proportion)	W. 1 4	17 14	15 16 6	348·2	4 0·62
	Piece of 40 grains	W. 1 2	5 21	5 7 2	117·5	1 4·40
SPAIN	†Dollar, of late coinage	W. 0 8	17 8	16 17 0	370·9	4 3·79
	Half dollar, ditto	W. 0 8	8 16	8 8 10	185·4	2 1·88
	Mexican peceta (1774)	W. 0 8	4 7½	4 3 16	92·3	1 0·88
	Real of Mexican plate (1775)	W. 0 8	2 3¾	2 1 20	46·1	0 6·43
	Peceta provincial of 2 reals of new plate (1775)	W. 1 9½	3 18	3 6 0	72·2	0 10·08
	Real of new plate (1795)	W. 1 9½	1 21	1 15 0	36·1	0 5·04
SWEDEN	Rix dollar (1762)	W. 0 12	18 20	17 19 10	395·5	4 7·22
	Rix dollar of late coinage	W. 0 14½	18 17	17 12 0	388·5	4 6·28
SWITZERLAND	Ecu of 40 batzen of Lucerne (1796)	W. 0 5	19 0	18 13 14	412·3	4 9·57
	Half ditto	W. 1 2	9 20	8 20 12	196·7	2 3·46
	Florin, or piece of 40 schillings of Lucerne (1793)	W. 1 5	4 22	4 8 14	96·8	1 1·51
	Ecu of 40 batzen of the Helvetic Republic 1798 (½ in proportion)	W. 0 6	18 23	18 10 14	409·5	4 9·18
	Ecu of 4 franken	W. 0 7	18 23	18 8 12	407·6	4 9·18
TURKEY	Piastre of Selim of 1801	W. 5 6	8 6	4 7 8	95·7	1 1·36
	Piastre of Crim Tartary (1778)	W. 6 13	10 5	4 2 4	90·9	1 0·69
	Piastre of Tunis (1787)	W. 6 5½	10 0	4 8 6	96·5	1 1·47
	Piastre (1818)	W. 5 14	6 6½	3 1 4	67·7	0 9·45
TUSCANY	Piece of 10 Paoli of the kingdom of Etruria (1801)	W. 0 4	17 13½	17 5 18	382·9	4 5·46
	Scudo Pisa of ditto (1803)	W. 0 2	17 12	17 8 4	385·0	4 5·76
	Piece of 10 lire ditto (1803)	B. 0 7	25 6	26 1 12	578·7	6 8·80
	Lira (1803)	B. 0 7	2 8	2 9 16	53·4	0 7·45
UNITED STATES	‡Dollar, 1795 (½, etc., in proportion)	W. 0 6¼	17 8	16 19 16	373·5	4 4·15
	Dollar (1798)	W. 0 7	17 10½	16 21 6	374·9	4 4·35
	Dollar (180)	W. 0 10¼	17 10	16 14 0	368·3	4 3·42
	Dollar, an average of 8 years	W. 0 8¼	17 8	16 16 0	370·1	4 3·68
	Dime, or one-tenth dollar	W. 0 4	1 19½	1 18 14	39·5	0 5·71
	Half dime	W. 0 7	0 21¾	0 21 0	19·5	0 2·72
VENICE	Piece of 2 lire, or 24 creutzers (1800)	W. 8 4½	5 19½	1 12 2	33·4	0 4·66
	Ditto of 2 lire, called moneta provinciale (1808)	W. 8 3	5 13¼	1 11 8	32·8	0 4·58
	Ditto of 2 lire, 1802 (½ and ¼ in proportion)	W. 8 4	5 6¼	1 8 19	30·5	0 4·25

---

* The Prussian coins, having been debased at different periods, vary in their reports.

† This is the coin which is universally circulated under the name of the Spanish dollar.

‡ The American dollars, and inferior silver pieces of late coinage, vary in fineness from W. 4 dwts. to W. 9½ dwts.

Coins.		Assay.	Weight.	Standard Weight.	Contents in Pure Silver.	Value in Sterling.
		Oz. dwt.	Dwt. gr.	Dwt. gr. mi.	Grains.	s. d.
WIRTEMBERG......	Rix dollar, specie........................	W. 1 3	18 1	16 14 2	359·1	4 2·14
	Copfstuck	W. 4 2	4 16½	2 16 12	59·8	0 8·35
EAST INDIES.......	Rupee Sicca, coined by the East India Company at Calcutta................	B. 0 13	7 11¼	7 22 0	175·8	2 0·54
	Company's or Standard	Stand.	....	....	165·	1 11·11
	Calcutta (1818)	Stand.	8 0	8 0 0	175·9	2 0·56
	Bombay, new, or Surat (1818).....	W. 0 0¼	7 11	7 10 4	164·7	1 11·01
	Fanam, Cananore..........................	W. 0 1¼	1 11¾	1 11 10	32·9	0 4·5
	Bombay, old..........................	B. 0 13	1 11¾	1 13 16	35·	0 4·88
	Pondicherry..........................	B. 0 5½	1 0½	1 1 2	22·8	0 3·18
	Ditto, double	W. 0 3	1 18¾	1 18 2	39·	0 5·44
	Gulden of the Dutch E. I. Co. (1820)	W. 0 7½	6 22	6 16 6	148·4	1 8·72

The sterling value of the foreign coins, in the foregoing tables, has been computed from the assays as follows: Let it be required to assign the value, in sterling, of a French double Louis d'or coined since 1786, the assay master's report being as follows: "Weight, 9 dwts. 20 grs.; assay W. 1½ grs.," that is, 0 car. 1½ grs. worse than the English standard. We proceed as under:

From 22 car. 0 gr. the fineness of English standard gold, take 0 car. 1½ gr., there remains 21 car. 2½ gr. Then, as 22 car. : 21 car. 2½ grs. :: 9 dwts. 20 grs. : 9 dwts. 16 grs., the standard gold contained in the Louis d'or; and hence, as 1 oz. : £3 17*s.* 10½*d.* :: 9 dwts. 16 grs. : £1 17*s.* 7½*d.*, the value of the Louis in sterling money, and so for any of the other coins.

Ancient Coins.—We subjoin, for the convenience of such of our readers as may at any time have occasion to consult works in which reference is made to ancient coins, the following tables of those that were principally current among the Jews and Greeks. They were calculated by Dr. Arbuthnot (*Tables of Ancient Coins, Weights, etc.*, 4to ed., Lond., 1754), and do not differ materially from the tables of Paucton, whose *Métrologie* (4to Paris, 1780) is the most complete and elaborate work that has ever been published with respect to ancient moneys, weights, and measures. At the same time we confess we should not be disposed to place much reliance on these tables, and we have elsewhere stated our reasons for holding this opinion.—*Encyc. Britannica*, art. MONEY.

JEWISH COINS.

Names and Proportions.					Value in Sterling. £	s.	d.
Gerah					0	0	$1\frac{59}{160}$
10	Bekah				0	1	$1\frac{1}{16}$
20	2	Shekel			0	2	3⅜
1,200	120	50	Maneh Mina Hebraica		5	14	0¾
60,000	6000	3000	60	Talent	342	3	9
Solidus aureus, or sextula, worth					0	12	0½
Siclus aureus, worth					1	16	6
A talent of gold, worth					5475	0	0

GRECIAN COINS.

											s.	d.	qrs.
Lepton											0	0	$0\frac{31}{336}$
7	Chalcus										0	0	$0\frac{31}{48}$
14	2	Dichalcus									0	0	$1\frac{7}{24}$
28	4	2	Hemiobolum								0	0	$2\frac{7}{12}$
56	8	4	2	Obolus							0	1	1⅙
112	16	8	4	2	Diobolum						0	2	2⅓
224	32	16	8	4	2	Tetrobolum					0	5	0⅔
336	48	24	12	6	3	1½	Drachma				0	7	3
662	96	48	24	12	6	3	2	Didrachma			1	3	2
1324	112	96	48	24	12	6	4	2	Tetradrachma		2	7	0
1660	384	120	60	30	15	7½	5	2½	1¼	Pentadrachma.	3	2	3

AN ACCOUNT OF ALL GOLD AND SILVER COINED AT THE BRITISH MINT FROM THE 1ST OF JANUARY, 1816, TO THE 31ST DECEMBER, 1853.

Year.	Gold Coinage. £	s.	d.	Silver Coinage. £	s.	d.	Year.	Gold Coinage. £	s.	d.	Silver Coinage. £	s.	d.
1816	....	..	..	1,805,251	16	0	1835	1,109,718	8	10	146,665	4	0
1817	4,275,337	10	0	2,436,297	12	0	1836	1,787,782	5	5	497,719	4	0
1818	2,862,373	10	0	576,279	0	0	1837	1,153,088	8	2	75,585	4	0
1819	3,574	9	3	1,267,272	12	0	1838	2,855,364	15	0	174,042	0	0
1820	949,516	0	10½	847,717	4	0	1839	504,310	14	3	390,654	0	0
1821	9,520,758	13	9¾	433,686	0	0	1840	....	..	..	267,900	0	0
1822	5,356,787	12	6	31,430	7	1	1841	378,472	10	0	89,641	4	0
1823	759,748	10	0	285,271	16	0	1842	5,977,051	18	2	192,852	0	0
1824	4,065,075	0	0	282,070	16	0	1843	6,607,849	10	0	239,580	0	6
1825	4,580,919	0	0	417,535	16	0	1844	3,563,949	7	6	610,632	0	0
1826	5,896,461	7	6	608,605	16	0	1845	4,244,608	10	6¾	647,658	0	0
1827	2,512,636	17	6	33,019	16	0	1846	4,334,911	17	6	559,548	0	0
1828	1,008,559	2	6	16,288	3	1	1847	5,148,440	0	0	125,730	0	9
1829	2,446,754	12	6	108,259	16	0	1848	2,451,999	10	1	35,442	0	0
1830	2,387,881	2	6	151	16	0	1849	2,177,955	1	1	119,592	0	0
1831	5 8,547	5	0	33,696	5	8	1859	1,491,836	17	9	129,096	0	0
1832	3,737,065	10	0	145	4	0	1851	4,400,411	4	9	87,868	6	0
1833	1,225,269	13	6	145	4	0	1852	8,742,270	12	11	189,596	12	7
1834	66,949	12	5	432,775	4	0	1853	11,952,391	5	11	701,544	14	3
							Total..	121,246,628	7	9	14,837,046	12	8

The currency of France consists chiefly of gold and silver, in which larger payments are effected, and of copper coins for the smaller sums.

It appears that from 1803 to 1814 there were coined, with the effigy of Napoleon, at the different mints, of which there are thirteen in France, in gold to the value of £22,001,018, and in silver to the value of £36,992,502. From 1814 to 1828, the amount of the coinage was £17,081,635 in gold, of twenty and forty franc pieces; and in silver the amount in pieces of five francs down to five sous was £36,996,560 bearing the effigy of Louis XVIII. and Charles X. On the above data, the amount of circulating specie in the kingdom was estimated, on the 1st of January, 1828, at 2,713,731,183 francs, equal in value to £113,072,132 sterling. The gold and silver currency, prior to the Revolution in 1789, was estimated at £87,500,000 sterling. We can scarcely, however, draw any positive inference from the quantity of gold and silver coined in France, respecting the amount of specie actually circulating, as within the last twenty-seven years the exportation of coin has been freely permitted. The coinage of France has accordingly become an article of trade; and bullion and coin have been freely exported or imported, according to the necessities of commerce. For the ten years preceding 1830, the quantity of bullion imported exceeded the quantity exported by £39,089,667.

The amount of the gold and silver coinage in France for 1853, with the value in francs and in sterling money, was:

Gold.	Coinage.	Value.	Value Sterling
	Number	Francs.	£
20-franc pieces....	15,641,500	312,830,000	12,513,200
10-franc pieces....	1,763,346	17,633,463	705,336
Total gold	17,404,846	330,463,463	13,218,536
Silver	5,690,236	20,089,775	803,588
Copper	30,369,285	1,974,939	78,976
	53,364,367	352,528,180	14,101,120

Coinage of the United States.—The Annual Report of the Director of the Mint, for the year 1855, shows clearly the operation of the parent Mint and all the branches, as well as of the Assay Office at New York, for the whole year of 1855. It appears that the total coinage for the year was over $56,000,000; and that the aggregate coinage of the Mint and all its branches (including gold bars), from the year 1793, has been $498,866,595 82. The portions executed at the parent Mint, and at each branch, have been as follows:

Mints.	Commenced Business.	Coinage, 1855.	Total Coinage, 1793 to end of 1855.
Mint, United States, Philadelphia	1793	$12,045,952 93	$377,383,808 87
Branch, New Orleans	1838	2,368,500 00	57,386,665 00
Branch, Dahlonega	1838	116,778 50	5,690,266 00
Branch, Charlotte, North Carolina	1838	217,935 50	4,222,626 50
Branch, San Francisco	1854	21,121,752 43	30,853,326 64
Assay Office, New York	1854	20,441,813 63	23,329,872 81
Total	....	$56,312,732 99	$498,866,565 82

The domestic production of gold, so far as is indicated by the deposits at the Mint, amounts to more than three hundred and twenty-two millions of dollars from the year 1793 to 1855, both inclusive. Of this large sum, the gross product to the end of the year 1848 was little more than thirteen millions of dollars, as is shown by the annexed table. To this aggregate of three hundred and twenty-two millions of dollars should be added several millions as the export from California, via Panama, to Southampton, and also the export to China and elsewhere.

Statement of Gold and Silver, of Domestic Production, deposited at the Mint and Branches and Assay Office at New York, from 1804 to the end of 1855.

Years.	Gold.	Silver.
1804–1827	$110,000 00	....
1828–1837	5,063,500 00	....
1838–1847	7,635,075 00	$64,482
1848	896,675 00	6,191
1849	7,079,144 00	39,112
1850	36,938,314 00	269,253
1851	56,540,612 00	389,471
1852	54,506,963 00	404,494
1853	55,622,051 00	417,279
1854	57,258,158 23	328,199
1855	49,351,779 11	333,053
Total	$331,002,271 34	$2,251,534
Deduct re-deposits of 1854.	8,041,137 00	....
Actual amount to 1855....	$322,961,134 34	$2,251,534

Of this aggregate, about ninety-four per cent. has been produced by California, namely:

California (eight years)		$313,235,502 77
North Carolina	$8,282,152 85	
Georgia	6,488,632 86	
Virginia	1,458,210 50	
South Carolina	1,154,305 44	
Alabama	192,205 92	
Tennessee	80,193 00	
New Mexico	45,937 00	
Other sources	64,831 00	
		17,766,768 57
Total		$331,002,271 34
Deduct re-deposits of 1854		8,041,137 00
Net product of the States		$322,961,134 34

The gold mines of North Carolina are still in working order, with a large outlay of capital for their prosecution; but the average results may be considered as not very profitable to the shareholders.

The reduced coinage at Philadelphia for 1855 is accounted for by the unavoidable delays in the repairs at the Mint, authorized by an appropriation made by Congress for this purpose in 1855. These repairs and alterations were commenced 19th July last, and occupied six months.

The total value of the coinage of the United States, from the year 1793 to 1855, both inclusive, has been within a fraction of five hundred millions, namely:

Mints.	Gold.	Silver.	Copper.	Total.
Philadelphia	$295,371,582 66	$80,440,029 90	$1,572,196 31	$377,383,808 87
San Francisco Branch, 1854	30,689,251 64	164,075 00	....	30,853,326 64
New Orleans " 1838–1855	37,830,865 00	19,555,800 00	....	57,386,665 00
Charlotte " 1838–1855	4,222,626 50	....	....	4,222,626 50
Dahlonega " 1838–1855	5,690,266 00	....	....	5,690,266 00
Assay Office, New York, 1854	23,329,872 81	....	....	23,329,872 81
Totals	$397,134,464 61	$100,159,904 90	$1,572,196 31	$498,866,565 82

For the year 1855, the aggregate coinage, including fine bars, was $56,312,732 99, namely:

Mints.	Gold.	Silver.	Copper.	Total.
Philadelphia	$10,610,752 14	$1,419,170	$16,030 78	$12,045,952 93
San Francisco	20,957,677 43	164,075	....	21,121,752 43
New Orleans	450,500 00	1,918,000	....	2,368,500 00
Charlotte	217,935 50	....	....	217,935 50
Dahlonega	116,778 50	....	....	116,778 50
Assay Office	20,441,813 63	....	....	20,441,813 63
Totals	$52,795,457 20	$3,501,245	$16,030 78	$56,312,732 99

It will appear from this tabular view that the branch Mints at New Orleans, Dahlonega, and Charlotte could be advantageously dispensed with. The gold coinage last year at New Orleans was only $450,500, and the silver, $1,918,000. All this could have been done at Philadelphia; and now that the parent Mint is provided with new and improved machinery, all the silver coinage may as well be done at that point.

It appears that the annual coinage at the Georgia and North Carolina branches is less than the years 1848–1853—having declined from $900,000 in 1852, to $333,000 in 1855. According to a report made by Mr. J. Phillips Phenix, of the Committee on Commerce, to the House of Representatives, in September, 1850, when the coinage at these two branches was double what it is now, the expense of coinage was estimated as follows:

At Philadelphia	2·23 per cent.
At New Orleans	6·68 "
At Charlotte	9·00 "
At Dahlonega	9·97 "

At this time, the percentage at the branch Mints must be greater, as the work is less. Every dollar coined at the Charlotte and Dahlonega, probably costs ten cents; whereas the raw material could be transported, at a small cost, to Philadelphia or New York. The annual expense of thirty or forty thousand dollars for the maintenance of these two Mints could well be dispensed with, and the coinage executed at Philadelphia and New York. In fact, the heavy expense incurred by the government for the support of the Mint at New Orleans is entirely superfluous. The receipts of gold at that quarter are now too small to require the further working of a Mint there.

The Director of the Mint, in his report recently made, alludes to recent improvements in machinery which are calculated to facilitate coinage operations, and to produce more highly finished pieces, namely: "In the coinage of half eagles particularly, we shall be materially aided by a very remarkable machine lately invented. * * * This machine was manufactured at Paris, and has been introduced into the Mint there, and one of similar powers is also employed in the Mint of England. The one imported for the United States Mint is adapted to the half eagle only. It is justly regarded as a triumph of mechanism."

The largely increased production of gold in Australia and California, of late years, has, of course, stimulated the workings of the Mints of foreign countries. The coinage may be fairly estimated at about two hundred millions of dollars annually in gold, fifty millions in silver, and nearly one million in copper. We find the annexed summary of foreign coinage for the year 1853, the latest, to which we add that of the United States for the same year, all reduced to sterling:

SUMMARY OF THE COINAGE OF VARIOUS MINTS THROUGHOUT THE WORLD IN THE YEAR 1853.

Countries.	Gold.	Silver.	Copper.	Total.
Great Britain.	£11,952,391	£701,544	£9,073	£12,663,008
France	13,218,536	803,588	78,996	14,101,120
Spain	....	350.724	....	350,724
Prussia	35,292	96,014	....	131,306
Austria	1,028,700	1.557,485	....	2,586,185
United States.	11,042,781	1,815,514	13,412	12,871,707
India	123,000	4,240,000	63,600	4,426,600
Totals...	£37,400,700	£9,594,869	£165,081	£47,130,650

The act of Congress to create new silver coins and to reduce the weight of the old denominations, has had a good effect in providing the country with an abundance of the small coins, and the new act passed by Congress in February, 1857, and now in force, will have the effect to drive out of circulation the old and depreciated Spanish coins that have for many years been in use.

The Act of Congress of February, 1857, in reference to the Coinage, will produce a very desirable reform in our currency of silver and copper coins. The new act authorizes the creation and distribution of a new cent, which relieves us of a hitherto ponderous coin—the comparative weights being as follows: Act of January 18, 1837, 168 grains; Act of February, 1857, 72 grains: difference, 96 grains. The former acts of Congress did not make *copper coins* a legal tender; and it has been disputed as to what amount they were receivable for debts; nor does the new act make them legal tenders for any sum. The new cent may be readily distinguished in the dark from the current silver coin. It presents about the same surface as the ten-cent piece, but is about double the thickness with a smooth edge; whereas the ten-cent piece has a milled edge.

With the aid of the twenty millions of dollars in small silver coins executed since the act of March 3, 1853, and the coinage of two or three millions more annually, for the next few years, the country will be liberally provided with small silver coins, that will not only enter into general circulation and effect the purposes intended, but they will not be liable to be used for the arts and manufactures, their legal value being about ten per cent. beyond that of their intrinsic value as metal.

According to a careful table prepared for the Augsburg *Allgemeine Zeitung*, published April 16, 1856, the following table will show the amount of gold and silver that has been extracted during various periods from the birth of Christ down to the year 1855:

Years.	Gold.	Silver.	Value.	Value.
	Kilo.	Kilo.	Francs.	Dollars.
From A.D. to 1492	6,123,711	13,662,107	23,459,000,000	4,691,800,000
" 1492 to 1810	3,856,487	137,096,830	40,523,000,000	8,104.600,000
" 1810 to 1825	270,190	6,237,414	2,288,000,000	457,600,000
" 1825 to 1848	863,514	16,715,923	6,598,000,000	1,319,600,000
" 1848 to 1851	339.535	3,013,411	1,803,000,000	260,600,000
" 1851 to 1855	1,615,654	4,054,362	6,375,000,000	1,275,000,000
Total	....	....	81,046,000,000	16,209,200,000

PRODUCTION OF GOLD IN THE UNITED STATES.

STATEMENT OF GOLD, OF DOMESTIC PRODUCTION, DEPOSITED AT THE MINT AND BRANCHES TO THE CLOSE OF THE YEAR 1855.

Years.	Philadelphia.	San Francisco.	New Orleans.	Charlotte, N. C.	Dahlonega, Ga.	New York.	Totals.
1804–1827..	$110,000 00	....	....	....	....	....	$110,000 00
1828–1837..	5,063,500 00	....	....	....	....	....	5,063,500 00
1838–1847..	2,623,641 00	....	$119,699 00	$1,673.718 00	$3,218,017 00	....	7,635,075 00
1848	241,544 00	....	12,593 00	370,785 00	271,753 00	....	896,675 00
1849	5,767,092 00	....	677,189 00	390.732 00	244.131 00	....	7,079,144 00
1850	31,790,306 00	....	4.580,021 00	320,289 00	247,698 00	....	36,938,314 00
1851	47,074.520 00	....	8,770,722 00	316,061 00	379,309 00	....	56,540,612 00
1852	49,821,490 00	....	8,777,784 00	430,900 00	476,789 00	....	54,506,963 00
1853	52,857,931 00	....	2,006,673 00	305,157 00	452,290 00	....	55,622,051 00
1854	35,713,358 00	$10,842,281 23	981,511 00	213,606 00	280,225 00	$9,227,177 00	57,258,158 23
1855	2.691.497 63	20,860.437 20	411,517 24	216,988 86	116,652 07	25,054,686 11	49,351,779 11
Total....	$233,754,879 63	$31,702,718 43	$21,337,709 24	$4,268,236 86	$5,686,864 07	$34,281,863 11	$331,002,271 34
Deduct re-deposits of 1854							8,041,137 00
Actual amount of domestic gold deposited							$322,961,134 34

GOLD, SILVER, AND COPPER COINS OF THE UNITED STATES.

Coins.	Fineness.	Standard Weight.	Value.
		Grains.	Dollars.
GOLD COINS OF 1855–'56.			
Double eagle	·900	516·	20·00
Eagle	·900	258·	10·00
Half-eagle.............	·900	129·	5·00
Three dollars..........	·900	77·4	3·00
Quarter-eagle..........	·900	64·5	2·50
Dollar	·900	25·8	1·00
SILVER COINS OF 1855–'56.			
Dollar	·900	412·5	1·00
Half-dollar.............	·900	192·	·50
Quarter-dollar	·900	96·	·25
Dime	·900	38·4	·10
Half-dime	·900	19·2	·05
Three cents	·900	11·52	·03
COPPER COINS.			
Cent (1857)	....	168·	·01
Half-cent	....	84·	·005
New cent (1857)........	....	72·	·01

COINAGE OF THE UNITED STATES.

GOLD AND SILVER COINAGE AT THE MINT OF THE UNITED STATES IN THE SEVERAL YEARS FROM ITS ESTABLISHMENT, IN 1792, AND INCLUDING THE COINAGE OF THE BRANCH MINTS AND THE ASSAY OFFICE (NEW YORK), FROM THEIR ORGANIZATION TO SEPTEMBER 30, 1857.

Years.	Gold.	Silver.	Aggregate.
	Dollars. Cts.	Dollars. Cts.	Dollars. Cts.
1793 to 1795 ...	71,485 00	370,683 80	442,168 80
1796...........	102,727 50	79,077 50	181,805 00
1797...........	103,422 50	12,591 45	116,013 95
1798...........	205,610 00	330,291 00	535,901 00
1799...........	213,285 00	423.515 00	636,800 00
1800...........	317.760 00	224,296 00	542,056 00
1801...........	422.570 00	74,758 00	497,328 00
1802...........	423,310 00	58,343 00	481,653 00
1803...........	258,377 50	87,118 00	345,495 50
1804...........	258,642 50	100,340 50	358,983 00
1805...........	170,367 50	149,388 50	319,756 00
1806...........	324,505 00	471,319 00	795,824 00
1807...........	437,495 00	597,448 75	1,034,943 75
1808...........	284,665 00	684,300 00	968,965 00
1809...........	169,375 00	707,376 00	876,751 00
1810...........	501,435 00	638,773 50	1,140,208 50
1811...........	497,905 00	608,340 00	1,106,245 00
1812...........	290,435 00	814,029 50	1,104,464 50
1813....... ...	477,140 00	620,951 50	1,098,091 50
1814...........	77,270 00	561,687 50	638,957 50
1815...........	3,175 00	17,308 00	20,483 00
1816...........	....	28,575 75	28,575 75
1817...........	....	607,783 50	607,783 50
1818...........	242,940 00	1,070,454 50	1,313,394 50
1819...........	258,615 00	1,140,000 00	1,398,615 00
1820...........	1,319,030 00	501,680 70	1,820,710 70
1821...........	189,325 00	825,762 45	1,015,087 45
1822...........	88,980 00	805,806 50	894,786 50
1823...........	72,425 00	895,550 00	967,975 00
1824...........	93,200 00	1,752,477 00	1,845,677 00
1825...........	156,385 00	1,564,583 00	1,720,968 00
1826...........	92,245 00	2,002,090 00	2,094,335 00
1827...........	131,565 00	2,869,200 00	3,000,765 00
1828...........	140,145 00	1,575,600 00	1,715,745 00
1829...........	295,717 50	1,994,578 00	2,290,295 50
1830...........	643,105 00	2,495,400 00	3,138,505 00
1831...........	714,270 00	3,175,600 00	3,889,870 00
1832...........	798,435 00	2,579,000 00	3,377,435 00
1833...........	978,550 00	2,759,000 00	3,737,550 00
1834...........	3,954,270 00	3,415,002 00	7,369,272 00
1835...........	2,186,175 00	3,443,003 00	5,629,178 00
1836...........	4,135,700 00	3,606,100 00	7,741,800 00
1837...........	1,148,305 00	2,096,010 00	3,244,315 00
1838...........	1,809,595 00	2,315,250 00	4,124,845 00
1839...........	1,375,760 00	2,098,636 00	3,474,396 00
1840...........	1,690,802 00	1,712,178 00	3,402,980 00
1841...........	1,102,097 50	1,115,875 00	2,217,972 50
1842...........	1,833,170 50	2,325,750 00	4,158,920 50
1843...........	8,302,787 50	3,722,250 00	12,025,037 50
1844	5,428,230 00	2,235,550 00	7,663,780 00
1845...........	3,756,447 50	1,873,200 00	5,629,647 50
1846...........	4,034,177 50	2,558,580 00	6,592,757 50
1847...........	20,221,385 00	2,374,450 00	22,595,835 00
1848...........	3,775,512 50	2,040,050 00	5,815,562 50
1849...........	9,007,761 50	2,114,950 00	11,122,711 50
1850...........	31,981,738 50	1,866,100 00	33,847,838 50
1851...........	62,614,492 50	774,397 00	63,388,889 50
1852...........	56,846,187 50	999,410 00	57,845,597 50
1853...........	55,213,906 94	9,077,571 00	64,291,477 94
1854...........	52,094,595 47	8,619,270 00	60,713,865 47
1855 (to Sep. 30)	41,166,557 93	2,893,745 00	44,060,302 93
1856 (to Sep. 30)	58,936,893 41	5,347,070 49	64,283,963 90
1857 (to Sep. 30)	48,437,964 51	3,375,608 01	51,813,572 32
Total.....	492,880,403 06	168,275,083 40	661,155,486 46

By an act of Congress, 1. The old Spanish coins are receivable at the Treasury of the United States and several offices, at the Post-offices and Land-offices, at the following rates:

Quarter-dollar	20 cents.
Eighth-dollar............................	10 cents.
Sixteenth-dollar	5 cents.

[*But by the sixth section, they will be receivable at* 25, 12½, *and* 6¼ *cents, respectively, in exchange for the new cents.*]

2. Such old coins "shall not again be paid out or put in circulation, but shall be recoined at the Mint" for distribution.

3. All former acts authorizing the currency of foreign gold or silver coins, and declaring the same a legal tender in payment for debts, are repealed; but it shall be the duty of the Director of the Mint to cause assays to be made, from time to time, of such foreign coins as may be known to our commerce, to determine their average weight, fineness, and value, and to embrace in his annual report a statement of the results thereof.

4. The standard weight of the cent shall be seventy-two grains; composed of 88 per cent. of copper and 12 per cent. of nickel; and the coinage of the half-cent shall be discontinued.

5. Authorizes the Treasurer of the Mint to purchase the materials necessary for the coinage of the new cent.

6. It shall be lawful to pay out the said cent at the Mint in exchange for any of the gold and silver coins of the United States, and also in exchange for the former copper coins issued; and to transmit parcels of the said cents, from time to time, to the assistant treasurers and other officers for exchange; and it shall also be lawful for the space of two years from the passage of this act, *and no longer*, to pay out at the Mint the cents aforesaid for the fractional parts of the dollar herein before named at their nominal value of twenty-five, twelve and a half, and six and a quarter cents respectively.

7. Hereafter the Director of the Mint shall make his Annual Report up to the 30th June (instead of 31st December, as heretofore), so that the results of the year's operations may appear in the Annual Report of the Secretary of the Treasury.

In the Annual Report of the Director of the Mint of the United States for 1857, he says: "As my Report in January last presented a statement of the operations for the year 1856, this Report will embrace the operations since that time, namely, from the first day of January to the 30th of June, a period of six months.

"For the purpose of exhibiting in a condensed form the entire operations of the Mint and its branches, I present the annexed summary statement. It embraces the amount of gold and silver bullion operated upon from the time of their respective organizations to the 30th of June, 1857:

Mint of the United States, established		1793..	$394,805,449 [illegible]
Branch Mint at New Orleans,	"	1838..	59,423,415 00
Branch Mint at Dahlonega,	"	1838..	5,825,747 00
Branch Mint at Charlotte,	"	1838..	4,465,6[illegible]
Branch Mint at San Francisco	"	1854..	71,9[illegible]
Assay Office at New York	"	1854..	52,191,443 33
Total..................................			$588,619,188 17

"Of this amount there has been received since the 1st of January, 1849, of native gold, the production of the United States, the sum of four hundred and two millions of dollars. If, in addition to this sum, we add the gold produced from Australia and other foreign countries during the same period, which may be stated to be about five hundred millions of dollars, and the production of silver bullion from all sources, which is at the rate of about forty millions per annum, it will be seen that within this comparatively brief period the world's supply of the precious metals has been increased to the extent of twelve hundred and forty-two millions of dollars."—Further information on COINS and COINAGE may be obtained by reference to the *Quarterly Rev.*, lxxii. 194; *North American Review*, lvi. 298 (C. F. ADAMS); HUNT'S *Merchants' Magazine*, v. 379, vii. 297, iv. 434; DE BOW'S *Review*, ii. 281; *Bankers' Magazine*, vol. x. (Professor DE MORGAN); *Manual of Coins*, by ECKFELDT and DU BOIS, of United States Mint.

Coir, a species of yarn manufactured out of the husk of cocoa-nuts. The husks being steeped in water, the dry dusty substance mixed with the fibres is separated. These are afterward spun into yarn, and manufactured into cordage, that is deemed by some superior to that made of hemp. The goodness of coir depends on the fineness of the filaments, and on their being of a bright yellow color. About 2,500,000 lbs. weight are annually exported from Ceylon, principally to Calcutta, and other ports in the East Indies. It is also prepared in the Maldive Islands, and many other places; and is very extensively used throughout the East.—Bertolacci's *Ceylon;* Bell's *Commerce of Bengal, etc.*

Coke, or **Coak**, charred pit-coal, prepared for the smelting of iron ore by igniting the coals piled up in long ridges in the open air, and closing in the cinders with earth when brought to a glowing red heat. For the use of the manufacturers, the method hitherto most in practice has been to burn the small or screened coal in conical ovens, built of fire-stone or brick, the floor being generally about 6 feet in diameter, and the oven 8 feet high, while an aperture of 18 inches diameter is left at the top. The small coal is thrown in to the depth of 15 inches or more, and then ignited. The oven door is at first kept open, and the hole at the top left uncovered till the mass is red hot. The door is then closed, and by degrees the hole at the top is covered over with two large flat stones, gradually approaching each other, when the whole is left to cool. When sufficiently cooled, it is drawn out with long iron rakes, and the mass is found to have assumed a rude columnar arrangement. The oven is immediately charged again with small coal, which the heat remaining in the floor is found sufficient to ignite, and so the operation goes on. In both the above ways good cokes are made, but the volatile products are lost. To save these, Lord Dundonald proposed to burn the coals in a close furnace, to which he adapted an apparatus for conveying the coal-tar, with the ammoniacal products, into proper recipients. About the same time, Baron Von Haak, a German, constructed works in the neighborhood of Newcastle for distilling the small coal in large cast-iron cylinders upon the plan which has since been adopted in the gas-works, except that the soot from the furnace fires is, at Newcastle, during a certain period of the combustion, before any gray ashes have begun to arise, conveyed into a chamber contrived for the purpose, and collected for lamp-black. It is a curious circumstance, and illustrative of the changes which the carboniferous structure undergoes, that the coal increases in bulk by getting rid of its gas; eight sacks of coal will yield ten sacks of coke.

One of the curiosities in coke is that, although so granular in appearance, some of the particles have almost the hardness of the diamond, and are found fitted for cutting glass.—E. B.

Colliery, a place where coal is found in stratified masses, and excavated by manual labor, and commonly brought to the surface by mechanical power. The exact date when coal began to be used as a fuel is not very certain; the appearance, if not the use of the mineral, must have been known for a long time in districts where the deposit was naturally exposed; and, according to some authorities, it is mentioned as having been used in England in the ninth century, 852. In 1259 King Henry III. granted the privilege of digging coals to certain parties in Newcastle. Seven years afterward coal had become an article of export, and was termed sea-coal; and in 1306, so extensive was the use of coals in London, that Parliament complained to the king of the noxious vapors therefrom polluting the atmosphere. In consequence of which proclamation was made against their further use, lest the health of the knights of the shire should suffer during their residence in the metropolis. Blythe, writing in 1649, states: "It was not many years since the famous city of London petitioned the Parliament of England against two nuisances or offensive commodities, which were likely to come into great use and esteem; and that was, Newcastle coals, in regard of their stench, etc.; and hops, in regard they would spoyle the taste of drinck, and endanger the people." In Belgium the earliest reference to coal was in 1198 or 1200, in the county of Liège, where, according to tradition, a blacksmith was the first to use it as fuel. In France the precise period of its adoption as a substitute for wood is not ascertained. The commencement of its use in Paris was in 1520, the coal being drawn, not from the mines of France, but from the collieries of Newcastle. In Scotland coal was known and used probably at a very early date. We are informed by Chalmers, the antiquary, that coal was worked at Bo'ness by William de Verepont before the end of the twelfth century, and that a tenth of the coals was paid to the monks of Holyrood House. It is more curious, however, than important here, to trace the date when mineral coal was first used as a fuel. The earliest employment of it in England in the manufacture of iron was in 1713, at Colebrookdale, in Scotland, about the commencement of the eighteenth century, and in France in 1782.—E. B. *See* Coal.

Collision (Fr. *Abordage*), in a general sense, is the act of any two or more bodies coming forcibly together; but in commercial navigation it means the shock of two ships coming into sudden and violent contact at sea, by which one or both may be more or less injured. From the great increase of navigation, the risk of accidents by collision at sea has been proportionally augmented. And it is, therefore, of much importance, 1st, to adopt such measures as may be most likely to prevent their occurrence; and, 2d, to determine by whom a loss, when it does occur, should be borne.

In regard to the first and most essential of these objects, it is effected, in part at least, by whatever contributes to the general improvement and security of navigation. At common law, every master of a ship is bound to keep a proper watch at sea, especially in channels much frequented by shipping, and to use every precaution to avoid coming into contact with other vessels. But this matter has been judged too important to be left wholly to depend on the good sense and care of individuals; and with a view to the securing of attention to the subject, and to the obviating of the confusion that would unavoidably arise were shipmasters left to follow their own ideas with respect to it, rules and regulations have been laid down in regard to the courses to be steered when ships are passing each other, the signals to be made during fogs, the number and description of the lights to be exhibited at night, and other particulars. In 1840, the Trinity House, in Great Britain, promulgated a rule of this sort; and though not in itself law, masters not complying with its instructions were held to be guilty of unseamanlike conduct, and the owners were made responsible for the consequences. Regulations similar to those contained in the Trinity rule have since been enacted by the Legislature. As there is no especial statute law in the United States, we follow in a measure the decisions of the English courts, and are governed by the precedents they have established.—*See* Kent's *Comm.*, Lect. XLVII. The existing English statute law on the subject is embodied in the following clauses of the English Mercantile Shipping Act of 1854, 17 and 18 Vict. c. 104:

Regulations as to Lights and Fog Signals.—The following rules shall be observed with regard to lights and fog signals; viz.: 1. The Admiralty shall from time to time make regulations requiring the exhibition of such lights, by such classes of ships, whether steam or sailing ships, within such places and under such circumstances as they think fit, and may from time to time revoke, alter, or vary the same. 2. The Admiralty may, if they think fit, make regulations requiring the use of such fog signals, by such classes of ships, whether steam or sailing ships, within such places and under such circumstances as they think fit, and may from time to time revoke, alter, or vary the same. 3. All regulations made in pursuance of this section shall be published in the London Gazette, and shall come into operation on a day to be named in the Gazette in which they are published, and the Admiralty shall cause all such regulations to be printed, and shall furnish a copy thereof to any owner or master of a ship who applies for the same, and production of the Gazette containing such regulations shall be sufficient evidence of the due making and purport thereof. 4. All owners and masters shall be bound to take notice of the same, and shall, so long as the same continues in force, exhibit such lights, and use such fog signals, at such times, within such places, in such manner, and under such circumstances as are enjoined by such regulations, and shall not exhibit any other lights or use any other fog signals, and in case of default the master, or the owner of the ship, if it appears that he was in fault, shall for each occasion upon which such regulations are infringed incur a penalty not exceeding £20.

Rule as to Ships meeting each other.—Whenever any ship, whether a steam or sailing ship, proceeding in one direction, meets another ship, whether a steam or sailing ship, proceeding in another direction, so that if both ships were to continue their respective courses they would pass so near as to involve any risk of a collision, the helms of both ships shall be put to port so as to pass on the port side of each other; and this rule shall be obeyed by all steamships and by all sailing ships, whether on the port or starboard tack, and whether close-hauled or not, unless the circumstances of the case are such as to render a departure from the rule necessary in order to avoid immediate danger, and subject also to the proviso that due regard shall be had to the dangers of navigation, and, as regards sailing ships on the starboard tack close-hauled, to the keeping such ships under command. *Rule for Steamers in narrow Channels.*—Every steamship, when navigating any narrow channel, shall, whenever it is safe and practicable, keep to that side of the fair way or mid-channel which lies on the starboard side of such steamship. *If Collision ensues from Breach of the above Rules, Owner not to be entitled to recover.*—If in any case of collision it appears to the court before which the case is tried that such collision was occasioned by the non-observance of any rule for the exhibition of lights or the use of fog signals issued in pursuance of the powers before contained, or of the foregoing rules as to the passing of steam and sailing ships, the owner of the ship by which such rule has been infringed shall not be entitled to recover any recompense whatever for any damage sustained by such ship in such collision, unless it is shown to the satisfaction of the court that the circumstances of the case made a departure from the rule necessary. *Breaches of such Rules to imply willful Default.*—In case any damage to person or property arises from the non-observance by any ship of any of the said rules, such damage shall be deemed to have been occasioned by the willful default of the person in charge of the deck of such ship at the time, unless it is shown to the satisfaction of the court that the circumstances of the case made a departure from the rule necessary.

An authority similar to that given to the Lords of the Admiralty by the clause of the Mercantile Shipping Act now quoted had been already given to them, and under that authority they issued the following regulations, which are now (1855) in force:

Steam Vessels.—All British sea-going steam vessels (whether propelled by paddles or screw) shall, within all seas, gulfs, channels, straits, bays, creeks, roads, roadsteads, harbors, havens, ports, and rivers, and under all circumstances, between sunset and sunrise, exhibit lights of such description, and in such manner as hereinafter mentioned; viz., *when under steam*: A bright white light at the foremast head; a green light on the starboard side; a red light on the port side. 1. The mast-head light is to be visible at a distance of at least five miles in a dark night, with a clear atmosphere, and the lantern is to be so constructed as to show a uniform and unbroken light over an arc of the horizon of twenty points of the compass, being ten points on each side of the ship, viz., from right ahead to two points abaft the beam on either side. 2. The green light on the starboard side is to be visible at a distance of at least two miles in a dark night, with a clear atmosphere; and the lantern is to be so constructed as to show a uniform and unbroken light over an arc of the horizon of ten points of the compass, viz., from right ahead to two points abaft the beam on the starboard side. 3. The red light on the port side is likewise to be fitted so as to throw its light the same distance on that side. 4. The side lights are, moreover, to be fitted with screens, on the inboard side, of at least three feet long, to prevent the lights from being seen across the bow. *When at anchor:* A common bright light.

Sailing Vessels.—We hereby require that all sailing vessels when under sail, or being towed, approaching or being approached by any other vessel, shall be bound to show between sunset and sunrise a bright light in such a position as can be best seen by such vessel or vessels, and in sufficient time to avoid collision. All sailing vessels at anchor in roadsteads or fair ways shall be also bound to exhibit, between sunset and sunrise, a constant bright light at the mast-head, except within harbors or other places where regulations for other lights for ships are legally established. The lantern to be used when at anchor, both by steam vessels and sailing vessels, is to be so constructed as to show a clear good light all round the horizon. We hereby revoke all regulations heretofore made by us relating to steam vessels exhibiting or carrying lights; and we require that the preceding regulations be strictly carried into effect after the 1st day of August, 1852.

Directions for Fitting the Lights.—The manner of fitting the colored lights is to be particularly attended to. They should be fitted each with a screen of wood on the inboard side, in order to prevent both being seen at the same moment from any direction but that of right ahead. This is important, for without the screens (a principle first introduced with this plan) any plan of bow-lights would be ineffective as a means of indicating the direction of steering. This will be readily understood by a reference to the illustrations, where it will appear evident that in any situation in which two vessels may approach each other in the dark, the colored lights will instantly indicate to both the relative course of each; that is, each will know whether the other is approaching directly or crossing the bows, either to starboard or to port. This intimation is all that is required to enable vessels to pass each other in the darkest night, with almost equal safety as in broad day, and for the want of which so many lamentable accidents have occurred. Patterns of the lanterns to be carried, and of the mode in which the screens are to be fitted, may be seen at the custom-houses of the principal commercial ports in the United Kingdom. The system of night lights laid down in the above regulations has been adopted in her majesty's service, and by the governments of the principal foreign maritime nations.

Every master of a ship is bound, as well by the duty he owes to his employers and to those on board his ship, as by positive rule, to keep a proper watch at sea, especially in channels much frequented by shipping, and to use every precaution to avoid coming into contact with other vessels. In order still better to provide against danger, and to obviate disputes, the Trinity House promulgated, on the 30th of October, 1840, the following Rule of Navigation:

Rule of Navigation issued by the Trinity House.—The attention of this Corporation having been directed to the numerous severe, and in some instances fatal, accidents which have resulted from the collision of vessels navigated by steam, and it appearing to be indispensably necessary, in order to guard against the recurrence of similar calamities, that a regulation should be established for the guidance and government of persons intrusted with the charge of such vessels; and whereas, 1. *The recognized rule for sailing vessels* is, that those having the wind fair shall give way to those on a wind; that when both are going by the wind, the vessel on the starboard tack shall keep her wind, and the one on the larboard tack bear up strongly, passing each other on the larboard hand; that when both vessels have the wind large or abeam, and meet, they shall pass each other in the same way on the larboard hand, to effect which two last-mentioned objects the helm must be put to port; and as steam vessels may be considered in the light of vessels navigating with a fair wind, and *should give way to sailing vessels on a wind of either tack*, it becomes only necessary to provide a rule for their observance when meeting other steamers, or sailing vessels going large.

Under these considerations, and with the object before stated, this Board has deemed it right to frame and promulgate the following rule, which, on communication with the Lords Commissioners of the Admiralty, the Elder Brethren find has been already adopted in respect of steam vessels in her majesty's service; and they desire earnestly to press upon the minds of all persons having charge of steam vessels the propriety and urgent necessity of a strict adherence thereto; viz.: 2. *Rule for Steam Vessels on different Courses.*—When such vessels must inevitably or necessarily cross so near that, by continuing their respective courses, there would be a risk of their coming in collision, each vessel shall put her helm to port, so as always to pass on the larboard side of each other. A steam vessel passing another in a narrow channel must always leave the vessel she is passing on the larboard hand. By order,

J. Herbert, Secretary.

Trinity House, *London, 30th October*, 1840.

It may, however, be proper to state that neither this nor any rule of the sort is to be regarded as inflexible, or to be followed at all hazards. The safety of the ship is the paramount consideration, and no master is justified in abiding by a rule, when by doing so he plainly incurs danger. A. may be in his proper course, but if by pursuing it he will run a great risk of coming into collision with B., who is upon a wrong course, he is bound to alter his course so as to avoid a collision. The fact of one master being ignorant, careless, or in fault, is no reason why another should not use every means in his power to provide for the safety of his ship, and, consequently, of the lives and property intrusted to his care.

The conditions under which cases of collision take place differ extremely. Thus, 1st. It may be merely accidental, or be occasioned by circumstances beyond the power of control, as by the violence of the wind or waves dashing or impelling the ships together, without blame being imputable to either party; or, 2d. It may be owing to the culpable negligence or misconduct of one party; or, 3d. Both parties may be to blame. In adjudicating upon losses growing out of collisions that have taken place under such different circumstances, the conclusions must also be very different.

With respect to the first class of cases there is little apparent difficulty: wherever a loss is occasioned by a storm, a fog, or other accidental circumstance without any blame being ascribable to either party, it would appear to be equitable that it should be borne by the sufferer. And this principle having been embodied in the Roman law, was subsequently ingrafted into that of England.—Marshall *on Insurance*, cap. 12, § 2. But other authorities, to whom the greatest deference is due, contend that the loss arising from accidental collisions, however it may affect the parties, should be equally divided between them; and this, in fact, is the rule followed in most maritime states.—*Ordonnance* of 1681, lib. iii. tit. xii. art. 10, with the observations of Valin. It also is the rule sanctioned by the law of England in cases where both parties are to blame, but where the blame can not be discriminated. Those cases in which the blame is clearly ascribable to either party present no difficulty.

The leading doctrines of the law of England with regard to collisions have been clearly and succinctly stated by Lord Stowell. "In the first place," says his lordship, "a collision may happen without blame being imputable to either party, as when the loss is occasioned by a storm or any other *vis major*. In that case the misfortune must be borne by the party on whom it happens to light; the other not being responsible to him in any degree. Secondly, a misfortune of this kind may arise where both parties are to blame, where there has been a want of due diligence or of skill on both sides; in such a case the rule of law is, that the loss must be apportioned between them, as having been occasioned by the fault of both of them. Thirdly, it may happen by the misconduct of the suffering party only; and then the rule is, that the sufferer must bear his own burden. Lastly, it may have been the fault of the ship which ran the other down, and in this case the innocent party would be entitled to an entire compensation from the other."—2 Dodson's *Admiralty Reports*, 83.

We may add that the rule of the equal division of the damage where both vessels are to blame has been, since Lord Stowell's time, fully recognized and finally established by a decision of the House of Lords, on an appeal from Scotland.

Various authorities have spoken disparagingly of the rule now referred to, and have called it a *judicium rusticorum;* and it would, no doubt, be very desirable in cases of collision where both parties are to blame, that the neglect or culpability of each should be accurately determined, and the damages assessed accordingly. But from the obscurity in which such cases are almost always involved, and the conflicting testimony brought forward by the different parties, the difficulties in the way of this being done are usually quite insuperable; and it is better to adopt a rule which, though perhaps less equitable in principle, is fairer in its application than any other that could be adopted. Of its expediency there can, indeed, be no reasonable doubt. The observations of Valin are, in this respect, quite conclusive. "C'étoit," says he, "le moyen le plus propre à rendre les capitaines ou maîtres des navires extrèmement attentifs à eviter tout abordage, surtout ceux des bâtimens foibles et plus susceptibles d'être incommodés par le moindre choc, en leur rendrant toujours présent la crainte de supporter la moitié du dommage qu'ils en pourroient recevoir. Et si l'on dit qu'il auroit été plus simple et plus court de laisser pour le compte particulier d'un chacun le dommage qu'il auroit reçu, comme provenant d'un cas fortuit; la réponse est qu'alors les capitaines de gros navires n'auroient plus craint de heurter les bâtimens d'une beaucoup moindre force que le leurs: rien donc de plus juste que la contribution par moitié."—*Commentaire sur l'Ordonnance de* 1681, ii. 179, ed. 1776.

In apportioning the damage in cases where both parties have been in fault, the question occurs, whether the damage done to the cargo shall be taken into account or left out in the estimate on which the apportionment is to be made. This knotty point has been differently decided in different countries. But the rule which limits the liability of owners to the value of the ship and freight applies to cases of damage by collision. For further observations on this curious and important subject, in addition to Valin and the other authorities already referred to, the reader may consult the chapter on collision added by Mr. Serjeant Shee to his edition of Lord Tenterden's work on the Law of Shipping, and the chapter on the same subject in Maude and Pollock's Treatise on the Law of Merchant Shipping.

Number of Collisions at Sea.—A statement has been prepared by Mr. John A. Rucker, underwriter, giving a classification of the number of collisions at sea reported in Lloyd's lists during the five years from 1845 to 1849 inclusive. It thence appears that the annual numbers were 603, 564, 699, 633, and 565; so that there was a decrease in 1849, notwithstanding the increased traffic of that year. The total collisions of the five years amounted to 3064. Of these 279 were cases in which a vessel was sunk, run down, or abandoned; 189 were cases in which there was serious damage; 686 in which the damage, although less, was still considerable; and 1910 in which it was only slight. The average of steamers in contact with steamers during each year is about 11; of steamers in contact with sailing vessels about 37; of sailing vessels in contact with steamers 36; and of sailing vessels in contact with sailing vessels 533. Since that time the number of collisions has been increasing; and in the years 1855 and 1856 they have been particularly large in number; and attended with great loss of life, especially in the cases of the *Arctic*, the *Pacific*, and the *Lyonnais*.

Colchicum Autumnale (*Meadow Saffron*, or *Autumn Crocus*), a plant of the natural order *Melanthaceæ*, is largely collected for medicinal use in England. Its infusion is well known as a powerful remedy for gout, and has long been celebrated in France under the name of *Eau Médicinale*. The cormus or bulb, and also the seeds, are used in medicine, and have a strong, persistent, bitter taste. Its medicinal virtues appear to be derived from a peculiar alkaloid, which has been termed *colchicia*. The best preparation is the wine of colchicum, prepared by digesting eight ounces of the seeds in forty ounces of sherry for about a week, shaking the vessel daily, and pressing out the liquor. The usual dose is from ten to fifty drops taken in water. It possesses intense activity as a poison. The plant derives its name from Colchis, in Armenia, where it is said to have abounded.—E. B. *See* CHRISTISON *on Poisons.*

Colocynthis, Coloquintida, or Bitter Cucumber (Germ. *Koloquinten;* Du. *Bitter-appelen;* Fr. *Coloquintes;* It. *Coloquintida;* Sp. *Coloquintidas;* Arab. and Pers. *Hunzil*), the produce of an annual plant (*Cucumis colocynthis*, Linn.), growing in Turkey, Nubia, India, and other places, much resembling the cucumber in herbage. When ripe, the fruit is peeled and dried in a stove, and in this state is brought to England. It is inodorous, but has an extremely nauseous taste. It is an exceedingly powerful drastic cathartic. When it is larger than a St. Michael's orange, and has black acute-pointed ends, it is not good.—AINSLIE'S *Materia Indica.*

Cologne (Ger. *Köln;* ancient *Agrippina colonia*), a fortified city of Western Germany, formerly capital of electorate, now capital of Rhenish Prussia, on the left bank of the Rhine, across which a bridge of boats connects it with its suburb, Deutz, 45 miles north-northwest of Coblenz. Lat. of cathedral 50° 56′ 29″ N., long. 6° 57′ 52″ E. Population 78,500. It communicates by railroad with Hamm, Bonn, Aix-la-Chapelle, Mechlin, and has extensive passage traffic with steam-packets on the Rhine. It has manufactures of cotton-yarn and stuffs, silk fabrics, velvets, woolen cloths, hosiery, lace, cordage, tobacco, hats, wax-lights, starch, needles, clocks, gold and silver articles, vinegar, sealing-wax, earthen and lacquered wares, and twenty-four factories of *Eau de Cologne.* Its position gives it an extensive and increasing trade between Germany and the Netherlands, and under the French it was the capital dépôt of Roër. Population of arrondissement in 1849, 497,330.

Colonies: Colony Trade. *Colonies* are establishments founded in foreign countries by individuals who either voluntarily emigrate from, or are forcibly sent abroad by, their mother country. The *colony trade* is the trade carried on between colonies and their parent states.

1. ESTABLISHMENT OF COLONIES. *Greek Colonies.*—Various motives have, in different countries and ages, led to the formation of colonies. The Greek colonies of antiquity seem to have been chiefly founded by citizens whom the violence and fury of contending factions forced to leave their native land; but they were sometimes formed for the purpose of relieving the mother country of a redundant population, and sometimes also for the purpose of extending the sphere of commercial transactions, or of providing for their security. The relations between the mother country and the colony depended, in a great measure, on the motives which led to the establishment of the latter. When a colony was founded by fugitives forcibly expelled from their ancient homes; or when it was founded, as was frequently the case, by bodies of voluntary emigrants, who received no assistance from, and were in no respect controlled by, the parent state, it was from the first independent; and even in those rarer cases in which the emigration was conducted under the superintendence of the parent city, and when the colony was protected by her power and influence, the dependence was mostly far from being absolute and complete. The great bulk of the Greek colonies were really independent states; and though they commonly regarded the land of their forefathers with filial respect, though they yielded to its citizens the place of distinction at public games and religious solemnities, and were expected to assist them in time of war, they did so as allies only, on fair and equal terms, and never as subjects. Owing to the freedom of their institutions, and their superiority in the arts of civilized life to the native inhabitants of the countries among whom they were generally placed, these colonies rose in a comparatively short period to a high pitch of opulence and refinement: and many among them, as Miletus and Ephesus in Asia Minor, Syracuse and Agrigentum in Sicily, and Tarentum and Locri in Italy, not only equaled, but greatly surpassed, their mother cities in wealth and power.

Roman Colonies.—The Roman colonies were for the most part founded by and under the authority of government; being intended to serve both as outlets for poor and discontented citizens and as military stations or garrisons, to secure the subjection of the conquered provinces over which they were scattered. The most intimate political union was always maintained between them and the mother city. Their internal government was modeled on that of Rome; and, while their superior officers were mostly sent from the capital, they were made to contribute their full quota of troops and taxes, to assist in carrying on the contests in which the Republic was almost constantly engaged.

Spanish Colonies.—The early colonies of most modern nations were founded by private adventurers, influenced either by the hope of gain or by a desire to escape from religious persecution, without any wish to relieve the mother country of a surplus population or to bridle subjugated provinces. On their first institution, therefore, the modern colonies approached, though with some essential variations, more nearly to the Grecian than the Roman model; but the period of their freedom was of very limited duration. They were very soon subjected to laws and regulations framed in the metropolis, and calculated, as was to be supposed, rather to promote its interests than those of the colony. At a somewhat later period the foundation of colonial establishments was eagerly patronized by most European governments, in the view of extending commerce and of enriching the mother country, by securing to her the exclusive possession of the market of distant countries; and where, from the thinness of the aboriginal population, or their inferiority in the arts of civilized life, the colonists were enabled to amass fortunes with comparative rapidity. The Spaniards who first resorted to America after its discovery had no intention of settling in the country, or of colonizing it. The idea that gold and silver alone constituted wealth was then universally prevalent; and the bold and enterprising companions and followers of Columbus, instead of engaging in industrious undertakings, which they neither understood nor relished, sought only to enrich themselves by plundering the feeble and defenseless natives of the gold and silver in their possession, and of the abundance of which the most exaggerated accounts were immediately spread throughout Europe. When new adventurers arrived on an unknown coast, their single inquiry was, whether it abounded in gold. If it did, they remained, for some time at least, in the country; if not, they immediately set sail for some other quarter. *Auri rabida sitis a cultura Hispanos divertit*, is the expressive statement of a contemporary writer (Petrus Martyrus, in the *Novus Orbis* of Grynæus, p. 511). The slow progress of the Spanish colonies after their first discovery must principally be ascribed to this cause. The gold and silver accumulated by the natives were very soon exhausted; and the skill and energy of the successive swarms of adventurers, who continued to pour into the country, were principally directed to the unproductive and generally ruinous trade of mining. The few large fortunes that were made in this way, like the large prizes in a lottery, inflamed the cupidity of the multitude, and gave an appearance of credibility to the fabulous accounts of the excessive productiveness of the mines. After the gambling spirit which had exclusively actuated the early adventurers had begun to subside, the colonists gradually betook themselves to agricultural and commercial pursuits; and the vast variety of valuable productions with which Mexico and the other Spanish colonies abounded, the extreme richness of the soil, and their advantageous situation, would, had they been only tolerably well governed, have occasioned their rapid increase in wealth and civilization. But a blind and intolerant despotism paralyzed their energies, and fettered and retarded their progress. All the abuses and defects of the government of Old Spain were transferred to, and multiplied in, the colonies. The whole property of those vast regions was considered as vested in the crown of Spain; and every law or regulation, whether of a local or general nature, affecting their government, emanated from the council of the Indies, in which it was supposed the king was always present. We can not stop to describe the sort of regulations to which the colonists were subjected with any degree of minuteness; but we may notice a few of them, to furnish the means of judging of their general spirit and probable effect. It was, for example, made a *capital* offense to carry on any intercourse with foreigners; and the inhabitants of the different colonies were even forbidden any intercourse with each other, unless under the strictest and most vexatious regulations. There were several articles, such as flax, hemp, and wine, which they were not permitted to cultivate; at the same time that the crown reserved to itself the monopoly of salt, tobacco, gunpowder, and some other less important articles. The alcavala, and other oppressive imposts, which had proved destructive of industry in Old Spain, were rigorously levied as well on the exports as on the imports of the colonies. No situation of power or emolument could be filled except by a native of Old Spain. The Catholic religion was established, to the exclusion of every other; and bishops, tithes, and the Inquisition followed in its train: while, in order still better to consolidate and strengthen the foundations of this monstrous despotism, the government endeavored to make the colonists insensible of their degradation, by proscribing every species of instruction, and watchfully opposing the introduction and progress of all useful knowledge! Under such circumstances, we can not be surprised that the continental colonists, among whom the monopoly system was maintained in its greatest purity, should have languished for above two centuries in a state of sluggish inactivity. Though surrounded by all the means of producing wealth, they were not generally wealthy. Oppression rendered them indolent; and went far to deprive them not only of the power, but also of the wish, to emerge from poverty. The progress of the colonists who occupied the West India Islands was not quite so slow. It is certain, however, that, down to the middle of last century, Spain reaped no greater advantage from the possession of Cuba, Hispaniola, and Porto Rico, than England or France from the smallest of its dependencies. In proof of this we may mention that the noble island of Cuba, which could without difficulty supply all Europe with sugar, did not, in 1750, produce a sufficient quantity even for the consumption of Old Spain. But the combined influence of an arbitrary and intolerant government, and of a degrading superstition, could not balance the means of improvement which the fertility of the soil, and the command thence arising over most of the necessaries and many of the conveniences of life, gave to the colonists. Owing also to the total incapacity of Old Spain to furnish her transatlantic provinces with a sufficient supply of the articles she had forced them to import from Europe, and the consequent extension of the contraband trade carried on with them by the other European nations, she had been compelled gradually to relax the severity of her commercial monopoly. A new impulse was thus given to the spirit of industry. The colonists began to be more sensible of the natural advantages of their situation, and less inclined to submit to the blind and bigoted policy of the Spanish court. In 1781, a rebellion broke out in Peru, in consequence of an attempt made by the government to establish a new monopoly in that province, which threatened to end in the total dissolution of the connection between Spain and South America, and was not quelled without great difficulty and much bloodshed. But the spirit of liberty, when once excited, could not be suppressed. It continued to gain ground progressively, until the commencement of the last contest between France and Spain interrupted the communication with the mother country, and gave the colonists an opportunity of proclaiming that independence which, after a lengthened and bloody struggle, they happily succeeded in achieving.

British Colonies.—The English, who, like all the other nations of Europe, had been impressed with mingled feelings of admiration and envy by the extent and importance of the acquisitions made by the Spaniards in the New World, speedily entered with enthusiasm and ardor into the career of discovery. Owing, however, to the bull which Ferdinand and Isabella had obtained from the Pope, conveying to them the ample donation of all the countries inhabited by infidels that the Spaniards had discovered or might discover, the English, to avoid encroaching on the dominions of their rivals, directed their efforts farther to the north. Several attempts to found colonies on the coast of America were made in the reign of Elizabeth by Sir Humphrey Gilbert, Sir Richard Grenville, Sir Walter Raleigh, and others. But in consequence of their ignorance of the country, the deficiency of their supplies of provisions, the loss of time in fruitless searches after gold, and the various difficulties incident to the first settlement of a colony, none of these attempts proved successful; and it was not until 1607 that a small body of adventurers founded the first permanent establishment of the English in America, at Jamestown, in Virginia. Letters patent were granted in 1609 by King James to the principal persons resident in London, by whom the expense attending the formation of the colony was to be defrayed, incorporating them into a company, and establishing a council in England for the direction of their proceedings, the members of which were to be chosen by, and removable at the pleasure of, the majority of the partners of the company: permitting whatever was necessary for the support and sustenance of the colony for the first seven years to be exported free of duty; declaring that the colonists and their descendants were to be secured in all the rights and privileges of Englishmen, the same as if they had remained at home or been born in England; and reserving only, as the stipulated price of these concessions, and in imitation of the policy of the Spaniards, *one-fifth* part of the gold and silver ore to be found in the colonies, which was to be paid to his Majesty and his successors in all time to come. In virtue of these powers, the company issued, in 1621, a charter or ordinance, which gave a legal and permanent form to the constitution of the colony. By this charter the supreme legislative authority was lodged, partly in the governor, who held the place of the sovereign, partly in a council of state named by the company, and partly in a general council or assembly composed of the representatives of the people, in which were vested powers and privileges similar to those of the House of Commons. It was not long, however, before the king and the company quarreled. The latter were in consequence divested of all their rights, partly by open violence, and partly under color of law, without compensation, after having expended upward of £150,000 in founding the colony; and a governor and council of state appointed by the king succeeded to the powers of those appointed by the committee.—ROBERTSON'S *History of America*, book ix. *passim*; JEFFERSON'S *Notes on Virginia*, p. 179.

The founders of the colony in Virginia had been actuated solely by the hopes of gain; but the colonies that were soon after established in New England were chiefly planted by men who fled from religious and political persecution. The form of government in the New England colonies, though at first modified a good deal by the peculiar religious opinions entertained by the colonists, was in its leading principles essentially free. For a considerable period the colonists elected their own governors, coined money, and exercised most of the rights of sovereignty; while the English, wholly engrossed with the contest between freedom and prerogative at home, had no leisure to attend to their proceedings. Subsequently to the Restoration, however, the governments of most of the New England States were established nearly on the same footing as that of Virginia; which, indeed, became the favorite model, not only for the constitution of the colonies established on the continent, with the exception of the proprietary governments of Pennsylvania and Maryland, but also for those that were established in the West India Islands. But under every vicissitude of government and fortune, the New England colonists were distinguished by the same ardent and enthusiastic love of liberty that had first induced them to quit their native land. Every thing relating to the internal regulation and administration of the different colonies was determined, in the colonial assemblies, by representatives freely chosen by the settlers. The personal liberty of the citizens was well secured and vigilantly protected. And, if we except the restraints on their commerce, the monopoly of which was jealously guarded by the mother country, the inhabitants of Virginia, Pennsylvania, and New England enjoyed nearly the same degree of freedom when colonists of England that they now enjoy as citizens of the powerful republic of North America. Their progress in wealth and population was in consequence quite unprecedented in the history of the world. The white population of the colonies had increased in 1776, at the commencement of the Revolutionary war, to above 2,000,000, and the value of the exports from Great Britain to them amounted to about £1,300,000 a year!

It is not difficult to discover the causes of the unexampled prosperity and rapid growth of our North American colonies, and generally of all colonies placed under similar circumstances. The North American colonists carried with them a knowledge of the arts and sciences practiced by a civilized and polished people. They had been trained from their infancy to habits of industry and subordination. They were practically acquainted with the best and wisest form of civil polity that had been established in Europe; and they were placed in a situation that enabled them, without difficulty, to remedy its defects, and to try every institution by the test of utility. But the thinness of the aboriginal population, and the consequent facility of obtaining inexhaustible supplies of fertile and unoccupied land, must certainly be placed at the head of all the causes which have promoted the rapid increase of wealth and population in the United States, and in all the other colonies both of North and South America. On the first foundation of a colony, and for long after, each colonist gets an ample supply of land of the *best quality*: and having no rent, and scarcely any taxes, to pay, his industry necessarily becomes exceedingly productive, and he has every means and every motive to amass capital. In consequence, he is eager to collect laborers from all quarters, and is both willing and able to reward them with high wages. But these high wages afford the means of accumulation, and, joined to the plenty and cheapness of the land, speedily change the more industrious laborers into proprietors, and enable them, in their turn, to become the employers of fresh laborers; so that every class participates in the general improvement, and capital and population advance with a rapidity hardly conceivable in old-settled and fully-peopled countries.

It has been frequently said that the establishment of the British American and West India colonies was a device of the supporters of the exclusive or mercantile system—that they founded them in the view of raising up a vast agricultural population, whose commerce should be confined entirely to an exchange of raw products for other manufactured goods. There is, however, no truth in these assertions. On the contrary, the charters granted to the founders of the settlement in Virginia distinctly *empower the colonists to carry on a direct intercourse with foreign states.* Nor were they slow to avail themselves of this permission; for they had, so early as 1620, established tobacco warehouses in Middleburg and Flushing; and the subsequent proceedings of the British government depriving them of this freedom of commerce, were the chief cause of those disputes which broke out in 1676, in an open rebellion of ominous and threatening import.—ROBERTSON'S *America*. It was not until the colonists had surmounted the difficulties and hardships incident to their first establishment, and had begun to increase rapidly in wealth, that their commerce became an object of importance, and that regulations were framed in the view of restricting its freedom, and of rendering it peculiarly advantageous to the mother country. The act of 1650, passed by the republican Parliament, laid the first foundations of the monopoly system, by confining the import and export trade of the colonies exclusively to British or colony built ships. But the famous Navigation Act of 1660 (12 Charles II. c. 18) went much farther. It enacted that certain specified articles, the produce of the colonies, and since well known in commerce by the name of *enumerated* articles, should not be exported directly from the colonies to any foreign country; but that they should first be sent to Britain, and there unladen (the words of the act are, *laid upon the shore*) before they could be forwarded to their final destination. Sugar, molasses, ginger, fustic, tobacco, cotton, and indigo, were originally enumerated; and the list was subsequently enlarged by the addition of coffee, hides and skins, iron, corn, lumber, etc. In 1739, the monopoly system was so far relaxed that sugars were permitted to be carried directly from the British plantations to any port or place southward of Cape Finisterre; but the conditions under which this indulgence was granted continued so strict and numerous down to 1803, when they were a good deal simplified, as to render it in a great degree nugatory (EDWARDS'S *West Indies*); and with this exception, the oppressive and vexatious restrictions on their direct exportations to foreign countries were maintained on most of the other *enumerated* commodities of any importance down to a late period.

But besides compelling the colonists to *sell* their produce exclusively in the English markets, it was next thought advisable to oblige them to *buy* such foreign articles as they might stand in need of entirely from the merchants and manufacturers of England. For this purpose it was enacted, in 1663, that "no commodity of the growth, production, or manufacture of Europe shall be imported into the British plantations but such as are laden and put on board in England, Wales, or Berwick-upon-Tweed, and in English-built shipping, whereof the master and three-fourths of the crew are English." The preamble to this statute, which effectually excluded the colonists from every market for European produce, except that of England, assigns the motive for this restriction to be, "the maintaining a greater correspondence and kindness between the subjects at home and those in the plantations; keeping the colonies in a firmer dependence on the mother country; making them yet more beneficial to it, in the further employment and increase of English shipping, and the vent of English manufactures and commodities; rendering the navigation to and from them more safe and cheap; and making that kingdom a staple, not only of the commodities of the plantations, but also of the commodities of other countries and places for their supply, it being the usage of other nations to keep their plantation trade exclusively to themselves." It was also a leading principle in the system of colonial policy, adopted as well by England as by the other European nations, to discourage all attempts to manufacture such articles in the colonies as could be provided for them by the mother country. The history of the colonial system is full of efforts of this sort; and so essential was this principle deemed to the idea of a colony, that Lord Chatham did not hesitate to declare, in his place in Parliament, that "the British colonists of North America had *no* RIGHT *to manufacture even a nail for a horseshoe!*"—EDWARDS'S *West Indies.* And when such were the enactments made by the Legislature, and such the avowed sentiments of a great parliamentary leader and a friend to colonies, we need not be surprised at a declaration of the late Lord Sheffield, who did no more, indeed, than express the opinion of almost all the merchants and politicians of his time, when he affirmed that "THE ONLY *use of American colonies or West India islands is* THE MONOPOLY *of their consumption, and the carriage of their produce!*"*

COMMERCE OF THE PRINCIPAL NORTH AMERICAN COLONIES PRIOR TO THE REVOLUTION, 1700–1776.

Years.	New England.		New York.		Pennsylvania.		Virginia and Maryland.		Carolina.		Georgia.	
	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.
	£	£	£	£	£	£	£	£	£	£	£	£
1700	41,486	91,918	17,567	49,410	4,608	18,529	317,302	173,481	14,058	11,003	....	....
1701	32,656	86,322	18,547	31,910	5,220	12,003	235,738	199,683	16,973	13,908	....	....
1702	37.026	64,625	7.965	29.991	4,145	9,342	274.782	72,391	11,870	10,460	....	....
1703	33.539	59.608	7,471	17.562	5,160	9,899	144,928	196,713	13,197	12,428	....	....
1704	30,823	74,896	10,540	22.294	2,430	11,819	264,112	60,458	14,067	6,621	....	....
1705	22,793	62,504	7,393	27.902	1,309	7,206	116,768	174,322	2,698	19,788	....	....
1706	22,210	57,050	2.849	31.588	4,210	11,037	149,152	58,015	8,652	4,001	....	....
1707	38.793	120,631	14,283	29.855	786	14.365	207,625	237,901	23,311	10.492	....	....
1708	49,635	115,505	10,847	26,899	2,120	6,723	213.493	79,061	10,340	11,996	....	....
1709	29,559	120,349	12.259	34,577	617	5,881	261,668	80,268	20,431	28.521	....	....
1710	31,112	106,338	8,203	31.475	1,277	8,594	188,429	127,639	20.793	19,613	....	....
1711	26.415	137.421	12,193	28,856	38	19,408	273,181	91.535	12,871	20,406	....	....
1712	24.699	128,105	12,466	18,524	1,471	8,464	297.941	134,583	29,394	20,015	....	....
1713	49,904	120,778	14,428	46,470	178	17,037	206,263	76,304	32,449	23,967	....	....
1714	51.541	121,288	29,810	44,643	2,663	14,927	280,470	128,873	31,290	23,712	....	....
1715	66,555	164,650	21,316	54.629	5,461	17,182	174,756	199,274	29,158	16,631	....	....
1716	69,595	121,156	21,971	52.173	5,193	21,842	281,343	179,595	46,287	27,272	....	....
1717	58,898	132.001	24,534	44,140	4,499	22,505	296,884	215,962	41,275	25,058	....	....
1718	61,591	131,885	27,331	62,966	5,588	22,716	316.576	191,925	46,385	15,841	....	....
1719	54.452	125.317	19,596	56,355	6,564	27,068	332,069	164,630	50,373	19,630	....	....
1720	49.206	128,769	16.836	37.397	7,928	24.531	331.482	110,717	62.736	18,290	....	....
1721	50,483	114,524	15,681	50,754	8,037	21,548	357,812	127,376	61,858	17,703	....	....
1722	47,955	133,722	20,118	57,478	6,882	26,397	283,091	172.754	79,650	34,374	....	....
1723	50,339	176,486	27,992	53,013	8,332	15,992	287.997	123.833	78,103	42,246	....	....
1724	69.585	168,507	21,191	63,020	4,057	30,324	277,344	161,894	90,504	37,839	....	....
1725	72,021	201,768	24.976	70,650	11,981	42,209	214,730	195,884	91,942	39,182	....	....
1726	63,816	200,882	38.307	84,866	5,960	57,634	324,767	185,981	93,453	43,934	....	....
1727	75,052	187,277	31,617	67.452	12,823	31,979	421,588	192,965	96,055	23,254	....	....
1728	64,680	194.590	21,142	81,634	15,230	37,478	413,089	171,092	91,175	33,067	....	....
1729	52,512	161,102	15,833	64,760	7,434	29,799	386,174	108,931	113,329	58,366	....	....
1730	54,701	208,196	8,740	64,356	10,582	48,592	346,823	150,931	151,739	64,785	....	....
1731	49,048	183,467	20,756	66,116	12,786	44,260	408,502	171,278	159,771	71,145	....	....
1732	64,095	216,600	9,411	65.540	8,524	41.698	310,799	148,289	126,207	58,298	....	828
1733	61,983	184,570	11,626	65,417	14,776	40,565	403,198	186,177	177,845	70,466	203	1,695
1734	82,252	146,460	15,307	81,758	20,217	54,392	373,090	172,086	120,466	99,658	18	1,921
1735	72,899	189,125	14,155	80,405	21,919	48,804	394,995	220,381	145,348	117,837	3,010	12,112
1736	66,788	222,158	17,944	86,000	20,786	61,513	380,163	204,794	214,083	101,147	....	2,012
1737	63.347	223,923	16,833	125.833	15,198	56,690	492,246	211,301	187,758	58,986	....	5,701
1738	59,116	203,233	16,228	133,438	11,918	61,450	391,814	258,860	141,119	87,793	17	6,496
1739	46,604	220,378	18.459	106,070	8,134	54,452	444,654	217,200	236,192	94,445	233	3,324
1740	72.389	171,081	21,498	118,777	15,048	56,751	341,997	281,428	265,560	181,821	924	3,524
1741	60.052	198,147	21,142	140,430	17,158	91.010	577,109	248,582	236,830	224,270	....	2,553
1742	53,166	148,899	13,536	167,591	8 527	75,295	427,769	264,186	154,607	127,063	1,622	17,018
1743	63,185	172,461	15,067	134,487	9,596	79,340	557,821	328,195	235,136	111,499	2	2,291
1744	50,248	143,982	14,527	119,920	7,446	62,214	402,709	234,855	192,594	79,141	....	769
1745	38.948	140,463	14,083	54,957	10,130	54,280	399.423	196,799	91,847	86,815	....	939
1746	38,612	209.177	8.841	86.712	15.779	73,699	419,371	282,545	76,897	102,809	....	984
1747	41,771	210,640	14,992	137,984	2,832	82,404	492,619	200,088	107.500	95,529	....	24
1748	29.748	197,682	12,358	143,311	12,363	75,330	494,852	252,624	167,305	160,172	....	1,314
1749	39.999	238,286	23,413	265,773	14,944	238,637	434,618	323,600	120,499	164.085	51	5
1750	48.455	343.659	35,632	267,130	28,191	217,713	508.939	349,419	191,607	134.037	1,942	2,125
1751	63,287	305,974	42,363	248,941	23.870	190,917	460,085	247.027	245,491	138.244	355	2,065
1752	74,313	273,340	40,648	194,030	29,978	201,666	569,453	325,151	288,264	150,777	1.526	3,163
1753	83,395	345,523	40,553	277,864	38,527	245,644	632,575	356,776	164,634	213,009	3,057	14,128
1754	66.538	329,433	26,663	127,497	30,649	244,647	573,435	323.513	307,238	149,215	3,236	1,974
1755	59,533	341.796	28,055	151,071	32,336	144,456	489,668	285,157	325,525	189,887	4,437	2,630
1756	47,359	384,371	24.073	250,425	20,091	200,169	337,759	426,687	222,915	181,780	7,155	536
1757	27,556	363,404	19,168	353,311	14,190	168,426	418,881	334,897	130,889	213,949	....	2,571
1758	30,204	465,694	14,260	356,555	21,383	260,953	454,362	438,471	150,511	181,002	....	10,212
1759	25,985	527,067	21.684	630.785	22,404	498,161	357,228	459,007	206.534	215,255	6,074	15,178
1760	37.802	599,647	21,125	480,106	22,754	707,998	504,451	605.882	162,769	218,131	12,198	....
1761	46,225	334,225	48,648	289,570	39,170	204,067	455,083	545,350	253,002	254,587	5,764	24,279
1762	41,733	247,385	58,882	288,046	38,091	200,199	415.709	418,599	181,595	194,170	6,522	23,761
1763	74.815	258.854	52,998	238,560	38,228	284,152	642,294	555,391	282,366	250,132	14,469	44,908
1764	88,157	459,765	53,697	515,416	36,258	436,191	559,508	515,192	341,727	305.808	31,325	18,338
1765	145,819	451,299	54,959	382,349	25,148	363,368	505,671	383,224	385,918	334,709	34,183	29.165
1766	141,733	409,642	67,020	330,829	26,851	327,314	461,693	372,548	293,587	296,732	53,074	67.268
1767	128.207	406.081	61,422	417,957	37.641	371,830	437,926	437.628	395,027	244,093	35,856	23,334
1768	148,375	419,797	87,115	482,930	59,404	432,107	406.048	475,984	508,108	289.868	42,402	56,562
1769	129,353	207,992	73.466	74,918	26,111	199,906	361,892	488,362	387,114	306,600	82.270	58.340
1770	148,011	394,451	69,882	475,991	28,109	134,881	435,094	717,782	278,907	146,273	55.532	56,193
1771	150,381	1,420,119	95,875	653,621	31,615	728,744	577,848	920,326	420,311	409,169	63,810	70,493
1772	126,265	824.830	82.707	343.970	29.133	507,909	528.404	793,910	425,923	449,610	66,083	92,406
1773	124,624	527,055	76,246	289,214	36,652	426,448	589,803	328,904	456,513	344,859	85,391	62.932
1774	112,248	562,476	80,008	437,937	69,611	625,652	612,030	528.738	432,302	378,116	67,647	57,518
1775	116,588	71,625	187.018	1,228	175,962	1,366	758,356	1,921	579,349	6,245	103,477	113,777
1776	762	55,050	2,318	....	1,421	365	73,226	....	13,668	....	12,569	....

---

* "During the war of the Revolution our commerce was suspended; after the peace, in 1783, our trade continued to languish; it had to contend with domestic and foreign obstacles; foreign nations entertained a jealousy concerning these States; at home a rivalship was prevalent among the several members of the confederacy, and checked the prosperity of the nation. Each of the thirteen independent sovereignties contemplated its own immediate interests; some of the States declared the commercial intercourse with them to be equally free to all nations."

Population of the British North American Colonies.

Colonies.	Colonial Population.			Increase per Cent. first 48 Years.	Increase per Cent. per Annum.	Increase per Cent. 2d Period, 26 Years.	Increase per Cent. per Annum.	Increase per Cent. in 74 Years.	Increase per Ct. per Ann. in 74 Years.
	1701.	1749.	1775.						
Connecticut.....	30,000	100,000	262,000	233·33	4·65	162·00	6·23	773·33	10·45
Delaware.......	....	Incl. in Pa.	37,000	....	....	....	....	....	....
Georgia	....	6,000	27,000	....	....	350·00	13·46	....	....
Maryland	25,000	85,000	174,000	240·00	5·00	104·71	4·00	596·00	8·05
Massachusetts ..	70,000	220,000	352,000	214·29	4·46	60·00	2·31	402·86	5·44
New Hampshire.	10,000	30,000	102,000	200·00	4·17	240·00	9·23	920·00	12·43
New Jersey.....	15,000	60,000	138,000	300·00	6·25	130·00	5·00	820·00	11·08
New York......	30,000	100,000	238,000	233·33	4·86	138·00	5·31	693·33	9·37
North Carolina .	5,000	45,000	181,000	800·00	16·67	302·22	11·62	3520·00	47·57
Pennsylvania...	20,000	250,000	341,000	1150·00	23·96	36·40	1·40	1605·00	21·69
Rhode Island ...	10,000	35,000	58,000	250·00	5·21	65·71	2·53	480·00	6·49
South Carolina..	7,000	30,000	93,000	328·57	6·84	210·00	8·08	1228·57	16·60
Virginia........	40,000	85,000	300,000	112·50	2·34	252·94	9·73	650·00	8·78
Whites.........	....	....	2,303,000						
Slaves, estimated	....	....	500,000						
All classes......	262,000	1,046,000	2,803,000	299·24	6·23	167·97	6·46	969·85	13·12

At the beginning of the Revolution the Southern colonies had, therefore, 812,000 white inhabitants, and the Northern 1,491,000. Connecticut was the fourth State in rank. Massachusetts and Pennsylvania were each a third larger than New York, which was even excelled by Connecticut.—*United States Census Report*, 1850.

II. Magnitude of the British Colonies.—Notwithstanding the loss of the United States, the colonies of Great Britain, exclusive of India, exceed in number, extent, and value, those of every other country. Previously, indeed, to the breaking out of the late contests, the colonial dominions of Spain far exceeded in extent and importance those of any other power. But Cuba, Porto Rico, and the Philippine Islands are now all that remain to her. These, indeed, are very valuable possessions, though inferior to those of England.

North American Colonies.—In North America, Great Britain possesses the provinces of Lower and Upper, or of East and West Canada, Nova Scotia, New Brunswick, Prince Edward's Island, and their dependencies. The situation and boundaries of these provinces will be more easily learned from the inspection of the map than they could be from any description. The shores of Nova Scotia and New Brunswick are washed by the Atlantic Ocean; and the noble River St. Lawrence, by its communication with the great American lakes, gives to Canada all the benefits of a most extensive inland navigation, and forms a natural outlet for her surplus produce, as well as for the surplus produce of that part of the United States which is washed by the lakes. There is every variety in the soil and climate of these regions. In Lower Canada the winter is very severe. The surface of the country is covered with snow for nearly half the year. From the beginning of December to the middle of April the St. Lawrence is frozen over, and affords a smooth and convenient passage for the sledges by which it is then covered. But though severe, the climate is far from being unhealthy or disagreeable. The weather is generally clear and bracing; and the labor of artisans, at their out-door employments, is rarely suspended for many days in succession. On the breaking up of the ice in the latter end of April or the beginning of May, the powers of vegetation almost immediately resume their activity, and bring on the fine season with a rapidity that is astonishing to a stranger. The highest temperature in Lower Canada varies from 96° to 102° of Fahrenheit; but the purity of the atmosphere abates the oppressive heat that is felt in most countries where the mercury ranges so high; and the weather is, on the whole, decidedly pleasant. That part of the province of Upper or West Canada which stretches from Lake Simcoe and the Rivers Trent and Severn, westward to Lake Huron and the St. Clair River, and southward to Lake Erie and part of Lake Ontario, has a soil of extraordinary fertility, capable of producing luxuriant crops of wheat and every sort of grain. "The climate," says Mr. Bouchette, late surveyor general of Lower Canada, "is so particularly salubrious, that epidemic diseases, either among men or cattle, are almost entirely unknown. Its influence on the fertility of the soil is more generally perceptible than it is in Lower Canada, and is supposed to be congenial to vegetation in a much superior degree. The winters are shorter, and not always marked with such rigor as in the latter. The duration of frost is always accompanied with a fine clear sky and a dry atmosphere. The spring opens, and the resumption of agricultural labors takes place, from six weeks to two months earlier than in the neighborhood of Quebec. The summer heats rarely prevail to excess, and the autumns are usually very friendly to the harvests, and favorable for securing all the late crops."—Bouchette's *Topographical Description of Canada*, p. 595. The ground on the shores of Lake Ontario and Lake Erie, as far west as the junction of the Thames with the St. Clair Lake, is laid out in townships, and partly settled. But the population is still very thin. To the north of the River Thames, along the banks of the St. Clair and the shores of Lake Huron, round to the River Severn, and thence to the river that joins Lake Nippissing and Lake Huron, is a boundless extent of country that is almost entirely unoccupied. The interior of this space has hitherto been but imperfectly explored; but the banks of the St. Clair and the shores of Lake Huron afford the finest situations for settlements. The soil is in many places of the greatest fertility, the river and lake teem with fish, and every variety of the best timber is found in the greatest profusion. The winters in the provinces of Nova Scotia, Prince Edward's Island, and New Brunswick are more severe than in Upper Canada, and they are a good deal infested with fogs and mists; but their proximity to England, and their favorable situation for the fishing business, give them considerable advantages. In addition to the above, Great Britian possesses the Hudson's Bay territory, a tract of vast extent, but situated in an inhospitable climate, and worth very little except as hunting-grounds. She also possesses the large islands of Newfoundland and Cape Breton, the latter being a dependency of Nova Scotia; but their soil is barren, and the climate severe and foggy; so that they are valuable principally as fishing stations. The following table exhibits the population of the different North American colonies at the under-mentioned epochs:

Colonies.	Population.	Date of Census.
Eastern (Lower) Canada	1,048,000	1854
Western (Upper) Canada........	1,260,000	1854
New Brunswick	193,800	1851
Prince Edward's Isl. and C. Breton	62,634	1848
Newfoundland..................	96,506	1845
Nova Scotia	276,117	1851

Of the inhabitants of Lower Canada in 1844, no fewer than 518,565 were of French extraction, forming what is called the *Nation Canadienne*. In Upper Canada, on the other hand, the population is almost wholly of British origin.

West India Colonies.—In the West Indies the English possess Jamaica, Barbadoes, St. Lucia, Antigua, Grenada, Trinidad, and some other islands, besides Demerara and Berbice in South America. Jamaica, by far the largest and most valuable of her insular possessions, is about 120 miles in length and 40 miles in mean breadth, containing about 2,800,000 acres, of which from 1,100,000 to 1,200,000 are supposed to be in cultivation. Being situated within the tropic of Cancer, the heat in the West Indies is intense, but is moderated by the sea-breeze which blows regularly during the greater part of the day. The rains make the only distinction of seasons. They sometimes fall with prodigious impetuosity, giving birth to innumerable torrents, and laying all the low country under water: the trees are green the whole year round: they have no snow, no frost, and but rarely some hail. The climate is very humid; iron rusts and corrodes in a very short time; and it is this, perhaps, that renders the West Indies so unfriendly to European constitutions, and produces those malignant fevers that are so very fatal. The vegetable productions are numerous and valuable; but the sugar-cane and the coffee-plant are incomparably more important than the others, and constitute the natural riches of the islands.

The West Indies are occasionally assailed by the most dreadful hurricanes, which destroy in a moment the hopes and labors of the planters, and devastate entire islands. Whole fields of sugar-canes are sometimes torn up by the roots, houses are either thrown down or unroofed, and even the heavy copper boilers and stills in the works have, in numerous instances, been wrenched from the ground and battered to pieces. The rain pours down in torrents, sweeping before it every thing that comes in its way. The destruction caused by such dreadful scourges seldom fails to produce a very great scarcity, and not unfrequently famine; and we are grieved to have to add, that the severity of the distress has on several occasions been materially aggravated by a refusal on the part of the authorities to allow importation direct from the United States! This was the case at Dominica so late as 1817. "It is stated in a report by a committee of the Assembly of Jamaica, that 15,000 negroes perished between the latter end of 1780 and the beginning of 1787, through famine occasioned by hurricanes and the prohibition of importation from the United States."—EDWARDS's *West Indies*, vol. ii. p. 515.

Jamaica was discovered by Columbus in 1494, and continued in possession of the Spaniards till 1655, when it was wrested from them by the English. Although it had thus been for more than a century and a half under the power of Spain, such was the deadening influence of her colonial system, that it did not, when it was conquered, contain 1500 white inhabitants, and these were immersed in sloth and poverty. Of the many valuable articles which Jamaica soon after produced in such profusion, many were then altogether unknown; and of those that were known, such a supply only was cultivated as was required for the consumption of the inhabitants. "The Spanish settlers," says Mr. Bryan Edwards, "possessed none of the elegancies of life; nor were they acquainted even with many of those gratifications which, in civilized states, are considered necessary to its comfort and convenience. They were neither polished by social intercourse nor improved by education; but passed their days in gloomy languor, enfeebled by sloth and depressed by poverty. They had been for many years in a state of progressive degeneracy, and would probably in a short time have expiated the guilt of their ancestors by falling victims themselves to the vengeance of their slaves."—*History of the West Indies*, vol. i. p. 297, 8vo ed.

For a considerable number of years after England obtained possession of Jamaica, the chief exports were cocoa, hides, and indigo. Even so late as 1772, the exports of sugar amounted to only 11,000 hogsheads. In 1774 they had increased to 78,000 hogsheads of sugar, 26,000 puncheons of rum, and 6547 bags of coffee. The American war was very injurious to the West India settlements; and they may, indeed, be said to be still suffering from its effects, as the independence of America led to the enactment of those restrictions to the importation of food, lumber, etc., that were so very hurtful to the planters. In 1780 Jamaica was visited by a most destructive hurricane, the devastation occasioned by which produced a dreadful famine; and other hurricanes followed in the immediately succeeding years. But in 1787 a new era of improvement began. The devastation of St. Domingo by the negro insurrection which broke out in 1792, first diminished, and in a few years almost entirely annihilated, the annual supply of 115,000 hogsheads of sugar, which France and the Continent had previously been accustomed to receive from that island. This diminution of supply, by causing a greatly increased demand for, and a consequent rise in the price of, sugar raised in the other islands, occasioned an extraordinary extension of cultivation. So powerful in this respect was its influence, that Jamaica, which at an average of the six years preceding 1799 had produced only 83,000 hogsheads, exported in 1801 and 1802 upward of 286,300 hogsheads, or 143,000 a year!

The same rise of price, which operated so powerfully in Jamaica, occasioned a similar though less rapid extension of cultivation in other islands, and in Cuba, Porto Rico, and the foreign colonies generally. The vacuum caused by the cessation of the supplies from St. Domingo being thus more than filled up, a reaction commenced. The price of sugar rapidly declined; and, notwithstanding a forced market was for a while opened to it, by substituting it for malt in the distillery, prices did not attain to their former elevation. On the opening of the Continental ports, in 1813 and 1814, they, indeed, rose, for a short time, to an extravagant height; but they very soon fell, involving in ruin many of the speculators upon an advance. Prices, however, continued at a pretty high level down to 1818; but they sustained a material fall in the course of the following year, and were comparatively low from that period down to 1835, when the extraordinary falling off in the supplies of sugar consequent to the measures connected with the emancipation of the slaves again occasioned a considerable rise of price. But, as already seen, this high price was entirely factitious, being wholly caused by our excluding foreign sugar from our market. Now that the sugar of Brazil, Cuba, and Java is admitted on paying reasonable duties, prices are comparatively low. And from the extraordinary facility with which sugar may be raised in the countries referred to and elsewhere, we have no idea, provided they adopt no rash or ill-advised measure in relation to slaves, that its price in their markets would be likely to sustain any material or permanent increase, even though the demand for it were doubled or more. The imports to England of sugar from her West Indian colonies, which amounted to 4,103,800 cwts. in 1831, sunk, in 1841, to 2,151,217 cwts.! In 1852 they amounted to 3,408,627 cwts.

The devastation of St. Domingo gave the same powerful stimulus to the growth of coffee in the other West Indian colonies that it did to the growth of sugar; and owing to the extraordinary increase in the demand for coffee in England and other European countries, the supply went on increasing till it was checked by the influence of the measures relating to slavery. In 1752, for example, only 60,000 lbs. of coffee were exported from Jamaica; in 1775 the export amounted to 440,000 lbs.; in 1797 it had increased to 7,931,621 lbs.; and in 1832, when it had attained its maximum, the exports to England only amounted to 19,405,933 lbs. Such, however, and so rapid has been their subsequent decline, that in 1852 the exports to England from Jamaica amounted to only 3,786,796 lbs.!

We have already seen that when Jamaica was taken from the Spaniards it only contained 1500 white inhabitants. In 1673 the population amounted to 7768 whites, and 9504 slaves. It would have been well for the island had the races continued to preserve this relation to each other; but, unfortunately, the black population has increased more than *five* times as rapidly as the white; the latter having only increased from 7768 to about 30,000, while the former has increased from 9504 to about 310,000, exclusive of persons of color. The real value of the exports to Jamaica amounts to about £700,000 a year, being about one-third part of the exports to the West Indian colonies. It was formerly much more; but then a large portion of the articles sent to Jamaica, and some of the other colonies, were only sent there as to an *entrepôt;* being subsequently exported to the Spanish main. During the ascendency of the Spanish dominion in Mexico and South America, this trade, which was then contraband, was carried on to a great extent. It is now much fallen off, and is principally carried on from St. Thomas and Honduras.

Barbadoes was the earliest English possession in the West Indies. It is the most easterly of the Caribbean islands; Bridgetown, the capital, being in long. 59° 41′ W. Barbadoes is by far the best cultivated of all the West Indian islands. It contains about 105,000 acres, having (in 1852) a population of about 13,000 whites, 15,000 people of color, and 110,000 blacks. Of late years it has exported from 500,000 to 740,000 cwts. of sugar. Barbadoes had attained the acme of its prosperity in the latter part of the seventeenth century, when the white population is said to have amounted to about 50,000, though this is probably an exaggeration. But it is only as compared with itself that it can be considered as having fallen off; for, compared with the other West Indian islands, its superiority is manifest. It raises nearly as much food as is adequate for its supply. The islands next in importance are St. Vincent, Grenada, Trinidad, Antigua, etc. It is unnecessary to enter into any special details with respect to them, their population and trade being exhibited in the annexed tables. During the late war Great Britain took from the Dutch the settlements of Demerara, Berbice, and Essequibo, in Guiana, which were definitively ceded to them in 1814. The soil of these settlements is naturally very rich; and they have, in this respect, a decided advantage over most of the West Indian islands. Their advance was for a while very great, but recently their progress has been checked, and their exports have declined most materially. This, however, is entirely in consequence of the want of labor; for in other respects these colonies have every facility of production. Various schemes have been suggested for supplying this want; but none of them, unless they involve the principle of compulsory service, will, we apprehend, be successful. The rum of Demerara enjoys a high reputation. The best samples of Berbice coffee are very superior, and it used to be extensively cultivated both in that colony and in Demerara. In 1831 the exports amounted, from both colonies, to 3,576,744 pounds; but they have since declined to next to nothing, having amounted in 1852 to only 34,890 pounds. Considerable quantities of cotton were formerly exported from Guiana; but the Americans having superior facilities for its production, its culture has nearly ceased. Cocoa, annotto, etc., are produced, but not abundantly.

Exclusive of the above, the English possess the settlement of Balize, on the Bay of Honduras. This is of importance as affording a means of obtaining abundant supplies of mahogany; but it is of more importance as an *entrepôt* for the supply of Guatemala and Central America with English manufactured goods.

The exports from England to the West Indian colonies consist of coarse cottons, linens, checks, hats, and other articles of negro clothing; iron and steel, wrought and unwrought; leather, including saddlery and harness; glass; beer and ale; soap and candles; stationery; hardware and earthen-ware; staves, hoops, coal, lime, paint, lead; Irish provisions, herrings, and other salt fish; along with furniture, wine, beer, medicines, and indeed almost every article which a great manufacturing country can supply to one situated in a tropical climate, which has very few mechanics and hardly any manufactures. Since the opening of the ports on the Spanish Main to ships from England, the exports to the West Indies have decreased both in quantity and value; this decrease being, however, more than balanced by the increased shipments to Mexico, Colombia, etc. The declared or real value of the exports amounted, in 1852, to £2,031,358.

Money.—What used to be called West India currency was an imaginary money, and had a different value in different colonies. The value it bore, as compared with sterling money, was supposed to represent the corresponding value of the coins in circulation in the different islands at the time the proportion was fixed: these coins being for the most part mutilated and otherwise worn and defaced, currency was in all cases less valuable than sterling. The following are the old values of £100 sterling, and of a dollar, in the currencies of the different islands:

	Sterl.		Curr.	Dol.		Curr.
Jaimaca	£100	=	£140	1	=	6*s.* 8*d.*
Barbadoes	£100	=	£135	1	=	6*s.* 3*d.*
Windward Islands (except Barbadoes)	£100	=	£175	1	=	8*s.* 3*d.*
Leeward Islands	£100	=	£200	1	=	9*s.* 0*d.*

But latterly these currencies have been in great measure superseded by the introduction of sterling money, current at the same rates as in England, and of the Spanish dollar.

By an order in council of the 23d of March, 1825, British silver money was made legal tender throughout all British colonial possessions at the same nominal value as in England; and bills for the same are given on the treasury of London, of £100 each bill for £103 such silver money. By this order, also, the value of the Spanish dollar was fixed at 4*s.* 4*d.* British silver money throughout all the colonies where it is current; but this value was further reduced on the 21st of September, 1838, to 4*s.* 2*d.* The value of the doubloon was then also fixed at 64*s.*

Australian Colonies.—This group of colonies, though founded in a very distant part of the world, and at a comparatively recent epoch, will probably, at no very distant epoch, far surpass the others in magnitude and importance. The countries in which they are situated, including the great Australian continent, formerly called New Holland, with Van Diemen's Land or Tasmania, New Zealand, etc., are of vast extent, and differ in many respects from each other. Hitherto, also, by far the larger portion of the continent is wholly unexplored; and even the islands are but very imperfectly known. Enough, however, has transpired to show that this great division of the globe differs in some most important respects from most or all countries with which we were previously acquainted; and that it is, in fact, full of anomalies. The interior of the continent has not been sufficiently explored to enable any distinct opinion to be formed as to the height of the mountain chains; but it appears to be pretty well established that it has no great rivers, or at least none that reach the sea. Indeed, it seems, speaking generally, to be a law in this new world that rivers are largest near their source; and that they gradually diminish as they proceed, and most commonly dwindle into insignificance, or lose themselves in marshes, before they reach the ocean. In consequence, perhaps, of this singular constitution of its river system, it is found that in Australia the best land is not at the mouths, but toward the sources of the rivers. There are, no doubt, exceptions to this rule; but it appears to hold in the greater number of instances. Generally, also, the extent of fine land appears to be comparatively limited; and in so far as the continental portion of the country has been explored, it appears to be much better adapted for pasturage than for tillage.

Gold Deposits.—The land, the pasturage, the sheep, the copper and other ordinary minerals, which are found in abundance in various parts of Australia, have all been rendered, for the present at least, of no importance compared with the gold deposits with which the continent is so largely endowed. These, which were discovered so late as 1851, are of the most extraordinary richness. They exceed in productiveness not only the gold fields of California, but every thing, indeed, of which any idea could previously have been entertained. Australia has, in consequence, become an object of earnest and universal attention. An almost unparalleled amount of emigration has been directed to her shores. Her population and her trade are both increasing with gigantic strides; and her gold is influencing the wages, the prices, and the industry of every civilized people.—*See art.* AUSTRALIA *and* GOLD.

It were idle to indulge in speculations in regard to the period when the exhaustion of the Australian gold fields may be expected; there are no data on which to hazard even a conjecture on such a subject. But whether the supplies from them be destined to be of long or short duration, they have already been, and no doubt will continue to be, of great advantage. We do not mean by this to say or insinuate that the good resulting from the influx of gold from Australia and California has been unaccompanied by any drawbacks. The gambling and dissipation to which it has given rise are obvious. But these, though considerable, are but a trifling deduction from its many advantages; from the powerful stimulus it has given to industry and civilization, from the new channels it has opened to commerce, and from its greatly ameliorating the condition of the laboring classes in this and most other countries.

The northern portion of Australia, including, perhaps, about a third part of the entire continent, lies between the tropics; the other portion of the continent, with the adjacent islands of Van Diemen's Land and New Zealand, being in the south temperate zone. The climate of the different parts of the continent must, therefore, it is obvious, differ very widely. We, however, know but little of the climate of intertropical Australia, except that it is within the range of the Indian monsoon; that the temperature along the coast is rapidly raised by a wind from the south, which has been supposed to afford a strong presumption of the existence of sandy deserts in the interior; and that the air is so very moist that during the season of the monsoon iron implements are with the utmost difficulty preserved from rusting. It is commonly said that the climate of extra-tropical Australia, and especially of New South Wales, assimilates closely to that of Southern Italy. But this statement must be taken with considerable limitation; for, 1st. The atmosphere is very decidedly denser; 2d. The extremes of temperature are infinitely greater; 3d. The average heat is rather less; and, 4th. The temperature appears to decline more rapidly by increase of elevation. The grand defect in the climate of extra-tropical Australia appears to consist in the periodical recurrence of wet and dry seasons. Sometimes hardly a single drop of rain falls for an entire year or more; and though, happily, dews are in such seasons peculiarly abundant, they form no adequate substitute for rain. During long-continued droughts crops of all kinds are destroyed; and herbage, except in a few favored spots, suffers severely. Hence, as already stated, all the eastern parts of extra-tropical Australia, and perhaps also the southern, would seem to be much better fitted for pasturage than for husbandry. The droughts are exceedingly injurious to the latter, and they would necessarily involve any large population that depended principally on the indigenous products of the soil in extreme privations. Certainly, however, no country seems to be better fitted for grazing, or rather for the growth of sheep and wool. A dry climate is especially suitable to the latter; and though the pastures be far from luxuriant, their boundless extent compensates for every other deficiency. Sheep are not native to the country, a small flock of twenty-nine head having been introduced for the first time by the original English settlers in 1788. For a while, however, their value was not appreciated; but the importance of sheep-farming, and its suitableness to the country, having been demonstrated by John M'Arthur, Esq. (to whom the colony is under the greatest obligations), it has since increased with unprecedented rapidity. In proof of this, it may be stated that while the import of wool into Great Britain from Australia amounted, in 1822, to only 152,880 pounds, it had increased in 1825 to 411,600 pounds, in 1830 to 899,750 pounds, and in 1851 to the enormous amount of 41,810,137 pounds. Van Diemen's Land being less subject to droughts than New South Wales, husbandry is carried on in it to a greater extent, and with more advantage; but there also sheep-farming is the principal, and perhaps the most advantageous employment. —*See* VAN DIEMEN'S LAND. New Zealand, which has only been resorted to by regular colonists since 1840, is better fitted for agriculture than either Australia or Van Diemen's Land, and its climate is more like that of England. The ground in it is, however, rather difficult to clear; the natives are also much more formidable, and it is not so suitable for sheep-farming.

Population.—The European population of the Australian colonies is believed to have been, at the undermentioned dates, nearly as follows:

Colonies.	Years.	Population.
New South Wales....................	1851	197,168
Victoria, 31st December	1852	200,000
Van Diemen's Land	1850	70,000
South Australia....................	....	64,000
Western Australia	1850	7,000
New Zealand	1850	22,400
Total....................	....	560,568

Expenditure by Great Britain on the Australian Colonies.—England does not appear to spend any money in Victoria: the last parliamentary return on colonial expenditure does not mention that colony. The following table exhibits the amounts expended on four colonies in the years 1853–'54, and the purposes to which they were applied:

Colonies.	Military Charges.	Civil Charges.	Naval Charges.	Total.
South Australia	£10,248	£2	..	£10,250
New South Wales ...	61,193	10,036	£83	71,313
Van Diemen's Land .	55,110	209,176	..	264,287
West Australia......	35,711	98,123	..	133,834
Total.....	£162,262	£317,337	£83	£479,684

These totals do not really represent £479,685 spent by Great Britain on her Australian colonies: except South Australia, all are "penal settlements," or have been, and the large expenditure has mostly been incurred in guarding, disciplining, feeding, and clothing convicts. In fact, the Australian colonies cost her next to nothing, being but a small per cent. of what it would cost to keep convicts at home. Under the new constitution for the four free colonies, Western Australia has become a convict settlement by her own choice, and has the advantage of a large expenditure in consequence, the following sums having been reserved out of the revenue annually for the purposes indicated. The civil list includes the governor's salary, judicial salaries, and those of departments. The retiring allowances are for officials liable to removal on political grounds.

Colonies.	Civil List.	Retiring Allowances.	Public Worship.
Victoria....................	£49,500	£4,000	£50,000
New South Wales	20,550	5,900	28,000
Van Diemen's Land......	13,300	2,175	15,000
South Australia	16,000	1,766	....
Total...........	£99,350	£13,841	£93,000

RETURN, ENUMERATING THE VARIOUS COLONIES, OF ANY IMPORTANCE, BELONGING TO GREAT BRITAIN, WITH THEIR POPULATION, TRADE, AND NAVIGATION.

Colonies.	Population, 1850, or last Census.	Imports into the United Kingdom, 1845 (Official Value.)	Declared Value of British and Irish Produce and Manufactures exported from the United Kingdom, 1851.	Number and Tonnage of Vessels, 1845			
				Entered Inward into the United Kingdom.		Cleared Outward from the United Kingdom.	
		£	£	Ships.	Tons.	Ships.	Tons.
NORTH AMERICA.							
Canada East	900,000?	1,450,500	2,451,534	1580	629,824	1371	559,239
Canada West	952,004						
New Brunswick	193,800	372,807	442,198	1026	381,913	732	279,639
Nova Scotia	276,117	87,151	445,309	236	56,295	190	46,756
Cape Breton			57,109				
Prince Edward's Island	62,634						
Newfoundland	96,506	278,171	334,730	173	21,189	210	28,946
Total	2,481,061	2,188,719	3,730,880	3015	1,089,221	2503	914,580
WEST INDIES.							
Antigua	37,757	376,308	99,703	62	15,106	59	13,960
Barbadoes	135,939	611,603	419,479	83	21,251	83	22,549
Dominica	22,200	94,742	33,595	12	3,027	10	2,835
Grenada	32,671	120,932	45,163	16	4,189	60	16,027
Jamaica	377,433	1,691,051	700,290	179	56,463	214	66,375
Montserrat	7,053	17,163	173	2	672	1	391
Nevis	9,601	46,764	2,208	11	1,798	5	861
St. Christopher	23,177	188,052	58,664	24	6,361	33	8,122
Anguilla	2,934						
St. Lucia	24,516	120,097	22,974	16	3,479	18	4,056
St. Vincent	30,128	256,404	73,201	29	8,011	24	6,736
Tobago	14,378	108,013	16,820	17	4,516	16	4,150
Tortola	6,689	10,162	....	1	221	2	432
Trinidad	68,600	680,491	275,185	96	22,392	110	25,644
Bahamas	27,519	68,745	32,088	39	5,529	20	2,565
Bermudas	11,092	29,871	32,435	2	218	28	10,233
British Guiana	127,695	1,227,043	389,054	174	44,460	212	59,350
Honduras	11,066	774,242	232,633	77	22,845	59	19,323
Total	970,448	6,428,283	2,433,665	839	220,538	954	263,273
Gibraltar	12,182	56,615	481,286	82	18,221	203	36,258
Malta and Gozo	115,864	163,663	301,443	71	11,550	190	37,062
Cape of Good Hope and Natal	293,279	779,547	752,393	175	47,460	116	27,136
Sierra Leone	44,472	79,146	94,546	52	12,297	60	15,557
Gambia	5,671		47,197				
Gold Coast	382,000	64,521	107,653	44	6,961	34	5,407
Ceylon	1,627,849	1,326,899	175,414	31	11,718	57	22,511
Mauritius	192,523	1,003,039	232,955	97	27,199	71	21,418
New South Wales	197,168	723,639	1,201,261	..	....	..	....
Victoria	200,000	....	604,403	..	....	..	....
Van Diemen's Land	70,000	169,241	420,922	..	....	..	....
Western Australia	7,000	61	34,726	99	56,158	146	58,537
South Australia	64,000	50,798	375,035	..	....	..	....
New Zealand	22,400	21,055	171,009	4	1,184	6	1,875
Ascension	550	....	2,841	..	....	1	189
St. Helena	5,490	22,367	23,248	9	2,101	14	2,754
Hong Kong	32,983	....	632,399	..	....	..	....
Heligoland	2,215	....	238	..	....	..	....
Total	3,278,646	4,460,005	5,658,969	664	174,849	898	228,704
Totals — North American	2,481,061	2,188,719	3,730,880	3015	1,089,221	2503	914,580
Totals — West Indian	970,448	6,428,283	2,433,665	839	220,538	954	263,273
Totals — Other colonies	3,278,646	4,460,005	5,658,969	664	174,849	898	228,704
General Totals	6,730,155	13,077,007	11,823,514	4518	1,484,608	4355	1,406,557

ACCOUNT OF THE TOTAL EXPENDITURE INCURRED BY THE UNITED KINGDOM FOR COLONIES AND MILITARY AND MARITIME STATIONS IN 1849–'50.

Military and Maritime Stations.	£	s.	d.	*Plantations and Settlements.*	£	s.	d.
Gibraltar	210,740	18	10	Jamaica	155,951	6	5
Malta	169,388	12	6	Bahamas	22,558	18	6
Cape of Good Hope	291,459	12	3	Honduras	16,006	10	6
Mauritius	116,307	9	2	Canada	360,264	15	6
Bermuda	123,075	2	4	Nova Scotia	144,716	5	7
St. Helena	60,895	6	11	New Brunswick	11,984	5	4
Ascension	1,486	5	9	Prince Edward's Island	3,089	9	9
Heligoland	948	7	10	Newfoundland	31,069	9	8
Ionian Islands	133,042	13	6	Sierra Leone	....		
Falkland Islands	3,402	8	0	Gambia	62,610	10	7
Hong Kong	132,270	0	5	Cape Coast	....		
Plantations and Settlements.				Ceylon	91,616	12	9
Barbadoes				South Australia	3,905	16	8
Grenada				North Australia	....		
St. Vincent				New Zealand	150,241	14	7
Tobago				Labuan	8,221	18	4
Antigua				*Penal Settlements.*			
Montserrat				New South Wales	56,184	18	11
St. Christopher's	339,787	5	10	Van Diemen's Land	224,444	8	9
Nevis				West Australia	[illegible]	11	5
Anguilla				General Charges	[illegible]	19	5
Virgin Islands				Total	[illegible]	15	11
Dominica							
St. Lucia							
Trinidad							
British Guiana							

III. OTHER COLONIES. *Spanish Colonies.*—Spain, whose colonial possessions extended a few years ago from the frontiers of the United States to the Straits of Magellan, is not at present possessed of a foot of ground in the whole American continent. Still, however, her colonial possessions are of great value and importance. In the West Indies, she is mistress of Cuba and Porto Rico—the former by far the largest and finest of the West Indian islands, and the latter also a very valuable possession. In the East, Spain is mistress of the Philippine Islands, which, were they in the hands of an enterprising people, would speedily become of very great commercial importance.—*See the articles* HAVANA, MANILLA, PORTO RICO.

Dutch Colonies.—Java is the principal Dutch colonial possession, and it is one of which it is not easy to exaggerate the value and importance.—*See* BATAVIA. In the East, the Dutch also possess the Moluccas, Bencoolen, on the coast of Sumatra, Macassar, and the eastern coast of Celebes, Banda, etc. They have several forts on the Gold Coast in Africa; and in the West Indies they possess the islands of Curaçoa and St. Eustatius, Saba, and part of St. Martin; and on the continent of South America they are masters of Dutch Surinam. Curaçoa and St. Eustatius are naturally barren, but they have been both highly improved. From its being very conveniently situated for maintaining a contraband traffic with the Caraccas and other districts in South America, Curaçoa was formerly a place of great trade, particularly during war. But since the independence of South America, Curaçoa has ceased in great measure to be an *entrepôt;* the goods destined for the continent being now for the most part forwarded direct to the place of their destination. That district of Surinam ceded to the British in 1814, comprising the settlements of Demerara, Berbice, and Essequibo, formed the most valuable portion of Surinam, or Dutch Guiana. The district which still belongs to the Dutch lies to the south of Berbice. It contains about 38,000 square miles, and a population of about 65,000. It is daily becoming of more value and importance. The exports of sugar may amount to about 25,000,000 pounds, and those of coffee to about 4,000,000 pounds.

French Colonies.—Previously to the negro insurrection that broke out in 1792, St. Domingo was by far the most valuable colony in the West Indies. But this disastrous event, having first devastated the island, terminated in the establishment of the independent black republic of Hayti.—*See* PORT AU PRINCE. Having also sold Louisiana to the Americans, and ceded the Mauritius to the English, without making any new acquisition, the colonial dominions of France (for Algiers can not be reckoned among them) are at this moment of very limited extent. They consist of Guadeloupe and Martinique, and the small islands of Marie-Galante and Deseada, in the West Indies; Cayenne, in South America; Senegal and Goree, in Africa; the Isle de Bourbon, in the Eastern Ocean; St. Marie, in Madagascar; and Pondicherry and Chandernagor, with a very small surrounding territory, in the East Indies. The annexed tabular statements show the population, trade, etc., of the French colonies.

ACCOUNT OF THE POPULATION OF THE FRENCH COLONIES, AND OF THEIR COMMERCE WITH FRANCE, IN 1836.

Colonies.	Population, 1837.			Real Value, 1836.		Ships entered.		Ships cleared out.	
	Free.	Slave.	Total.	Imports into France.	Exports from France.	Ships.	Tonnage.	Ships.	Tonnage.
	Number.	Number.	Number.	Francs.	Francs.	No.	Tons.	No.	Tons.
Saint Pierre and Miguelon....	1,400	....	1,400	2,424,244	760,336	144	23,926	143	23,305
Martinique..................	40,043	77,459	117,502	16,423,438	17,062,292	358	48,861	353	122,214
Guadeloupe	32,059	95,609	127,668	24,575,141	22,119,138	518	70,027	543	69,656
Cayenne	5,056	16,592	21,648	3,121,752	2,693,166	42	6,792	45	7,950
Bourbon......................	36,803	69,296	106,099	16,743,809	9,804,940	156	43,830	149	43,483
Senegal	18,040	....	18,040 (1 Jan., 1836)	3,374,724	5,466,923	36	4,791	52	6,963
French factories in India (1835)	167,736	....	167,736	4,323,023	441,326	76	11,098	84	16,592
Totals	301,137	258,956	560,093	70,986,221	58,348,121	1330	209,325	1369	290,163

ACCOUNT OF THE QUANTITIES OF THE PRINCIPAL ARTICLES PRODUCED IN THE FRENCH COLONIES IN 1836.

Colonies and Establishments.	Sugars of all Qualities.	Coffee.	Cocoa.	Cotton.	Cloves and Spices.	Annotto.	Tobacco.	Gum.	Wax.	Skins.	Wood.
	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.
Martinique	34,159,580	692,807	125,610	18,705	....	....	....	....	....	....	....
Guadeloupe	34,836,722	471,685	10,501	68,194	239	....	34,047	....	....	....	....
Bourbon..................	23,384,116	928,200	10,000	....	193,500	....	82,000	....	....	....	....
Cayenne..................	2,422,796	42,000	25,200	280,000	107,080	313,000	....	....	....	....	....
Senegal..................	....	1,422	1,447	....	....	....	....	1,791,510	45,134	227,728	40,509
Factories in India (1835)..	....	52,084	....	6,720	....	....	....	....	....	Cent. 396 Paq. 38	13,636
Totals..........	94,803,214	2,188,198	172,758	373,619	300,819	313,000	116,047	1,791,510	45,134	227,728 Cent. 396 Paq. 38	54,145

But it would appear from the following account of the exports from Martinique and Guadeloupe, in 1851, that the emancipation of the slaves has had much the same influence over production in the French colonies that it has had in the British colonies, without being, we believe, in any degree more advantageous to the blacks.

ACCOUNT OF THE EXPORTS OF NATIVE PRODUCE FROM MARTINIQUE AND GUADELOUPE IN 1851.

MARTINIQUE.		
Sugar, Muscovado....................	kil.	23,466,696
Sugar, clayed	—	807
Molasses	lit.	33,754
Rum	—	206,511
Coffee..............................	kil.	110,933
Cocoa...............................	—	149,033
Cassia	—	163,580
Logwood.............................	—	50,260
GUADELOUPE.		
Sugar, Muscovado	kil.	20,048,888
Molasses	lit.	13,879
Rum	—	142,139
Coffee..............................	kil.	221,218
Cotton	—	20,443
Cocoa...............................	—	11,452
Cassia	—	165

Danish Colonies.—In the West Indies, these consist of the islands of St. Croix, St. Thomas, and St. John. St. Croix contains about 100 square miles, and has about 24,000 inhabitants. The soil is fertile, and it is well cultivated. The principal productions are sugar, rum, and coffee, the exports of sugar having formerly amounted to about 25,000,000 pounds a year. Probably, however, they have been diminished in consequence of the emancipation of the slaves in 1848. St. Thomas, which has about 14,000 inhabitants, has long been, and still continues to be, one of the principal emporiums in the West Indies. It owes this distinction partly to its convenient situation, partly to its spacious and safe harbor at St. Thomas, on the south side of the island, and partly and principally to the moderation of the import duties, which vary from 1 to 1¼ per cent. St. Thomas has in consequence become, as it were, a dépôt for the supply of the neighboring islands, goods being sent to it to be warehoused till opportunity offers for conveying them to their final destination. The great articles of importation are, manufactured goods, principally from England, but partly also from other countries of Europe, with provisions, lumber, etc., from the United States. In India the Danes formerly possessed Tranquebar, near Madras; and Serampoor, near Calcutta; but these they sold, in 1845, to the East India Company.

Swedish Colonies.—The Swedes possess one colony—the small island of St. Bartholomew, in the West Indies. It is only about 25 square miles in extent, but is very fertile. It has no springs, nor fresh water of any sort, except such as is supplied by the rain. Population between 8000 and 9000.

Selection of Sites for Colonial Establishments.—Nothing can be more unwise than the plan, if so we may call it, hitherto followed in the selection of places at which to found colonies. The captain of a ship, without any knowledge whatever of the nature of soils or the capacities of a country in an agricultural point of view, falls in after a long cruise with a river or bay, abounding with fish and fresh water, and surrounded with land that *looks* fertile and is covered with herbage. He forthwith reports all these circumstances, duly embellished, and strongly recommending the situation as an admirable one at which to found a colony; and, in nine cases out of ten, *this* is all the information that is required in taking a step of such infinite importance. No wonder, therefore, that many fine schemes of colonization should have ended only in loss and disappointment; and that situations which the colonists were taught to look upon as a species of paradise have proved to be any thing but what they were represented. Botany Bay, though described by Captain Cook as one of the finest places in the world, had to be abandoned by the colonists that were sent out to it, as the country round it, instead of being favorable for cultivation, is a mere sandy swamp. Is it possible to suppose, had the proper inquiries been entered into, that any attempt would have been made to establish a colony in so pestilential a climate as that of Sierra Leone? The colony on Swan River, Australia, may be adduced as another instance of misplaced or premature confidence in the reports of those who were really without the means of forming a correct estimate of the various circumstances necessary to be attended to in forming a colony. We therefore hope that an end may be put to this system—a system which is in no common degree injurious to the public interests, and is highly criminal toward those who embark as colonists. The founding of a colony should be looked upon in its true point of view—as a great national enterprise. It is not an adventure to be intrusted to presumptuous ignorance, but should be maturely weighed, and every circumstance connected with it carefully investigated. Above all, the situation in which it is proposed to found the colony should be minutely surveyed; and its climate, soil, and capacities of production deliberately inquired into by competent persons employed for the purpose. Were this done, government and the public would have the best attainable grounds upon which to proceed; and neither party would have much reason to fear those disappointments which have hitherto so often followed the exaggerated representations of those to whom the important and difficult task of selecting situations for colonies has been delegated.

Columbia or **Oregon River,** in Washington and Oregon territories, and British possessions. Its northern branch takes its rise in the Rocky Mountains, in lat. 50° N., long. 116° W.; from thence it pursues a northern course to near M‘Gillivary's Pass of the Rocky Mountains. At the boat encampment the river is 3600 feet above the level of the sea (here it receives two small tributaries—the Canoe River, and that from the Committee's Punch Bowl); from thence it turns south, having some obstructions to canoe navigation, and receiving many tributaries in its course to Colville, among which are the Kootanie, or Flat Bow, and the Flat Head, or Clarke River, from the east, and that of Colville from the west. This great river is bounded, thus far on its course, by a range of high mountains, well wooded, and in some places expands into a line of lakes before it reaches Colville, where it is 2049 feet above the level of the sea, having a fall of 550 feet in 220 miles. To the south of this it tends to the westward, receiving the Spokane River from the east (which is not navigable), and takes its rise from the Cœur d'Alene. Thence it pursues a westerly course for about 60 miles, receiving several smaller streams, and at its bend to the south it is joined by the Okanagan, a river that has its source in a line of lakes, affording canoe and boat navigation for a considerable extent to the northward. The Columbia thence passes to the southward until it reaches Wallawalla, in the latitude of 45°, a distance of 160 miles, receiving the Piscous, Y'Akama, and Point de Boise, or Entyatecoom, from the west, which take their rise in the Cascade range, and also its great southeastern branch, the Saptin, or Lewis, which has its source in the Wind River Mountains, and brings a large quantity of water to increase the volume of the main stream. The Lewis is not navigable, even for canoes, except in reaches. The rapids are extensive, and of frequent occurrence. It generally passes between the Rocky Mountain spurs and the Blue Mountains. It receives the Kooskooske, Salmon, and several other rivers from the east and west—the former from the Rocky Mountains, the latter from the Blue Mountains—and, were it navigable, would much facilitate the intercourse with this part of the country. Its length, to its junction with the Columbia, is 520 miles. The Columbia below this point forms the boundary between Oregon and Washington territories to the Pacific. The river at Wallawalla is 1286 feet above the level of the sea, and about 3500 feet wide; it now takes its last turn to the westward, receiving the Umatilla, Quisnel's, John Day's and De Chute rivers from the south, and Cathlatate's from the north, pursuing its rapid course of 80 miles, previous to passing through the range of Cascade Mountains, in a series of falls and rapids that obstruct its flow, and form insurmountable barriers to the passage of boats by water during the floods. These difficulties, however, are overcome by portages around the falls. The waters here descend 40 feet in the distance of two miles. From thence there is still-water navigation for 40 miles, when its course is again obstructed by rapids. At the Dalles the river is compressed into a narrow channel 300 feet wide and half a mile long, and flows between high walls of basalt, and the water falls 50 feet in the distance of two miles. Thence to the ocean, 120 miles, it is navigable for vessels of 12 feet draft of water at the lowest state of the river, though obstructed by many sand bars. In this part it receives the Willamette from the south, and the Cowelitz from the north. The former is navigable for small vessels 20 miles, to the mouth of the Klackamus, three miles below its falls; the latter can not be called navigable, except for a small part of the year, during the floods, and then only for canoes and barges. The width of the Columbia, within 20 miles of its mouth, is much increased, and it joins the ocean between Cape Disappointment and Point Adams, forming a sand-spit from each, by deposit, and causing a dangerous bar, which greatly impedes its navigation and entrance. The influence of the tides is felt 80 miles above its entrance into the Pacific. Its entire course is about 750 miles. During the year 1850, 160 vessels entered and departed from the ports of Columbia River. Vessels of a draft of 17½ feet have been safely taken over the south bar, and it is supposed that vessels drawing over 20 feet can enter safely. This noble river was discovered by Captain Gray, of Boston, in the year 1792, in the ship Columbia, and named from the ship. It was first explored from its sources to the sea in 1804–'5, by Messrs. Lewis and Clarke, by order of the government of the United States. By the Oregon treaty its navigation is open to British vessels. The Coast Survey are now preparing a chart of this river.

Columbo, the modern capital of Ceylon, on the southwest coast of the island; lat. 6° 56′ 6″ N., long. 79° 49′ 48″ E. It is defended by a very strong fort, nearly surrounded by the sea, in which is a light-house 97 feet high. Population of the town and fort, in 1831, 31,549. The houses, generally only one story high, are of stone, clay, and lime; and the town has more of a European appearance than any other in India. The inhabitants are principally Cingalese. The temperature is remarkable for its equality; and though very humid, the climate may, on the whole, be esteemed salubrious and temperate. There is no harbor at Columbo for large vessels, but only an open roadstead. A projecting rock, on which two batteries are erected, affords shelter to a small semicircular bay on the north side of the fort, having a wooden quay to facilitate the loading and unloading of boats. The depth of water is not sufficient to allow sloops or large dhonies to come alongside the quay; those exceeding 100 tons burden lying at about a cable's length from it. A bar of sand, on which the water is not more than 12 feet deep, extends from the projecting rock across this bay. The channel where it may be crossed by the larger class of ships is liable to shift; and it is only in the fine weather of the safe season that they venture within the bar. The outer road affords secure anchorage for half the year, from the beginning of October to the end of March, during the prevalence of the northeast monsoon, when the wind blows off the land; during the other, or southwest monsoon, when the wind blows from the sea on shore, the road is very far from safe; and the ships that frequent it are sometimes obliged to slip their cables and stand out to sea.—MILBURN'S *Oriental Commerce;* HAMILTON'S *Gazetteer, etc.*

As respects its harbor, Columbo is, therefore, very inferior to Trincomalee, the harbor of which is accessible at all times, and is one of the best in India; but the country in the vicinity of Columbo is more fertile; and it has the command of an internal navigation, stretching in a lateral direction along the coast, from Putlam, to the north of the city, to Caltura on the south, a distance of about 100 miles, partly obtained by rivers, and parly by canals. Many flat-bottomed boats are employed in this navigation, the families dependent on which reside mostly on board. Nearly all the foreign trade of Ceylon is carried on from Columbo, and it has also a large share of the coasting traffic.

Moneys.—The rix dollar=1*s.* 6*d.*; but accounts are kept in pounds, shillings, and pence, as in England.

The Bank of Ceylon, established in 1840, has its head office in London, its principal office in the island being in Columbo. It transacts all sorts of banking business, remitting money to and from the island, granting cash credits on the Scotch system, discounting bills, etc.

Weights, Measures, etc.—The weights are divided into ounces, pounds, etc., and are the same as in Great Britain. The candy or bahar=500 lbs. avoirdupois, or 461 lbs. Dutch Troy Weight. The principal dry measures are *seers* or *parrahs.* The former is a perfect cylinder, of the depth and diameter under-mentioned:

	Depth.	Diameter.
Seer........................	4·35 inches.	4·35 inches.

The parrah is a perfect cube, its internal dimensions being in every way 11·57 inches.

The liquid measure consists of gallons, and their multiples and submultiples. 150 gallons=1 leaguer or legger.

The bale of cinnamon consists of 92½ lbs. very nearly.

ACCOUNT OF THE QUANTITIES AND VALUES OF THE PRINCIPAL ARTICLES PRODUCED IN AND EXPORTED FROM CEYLON DURING 1851.

Articles.		Quantities.	Values. £	s.	d.
Arrack	galls.	168,789 and 1 keg	6,269	9	7
Areca nuts.....	cwt.	78,030 0 25	54,806	4	11
Cinnamon	pounds.	508,491	50,849	2	0
Cocoanuts	No.	4,637,814	6,761	4	1
Cocoanut oil ...	galls.	446,699½ and 22 jars	31,414	9	7
Coffee	cwt.	349,957 0 10	688,156	14	9
Coir rope	—	37,512 0 12	18,285	4	1
Copperah	—	27,026 1 0	9,678	6	7
Horns	—	2,020 3 5	3,207	17	8
Plumbago	—	25,832 3 17	5,608	2	3
Precious stones.	pack.	4	1,205	0	0
Rum	galls.	9,844	654	10	6
Sugar	cwt.	1,703	1,635	4	0
Wood	— pcs. bdls.	34,740 2 14 809,558 534	16,993	4	4
All other goods		....	43,083	4	7
Imports re-exported. Ex. the warehouse ..	goods.	....	130,927	10	11
	specie.	....	727,311	16	3
Total.............		....	£1,805,877	6	1

ACCOUNT OF THE QUANTITIES OF COFFEE, CINNAMON, COCOANUT OIL, AND COIR, THE PRODUCE OF THE ISLAND, EXPORTED FROM CEYLON DURING THE FOLLOWING YEARS, ENDING THE 5TH JANUARY.

Years.	Coffee.	Cinnamon.	Cocoa-nut Oil.	Coir.
	Cwt.	Pounds.	Gallons.	Cwt.
1840	41,863	536,592¼	357,543	23,195
1841	68 206	389,373½	475,742	23,440
1842	80,584	317,919¼	321,966	21,643
1843	119,805	121,145½	475,967	26,130
1844	94,847	662,704	726,206	22,187
1845	133,957	1,057,841	443,301	25,977
1846	178,603	408,211	282,186	19,540
1847	173,892	401,656	123,981	23,197
1848	293,221	447,369½	197,851	23,520
1849	280,010	491,687¾	311,526	25,199
1850	373,593	733,781¼	573,279	28,422
1851	278,473	644,857	407,960	39,886
1852	349,957	508,491	443,699	37,512

PORT DUES—COLUMBO.

	£ s. d.
Entry inward, with cargo, ton........................	0 0 2
" in ballast..............................	Free.
Clearance outward, with cargo, ton	0 0 2
" in ballast........................	Free.
And in no case to exceed	5 0 0

Coffee Export.—We are enabled by the courtesy of the Collector of Customs to afford the total exports of coffee for the year ending October, 10th, 1854, including shipments at Galle. The exact figures are: plantation, 303,908; ordinary, 130,177; total, 434,085 cwt., which is an increase of 85,128 cwt. since 1852.—*Columbo Observer, October 28th,* 1854.

ARTICLES EXPORTED FROM COLUMBO AND GALLE.
Chamber of Commerce, Columbo, April 11, 1855.

Articles.	From Oct. 11, 1852, to April 10, 1853.	From Oct. 11, 1853, to April 10, 1854.	From Oct. 11, 1854, to April 10, 1855.
Coffee:			
Plantation . cwt.	131,447	169,323	165,396
Native ..... cwt.	74,344	94,134	76,211
Total	205,791	263,457	241,607
Cinnamon ... pounds.	173,583	336,987	480,869
Cocoanut oil.. gallons.	606,477	782,218	885,130
Plumbago .... cwt.	7,805	14,291	1,843
Coir: Rope... —	3,249	2,752	5,988
Junk .. —	367	264	1,378
Yarn .. —	15,233	14,485	15,835
Fibre.. —	1,337	3,898	3,272
Ebony .... cwt.	6,535	4,799	3,122
Deer horns ... cwt.	1,182	1,118	645
Arrack....... gallons.	396	500	....

Value of Imports and Exports, Ceylon, July 24th, 1855.—The value of the imports during the last quarter was £2,597,325, and that of the exports £2,245,288.

Foreign Ships in Coasting Trade.—By order of Council, Nov. 21st, 1855, goods and passengers may be conveyed from one part of the island of Ceylon to another part thereof in other than British ships.—*See* CEYLON.

Columbo-root (Du. *Columbo wortel;* Fr. *Racine de Colombo;* Germ. *Columbo-wurzel;* It. *Radice di Columbo;* Port. *Raiz di Columba;* Sp. *Raiz di Columbo;* Mozamb. *Kalumb*), the root of the plant of that name. It is a staple export of the Portuguese from Mozambique. It is not cultivated, but grows naturally in great abundance. It is imported in circular pieces from ½ an inch to 3 inches in diameter, generally from ¼ to ¾ of an inch thick; the bark is wrinkled and thick, of a brownish color without, and a brightish yellow within; the pith is spongy, yellowish, and slightly striped: when fresh, its smell is rather aromatic; it is disagreeably bitter, and slightly pungent to the taste, somewhat resembling mustard that has been too long kept. Choose the largest pieces, fresh, and of a good color, as free from worms as possible, rejecting that which is small and broken. The freight is calculated at 16 cwt. to a ton.—MILBURN's *Oriental Commerce.*

Columbus, Christopher, the celebrated navigator and discoverer of the Western World, was born in Genoa about the year 1446. Although several illustrious families have contended for his alliance to them, his father Domenico, and his ancestors, appear to have followed the trade of wool-combers or carders, and were of humble, though reputable origin. Columbus received his education at the university of Padua, and, having evinced an early passion for the sea, entered into nautical life at the age of fourteen. The first voyage in which we have any authentic accounts of his being engaged was a warlike expedition fitted out at Genoa in 1459, when, associated with hardy and daring adventurers, he acquired so much distinction as to be intrusted with a separate command. After this, it is supposed, he was employed in various commercial, pious, and predatory expeditions against the Mohammedans and Venetians, in company with a famous corsair of his own name and family, and acquired reputation and experience in his profession. His son Fernando relates that, in an engagement off the coast of Portugal with four Venetian galleys, returning richly laden from Flanders, the vessel on board which he served, and one of the Venetian ships to which it was grappled, took fire. Columbus threw himself into the sea, seized an oar which was floating near him, and by this means, and his dexterity in swimming, reached the shore, although two leagues distant. Proceeding thereafter to Lisbon, he was induced to take up his residence in that capital.

Columbus became acquainted in Lisbon with the most eminent men in science and maritime art, whom the encouragement of Prince Henry of Portugal had attracted around him. At this period (anno 1470) he was in the vigor of manhood, of engaging appearance, grave, courteous, and affable in his deportment, moderate and simple in his diet and apparel, eloquent in discourse, possessing high magnanimity, and a temper which, though irritable, was under the control of a gentle and enthusiastic piety. Here he married Dona Felipa, daughter of Bartolomeo Monis de Palestrello, an Italian cavalier lately deceased, and a distinguished navigator, who had discovered and colonized the island of Porto Santo. Having obtained possession of the journals and charts of this sea captain, and also hearing accounts of his voyages from his widow, Columbus was seized with an irresistible desire of visiting unknown regions. In order to indulge it, he made a voyage to Madeira, and continued during several years to trade with that island, the Canaries, Azores, the settlements in Guinea, and the other places which the Portuguese had discovered on the continent of Africa. By the experience acquired in such a number of voyages, Columbus became one of the most skillful navigators in Europe.

His eminent biographer, Washington Irving, relates that "he divided the circumference from east to west at the equator, according to Ptolemy, into twenty-four hours, of fifteen degrees each, making three hundred and sixty degrees. Of these he imagined, comparing the globe of Ptolemy with the earlier map of Marinus of Tyre, that fifteen hours had been known to the ancients, extending from the Canary or Fortunate Islands, to the city of Thinæ, in Asia, the western and eastern extremities of the known world. The Portuguese had advanced the western frontier one hour more by the discovery of the Azores and Cape de Verd Islands; still about eight hours, or one-third of the circumference of the earth, remained to be explored. This space he imagined to be occupied in a great measure by the eastern regions of Asia, which might extend so far as to approach the western shores of Europe and Africa. A navigator, therefore, by pursuing a direct course from east to west, must arrive at the extremity of Asia, or discover any intervening land. The great obstacle to be apprehended was from the tract of ocean that might intervene; but this could not be very wide, if the opinion of Alfraganus the Arabian were admitted, who, by diminishing the size of the degrees, gave to the earth a smaller circumference than was assigned to it by other cosmographers—a theory to which Columbus seems generally to have given much faith. He was fortified also by the opinion of Aristotle, Seneca, Pliny, and Strabo, who considered the ocean as but of moderate breadth, so that one might pass from Cadiz westward to the Indies in a few days."

On these grounds Columbus formed the vast and daring enterprise which was destined to hand down his name to posterity with unfading honor; and, firmly established in a belief of the successful result of his projects, "he never," says Irving, "spoke in doubt or hesitation, but with as much certainty as if his eyes had beheld the promised land. A deep religious sentiment also mingled with his thoughts, and gave them at times a tinge of superstition, but of a sublime and lofty kind. He looked upon himself as standing in the hand of Heaven, chosen from among men for the accomplishment of its high purpose; he read, as he supposed, his contemplated discovery told in Holy Writ, and shadowed forth darkly in the prophecies. The ends of the earth were to be brought together, and all nations, and tongues, and languages, united under the banners of the Redeemer." The disturbed state of Portugal under Alphonso retarded the progress of discovery. The compass, though in general use, had not gained that reliance which induced mariners fearlessly to brave the dangers of the deep; and the project of a voyage through boundless wastes appeared extravagant and impracticable. Nothing daunted, however, by these disheartening symptoms, Columbus pursued his favorite schemes with ardor, and longed to put them into execution. So perilous an adventure was not, however, to be attempted without the patronage of some sovereign power; and John II., of Portugal, having at this juncture ascended the throne, and being favorably inclined to the cause of discovery, Columbus made his proposals, which were graciously received by the monarch, and referred to a learned junto. The result of their conference therefore was, that they recommended the king to fit out a caravel privately, and attempt the proposed discovery by the designated route, which they ascertained from charts and details craftily obtained from Columbus. John, in an evil hour, had the weakness to adopt this perfidious counsel. The caravel departed, but the pilots had neither the genius nor fortitude of Columbus; their courage failed, and putting back to the Cape de Verd Islands, they returned from thence to Lisbon, execrating the project as extravagant and irrational.

Columbus next carried his proposition to Venice, where he was equally unsuccessful. He also sent his brother Bartholomew to lay his plans before Henry VII. of England, having in the mean time sailed himself for Spain, where he arrived after having spent all his means. Columbus, in this state of abject poverty, set out for the Castilian court at Cordova in the spring of 1486. The moment was unpropitious for such a proposition, the Spanish sovereign being at the time engaged in military preparations against the Moorish kings. At length, through the intercession of Cardinal Gonzalez, he obtained an interview, and submitted his project to Ferdinand. Worn out with a series of disappointments and delays, and supporting himself by making maps and charts, Columbus, despairing of the Spanish patronage, began to look to other courts, in hopes of meeting more encouragement. He had already made preparations for this purpose, and taken measures for the disposal of his children during his absence, when Juan Perez solicited him to defer his journey, making application at the same time to Isabella-the result of which was a gracious invitation of Columbus back to court, accompanied with the present of a small sum to equip him for the journey. The monarchs were now pledged to attend to his proposals, and negotiations were set on foot to carry them into execution. He proposed that a small fleet should be fitted out under his command to attempt the discovery, and stipulating that he should be invested with the titles and privileges of admiral and viceroy of all the seas and lands he should discover, with one-tenth of all gains, either by trade or commerce. He further offered to furnish an eighth of the cost, on condition of enjoying an eighth of the profits. His terms were, however, deemed inadmissible; the negotiation broke off, and Columbus, in indignation, mounting his mule, was already on the road to Cordova, with the intention of immediately proceeding to France, when he was overtaken by a messenger from the queen, who had been prevailed upon by the arguments of Quintanilla and St. Angel, two of Columbus' patrons, to favor his undertakings. The negotiations were now completed, and the capitulations were signed by Ferdinand and Isabella at Santa Fé, on the 17th of April, 1492. The articles of agreement were to the following effect: That Columbus should be constituted high admiral in all the seas, islands, and continents he should discover, with similar honors and prerogatives to those enjoyed by the high admiral of Castile in his district. He was also nominated viceroy and governor general over all the said lands and continents; and a tenth of all free profits arising from the merchandise and productions of the countries within his admiralty was granted to him forever. Columbus, or his lieutenant, was to be sole judge of all causes and disputes arising out of traffic between those countries and Spain. He was further permitted to contribute an eighth part of the expense of expeditions to the countries he expected to discover, and was entitled in return to an eighth part of the profits. A principal object of Columbus in this undertaking was the propagation of the Christian faith, to which he was a zealous devotee. Expecting to arrive at the extremity of Asia, he hoped to spread the light of the Gospel among the barbarian nations of the East; and so confident were his anticipations that letters were actually given him by the sovereigns for the Grand Khan of Tartary. Although the royal documents were signed both by Ferdinand and Isabella, her separate crown of Castile defrayed all the expense; and the queen in consequence reserved for her subjects of that kingdom an exclusive right to all the benefits which might accrue from the success of the expedition.

The arrangement being finally completed, Columbus set sail on the 3d of August, 1492, in three small vessels, only one of which (commanded by himself) was completely decked. The two others were commanded by Martin Alonzo Pinzon and Vincente Yañez Pinzon. The expedition had sailed nearly 200 leagues to the westward, when Columbus perceived that the needle of the compass, when night set in, had varied; a circumstance which filled the pilots with consternation. For this phenomenon he was obliged to invent a reason, which, though it did not satisfy himself, yet served to dispel their fears. As the squadron advanced, various indications of land, such as birds flying from the west, the water becoming less salt, and occasionally covered with weeds, animated and supported the courage of the crew; but at length murmurs and fears began to prevail among them. They had sailed for eleven days, wafted by a most propitious breeze, over a tranquil sea, without lowering or shifting a sail. The rude seamen began to be alarmed that no other winds blew but easterly, and that it would therefore be impossible for them ever to return home. A few light breezes from the west allayed for a time their apprehensions, and several small singing birds came in the morning and flew away at night. But the sailors lost all patience, and became so mutinous and refractory that it required the utmost address of Columbus to maintain his authority. The appearances of land, though frequent, were in many instances deceiving; and at last the seamen broke forth into loud clamors, and insisted upon abandoning the voyage. Fortunately, however, on the following day the manifestations of land were such as no longer to admit of doubt. In the evening Columbus perceived a light glimmering at a distance, and the next morning land was clearly seen about two leagues distant. The sailors now burst forth into the most extravagant transports. They threw themselves at the feet of Columbus, implored his pardon, and pronounced him to be a person inspired by Heaven with more than human sagacity and fortitude, to accomplish a design so far beyond the ideas and conceptions of all former ages. At daybreak, says his biographer Spotorno, on the 12th of October, the hero landed, "*e di grand'orma il nuovo mondo imprima*" (and with his great footstep impressed the New World). Columbus and his followers threw themselves on their knees; and rising, the admiral drew his sword, planted the cross, hoisted the royal standard, and in the presence of the astonished natives, who imagined that the Spaniards had dropped from heaven, took possession of these new countries in the names of the Castilian sovereigns, giving the island the name of San Salvador. Having visited several of the West India islands, and settled a colony in Hispaniola, he again set sail for Spain. On the voyage he fell in with the Pinta, which had separated from him for a long time through the wickedness of the captain, who had gone in search of gold. After encountering several violent tempests, Columbus arrived in the Tagus, near Lisbon, on the 4th of March, 1493. He was treated with the most honorable attentions by the court of Portugal, and finally reached the port of Palos on the 15th of March.

The triumphant return of Columbus excited the most unbounded transport. Wherever he went the air rang with acclamations, and he received such honors as are paid to sovereigns. The court was then at Barcelona, and Columbus took care immediately to acquaint the king and queen of his arrival. They were no less delighted than astonished with this unexpected event. The admiral was conducted into the city with all imaginable pomp. The sovereigns received him seated in state under a rich canopy of brocade of gold, surrounded by their principal nobility. When he approached they stood up, and, raising him as he kneeled to kiss their hands, ordered him to be seated in their presence, and give a circumstantial account of his voyage. When he had finished his oration, which he delivered with much modesty and simplicity, the king and queen, kneeling down, offered up solemn thanks to God for the discovery. Every possible mark of honor that could be suggested by gratitude or admiration was conferred on Columbus; the former capitulation was confirmed, his family was ennobled, and a fleet ordered to be equipped to enable the navigator to go in quest of those more opulent countries which he still confidently expected to find.

The successful attainment of the splendid discovery of Columbus, great and manifold as were its advantages to mankind, was the prelude to the dark and troubled epoch of his life. By his second voyage to the Western World he no doubt in part realized his expectations, extended his discoveries, and came back to Spain with substantial proofs of success; but the ostensible purpose of his return was to obtain reparation of injurious imputations which had been heaped upon him, and generally to have his privileges confirmed and enlarged so as to enable him to exercise his authority over the colonists, who had become refractory and unmanageable. But his third voyage only accelerated his disastrous fate. The newly-discovered possessions were distracted with the horrors of rebellion. The verdant and blooming isles, the expected abodes of peace and happiness, were converted into theatres of sanguinary conflicts and misery; and Columbus found himself an object of fear and execration. It was during this voyage that he landed on the coast of Paria, in South America. Meanwhile his enemies in the Old World were not idle. An investigation into his conduct was instituted under the control of Francisco Bovadilla, who was empowered, should he find the charges of maladministration proved, to supersede Columbus, and assume the government of Hispaniola. The result was, that he and his brothers Diego and Bartolomeo, after having been treated with the greatest indignities, were sent to Spain in chains. From these disgraceful bonds he was immediately on his arrival released by the Spanish monarchs; but his complaints were tardily acknowledged; he again sank into obscurity, and was reduced to such straitened circumstances that, according to his own account, "he had no place to repair to except an inn, and very frequently had not wherewithal to pay his reckoning."

At length he was again employed upon a fourth voyage, with restricted powers; but the result was unpropitious, and he returned to Spain dejected in mind and worn out with bodily infirmities. Death at last relieved him from his earthly afflictions. He expired on the 20th of May, 1506, commending, with his latest breath, his spirit to God. A marble tomb was reared over his dust, bearing the inscription,

A Castilla y a Leon,
Nuevo mondo dio Colon.

Columbus was a man of great and original genius, energetic in his conduct, and possessed of lofty, daring, but noble ambition. "The magnanimity of his nature," says Irving, "shone forth through all the troubles of his stormy career. Though continually outraged in his dignity, braved in his authority, foiled in his plans, and endangered in his person, by the seditions of turbulent and worthless men, and that too at times when suffering under anguish of body and anxiety of mind enough to exasperate the most patient, yet he restrained his valiant and indignant spirit, and brought himself to forbear, and reason, and even to supplicate." His piety, though tinctured with superstition, was genuine and fervent. If on certain occasions his religion displayed itself in harshness and severity, the spirit of the age he lived in must be adverted to in palliation of his conduct. His temperament was deeply imbued with poetic enthusiasm. "It spread," remarks Irving, "a golden and glorious world around him, and tinged every thing with its own gorgeous colors. It betrayed him into visionary speculations, which subjected him to the sneers and cavils of men of cooler and safer, but more groveling minds. It filled his mind with solemn and visionary meditations on mystic passages of the Scriptures, and on the shadowy portents of the prophecies." "His soul," observes a Spanish writer, "was superior to the age in which he lived. For him was reserved the great enterprise of traversing a sea which had given rise to so many fables, and of deciphering the mystery of his age." "With all the visionary fervor of his imagination," adds Washington Irving, "its fondest dreams fell short of the reality. He died in ignorance of the real grandeur of his discovery. Until his last breath he entertained the idea that he had merely opened a new way to the old resorts of opulent commerce, and had discovered some of the wild regions of the East. He supposed Hispaniola to be the ancient Ophir which had been visited by the ships of King Solomon, and that Cuba and Terra Firma were but remote parts of Asia. What visions of glory would have broken upon his mind could he have known that he had indeed discovered a new continent, equal to the Old World in magnitude, and separated by two vast oceans from all the earth hitherto known by civilized man! and how would his magnanimous spirit have been consoled, amid the afflictions of age and the cares of penury, the neglect of a fickle public and the injustice of an ungrateful king, could he have anticipated the splendid empires which would arise in the beautiful world he had discovered, and the nations, and tongues, and languages which were to fill its lands with his renown, and to revere and bless his name to the latest posterity!" It will be remarked that Mr. Irving, in accordance with the generally entertained belief of all his biographers, alludes to Columbus as being the first discoverer of the American continent, which is emphatically so, as far as the commercial world is concerned. It is, however, certain that the continent was visited by the Icelanders in the end of the tenth and the beginning of the eleventh centuries; and Sebastian Cabot discovered Newfoundland and Labrador in June, 1497, nearly a year previous to the visit of Columbus on the coast of Paria. It also seems more than probable that Columbus was aware of Cabot's discovery.

Several controversies have arisen bearing upon the claims of Columbus to the discovery of the Western World; but such disputes, in so far as they affect the discovery of the *Columbian Archipelago*, are proved to be idle and futile, as no doubt now remains of Columbus having been the first navigator of the Old World who reached the island of San Salvador, and the first who visited the shores of the South American continent. One of the most current slanders on our navigator's fair fame, as related by Inca Garcilaso, was that Alonzo Sanchez, sailing to the Canaries in 1484, reached the island of St. Domingo, and communicated his voyage and route to Columbus. Some other Spanish writers notice the event without giving the name of the author of the discovery. Oviedo considers these relations as mere vulgar fables. We are, however, told by Columbus himself that he took advantage of such accounts as were transmitted to him by Spanish and Portuguese mariners, some of whom had sailed westward so far as to perceive what they considered to be indications of land. Gallo and Giustiniani, authors contemporaneous with Columbus, assert that Bartholomew Columbus first conceived the idea of western discovery, and communicated it to his brother; but Columbus has been triumphantly vindicated from these ungenerous aspersions by the unanimous testimony of the Spanish writers, among whom Las Casas, who knew both brothers, and preserved many papers belonging to Columbus, merits especial credence. But if any doubts remained, they are completely removed by the written declaration of Ferdinand and Isabella, who, in a communication dated the 4th of August, 1494, write thus to the admiral: "One of the principal reasons for which your discovery (the first) has caused so much joy to us is, that it is to be ascribed to your genius (por ser inventada), and that it has been commenced and terminated by your own individual endeavors, by your courage, your perseverance, and industry."—E. B.

The discoveries of Columbus were followed, in 1497, by those of Cabot on the northeast coast of America; in 1500 by Cabrul, a Portuguese, who visited the coast of Brazil and the mouth of the Amazon: in 1508 by Pinzon, who is said to have entered the Rio de la Plata. In 1511 Diego Columbus conquered the island of Cuba. In 1513 Balboa crossed the Isthmus of Darien. In 1519 Cortéz landed in Mexico. In 1531 Peru was invaded and conquered by Pizarro.

Colza, Oil of. The oil expressed from the seed of the *Brassica oleracea*, a species of cabbage. Colza oil is much used in France and Belgium for burning in lamps and other purposes.

Commerce. Commerce, in its most general sense, implies the exchange of articles of any kind for money or other articles. The earliest form of such exchanges is by barter, because the use of gold and silver is not adopted until society has made a certain progress. "The armor of Diomed," says Homer, "was plain, and paid for by nine oxen; while the splendid armor of Glaucus cost a hundred." Barter being now disused in all improved countries, commerce is almost always understood to denote the exchange of commodities for money. In France and the south of Europe the words used to designate commerce are derived from the Latin; in Holland, Germany, and other northern countries, a vernacular word is more frequent; but all are alike in meaning, being applied equally to home and foreign trade.

We propose in the present essay to treat of,

I. The principles of commerce, and the evils of interfering with the free course of trade; II. The history of Commerce, particularly in Great Britain, Holland, and America; III. Prominent commercial changes of the nineteenth century.

I. Principles of Commerce.—By "principles of commerce," we understand conclusions of two kinds; those deduced from the practice of merchants, and applicable to the management of trade by individuals; and those of a more comprehensive character, which, resulting from the course of productive industry generally, are entitled to the attention of a minister, or officer, of the Department engaged in the task of devising regulations for trade. Most of those conclusions seem so plain as to admit of little question; but it is a fact that several of them have been the result of long, and, in some cases, of dearly bought experience. As a specimen we give the following:

1. *Mercantile Axioms; example of them.*—Short credits and quick returns, however small the commission or profit, are eventually better than long credits and a large commission or charge.

2. The greatest mercantile profit arises from intercourse with populous and long-settled countries, such as Holland, because the inhabitants are in general possessed of capital, and punctual in their payments.

3. Recently-settled countries, like the United States of America, the West Indies, Spanish and Portuguese America, are always bare of capital. There is a perpetual tendency in them to draw it from Europe; and mercantile transactions with these countries, profitable in the outset, often become otherwise, from delays of payment, and ultimate insolvency.

4. Trade should be left as much as possible to its natural course, interference being almost always hurtful. Governments ought merely to remove obstacles and grant facilities. Privileges and monopolies were formerly very general; but these, if necessary in an early age, when individual capital was too scanty for distant undertakings, should be withdrawn as soon as such capital becomes sufficient.

5. Division and subdivision of employment can be carried to only a limited extent in agriculture. In manufactures they may be carried very far, and are productive of the greatest advantage. They afford employment to persons of every age, and they conduce greatly to the finished execution of work. Hence the superiority of towns, in particular of the larger towns.

Rules or observations like these are very seldom met with, either in printed works or in personal intercourse; and the reason is, that while few departments of industry have been followed in practice to so great an extent as commerce, hardly any other has been less an object of study in regard to its principles. There are hardly any books or written compositions for the purpose of instructing the merchant in the practical management of his business, and not many containing statistical or other information connected with trade. To no profession are written precepts considered to be so little applicable; in none is proficiency thought to depend so exclusively on practice. Hence an unacquaintance with principles or general rules, and the commission of grievous errors, as well by merchants in the pursuit of business, as by the government in the enactment of commercial regulations. Of the former we may take as examples the repeated glutting of foreign markets with goods, and the injudicious extension of sugar cultivation in the West Indies; of the latter, the fetters imposed upon the banking system, without stability being given to the system by the control and interest which should be taken by the general government.

The belief that it is for the advantage of a nation to manufacture almost every article it consumes has been the cause of the most serious inconvenience and loss. It is thus that in France the making of sugar from beetroot, and the more serious error of erecting blast furnaces for making iron in districts unprovided with coal fuel, have placed a large amount of capital in a situation whence it can not be withdrawn without heavy loss. In like manner, the privileges so long conferred by act of parliament on the silk manufacture in England, frequently tended to produce embarrassment, because they interfered with the natural course of trade. No branch of industry can be of permanent advantage to a nation, unless it can support itself without indirect or artificial aid. Were merchants and manufacturers left to themselves, the natural course of things would point out the branches of productive industry likely to succeed or not in a particular country; and capital would not then be advanced on an insecure foundation. Plain as this appears, it is quite at variance with the creed of our ancestors; a creed which, under the name of "mercantile system," long retained an influence over our traders, and, in some degree, over members of the Legislature.

The Mercantile System explained.—The basis of that system was, that "wealth consisted in the precious metals; that what is gained in trade by one nation must be lost by another; and that our great object in receiving returns for our exports should be to get money instead of merchandise." It followed from such notions, that of all possessions, a mining country, such as Mexico and Peru, was the most desirable; and hence in a great measure the rupture of England with Spain in 1740, which led to the unfortunate British expedition to Carthagena, involved her in a contest with France, and caused her in the course of eight years an immense waste of blood and treasure. The return to a state of peace in 1748 obliged her to desist from attempts on Spanish America, but the influence of the mercantile system continued, and was singularly favored by the annual custom-house returns. These returns exhibit an apparent excess of exports above imports, and give rise to the notion that the balance is sent to this country in the shape of money. Supposing the exports of England to the Continent of Europe to amount for any given year to £20,000,000, and the imports to £14,000,000; the difference, or £6,000,000, is, according to this absurd notion, the amount of profit paid in money. It is clear, however, that the custom-house returns take no notice of some very important items, such as the export of public money for foreign garrisons, the transmission of bills of exchange to foreign merchants, or the import of smuggled goods. Besides, if the quantum of circulating medium remain, as it probably does, very nearly on a par, what becomes of the supposed importation of money? Were England in possession of all the annual balances which the advocates for this system suppose her to have received in money during the last century, her metallic stock would not be below £400,000,000 sterling; that is, ten times its actual amount!

Wealth supposed to consist in Gold and Silver.—When a merchant exports goods, the sale, of course, takes place abroad, and a remittance is made, either by bill or by the return of other merchandise. It hardly ever enters into the contemplation of the exporter that he would find an advantage by obtaining a return in coin or bullion. Money owes the reputation it has acquired, as an object of national interchange, to its convenience in other respects; to its being the commodity with which we regularly go to market, and to its fitness for the smallest purchases, by the minuteness of its subdivisions. But this recommendation, however important in private business, should have no weight in the intercourse of nations; merchants can be at no loss to dispose of a remittance made in the shape of goods, nor is it any object with them to multiply the means of petty purchases.

Capital defined.—The interest of a commercial country is not to increase the amount of its currency, but to quicken its circulation; the same sum performing double and triple duty when passed expeditiously from hand to hand. Now nothing promotes circulation so much as exemption from arbitrary interferences, were the effect nothing more than the general preservation of credit. In France, the monstrous abuse made of the paper system in the beginning of the Revolution has long prevented the use of any other circulating medium than coin; the result is an annual loss of three millions sterling to the public, such being the difference between the cost of paper and the precious metals, even after making an allowance for the retention of a portion of the latter sufficient for the purpose of banking. Some people, however, imagine that to increase the amount of the circulating medium is to increase the capital of a country. These persons should recollect that capital is by no means limited to money, but embraces all that mass of property which is devoted to reproductive consumption. When we wish to lend capital, or to employ it in business, we begin by selling the various articles at our disposal: the amount is then in our hand in the shape of money; but this is very transient; the money disappears as soon as we make payment for the new purchases. The public not having time to enter into all this reasoning, judge from first impressions, and take for granted that money is capital, because its agency is required to put capital in motion. Governments, however, might have saved themselves much trouble in providing supplies of metallic currency, since the natural course of business will invariably provide them for itself. The plenty or scarcity of the precious metals depends on considerations altogether different from the imagined balance of trade. Specie was so scarce in England in 1809 that the government was not a little embarrassed to find £200,000 for the Walcheren expedition; yet in that year her custom-house returns presented an apparent balance of above £7,000,000 in her favor.

Losses to England from the Mercantile System.—No country has suffered so much from the errors of the mercantile system as England; partly on account of the influence of traders and manufacturers in her legislature; partly from the temporizing policy of the ministers, who have seldom scrupled to buy the consent of any great body of the community to a new tax, by the grant of some injurious preference. Hence a variety of pernicious regulations in favor of the landed, the shipping, and the manufacturing interests; hence, also, a number of unfortunate measures in the foreign policy.

The 17th and 18th Centuries.—Our English ancestors laid it down as a fundamental rule, that there could be no profit on the one hand, without a corresponding loss on the other. They considered trade as a game of mere transfer, and had no idea how a country could derive wealth by an intercourse between its own inhabitants. Charles II. entered on the war of 1672 with high hopes, imagining that, by destroying the commerce of Holland, England would not only increase her own, but in a manner absorb that of the world. Political reasons led England afterward into close alliance with Holland, and prevented the ebullitions of jealousy in that direction; but the alarming power of Louis XIV. and the prospect of his acquiring the crown of Spain, led her to a closer connection with Portugal, and particularly to the well-known Methven treaty, concluded in 1703, the object of which was to favor the consumption of port wine, in return for a similar preference to her manufactures. The result has been, that she has not scrupled, for more than a century, to import injurious commodities for the sake of an imaginary political advantage; we say imaginary, because France could evidently have agreed to take English manufactures in return for her produce; and if the increase of French trade had, on one hand, the effect of augmenting, to a certain extent, her national power, it would, on the other, have increased her dependence on England, and have rendered a war extremely impolitic and unpopular.

English attachment to Portugal arose, in a great measure, from her not being a manufacturing country, and likely, in the opinion of the calculators of the day, to be so much the more advantageous in the capacity of a customer. This notion has prevailed to a very recent period; the administration of 1808 and 1809 not scrupling to give encouragement to the export of merchandise, on a large scale, to the unproductive occupants of Brazil and Spanish America. Now, the fact is, that the means of extending trade, and consequently profits, with a foreign country, are to be estimated by a quite opposite rule; they depend on the productive power of that country, on its means of affording equivalents for our commodities; in other words, on its capability of paying for that which it suits us to sell to it. Now, what country was ever wealthy without industry? The mines of Mexico and Peru, the richest the world ever saw, fall, in point of annual produce, far short of the annual value of the cotton, the tobacco, the flour, and other less tempting products of the United States. In like manner, the cochineal, the cocoa, the barilla, and even the indigo of Spanish America, form a small amount when put in competition with the exchangeable commodities possessed by the industrious nations, such as France, the Netherlands, or the north of Germany.

Mercantile Policy of other Countries.—If from England's favorite policy we turn our attention to that of Continental states, we find Holland steering a course of impartiality, and guarded from an imitation of these trespasses, not indeed by superior knowledge, but by the characteristic moderation of her government. The northern kingdoms deserve comparatively little attention, their rulers having in general given their thoughts much more to war than to discussions of internal policy. The same thing was long true of a country where the commercial interest has at no time been very considerable; the personal will of the sovereign, and the influence of the *noblesse*, having afforded the grand *raisons determinantes* for public measures. Still the history of France is not without traces of the effects of mercantile prejudices. Among other regulations of the kind, there formerly existed several for the purpose of favoring linen manufactures instead of cotton, because flax was a home product, while the purchase of cotton carried money out of the country.

France.—At last it was found out by some Frenchmen of greater sagacity than the rest, that cotton might be safely admitted to entry, the money required to buy it proceeding necessarily from the employment of French industry in some shape or other. But the extent of popular prejudice was most singularly exemplified at the time when it was proposed to permit the unrestrained use of *toiles peintes*, or printed calicoes; every town that had a chamber of commerce remonstrated against it. A deputation sent from Rouen affirmed, that "the proposed measure would throw its inhabitants into despair, and make a desert of the surrounding country;" Lyons, the centre of the silk manufacture, declared that "the news had spread terror into all its workshops;" Tours "foresaw a commotion likely to cause a convulsion in the body politic;" Amiens asserted "that the proposed act would become the tomb of the manufacturing industry of France;" and Paris declared, "that her merchants came forward that they might bathe the throne with their tears." The government, however, stood firm; the duty on printed calico was withdrawn, and the inspector-general of manufactures ventured some time afterward to challenge the authors of those elegant effusions to compare their predictions with the result. "Will any of you," he said, "deny that the manufacture of printed calico has been the cause of giving a vast extension to the industry of the country, by employing a number of hands in spinning, weaving, bleaching, and printing? Look only to the branch of dyeing, and say whether this change has not done more for it in a few years than other manufactures would have accomplished in a century."

Commerce of Austria.—In some countries government go much farther, and still act in a commercial or manufacturing capacity, notwithstanding all the admonitions of political economists, or the more home-felt lessons of experience. The Austrian government conducts the gold and silver mines of Hungary to so little account, that the profit realized from these splendid establishments does not exceed a few thousands a year. In the year 1817 the French government, desirous of laying in a stock of corn for Paris, obtained a loan of money, with which they made purchases in various markets both in and out of the kingdom. The result was most distressing; the price of corn rose from 80*s.* to 120*s.* per quarter. The people in the provincial towns became apprehensive of a scarcity, and, though in general submissive to a fault, attempted at Rouen and other places to impede the course of the market, and to prescribe a limit to the price of corn. The alarm, once given, extended through great part of Europe, and gave occasion to a sudden rise, as may be seen by reference to the corn prices at the time in London, Amsterdam, and Hamburg. Nothing is, therefore, more impolitic than the interference of the public treasury with markets, however good the motive; a truth which has been so thoroughly felt in England as to prevent any thing of the kind during the last sixty years, government having confined itself in seasons of scarcity, as 1800, 1810, 1816, to permitting the free import of corn.

Modified State of the Mercantile System.—We are next to advert to the mercantile system in its most limited sense, in the shape which it now bears, after all the modifications of the experience of a century and a half. The predilection for the importation of "hard dollars" has disappeared among a portion of the public, particularly since making the discovery that bank paper can be made to answer the purpose of gold and silver. But even these persons are far from admitting the doctrines of political economists in all their extent; they still cling to the notion that we should discourage the import of a foreign article whenever a corresponding commodity can be raised at home; that we should impede, or even prohibit, all foreign manufactures; and that we should not scruple to encourage certain fabrics of our own by bounties. Such was formerly the creed of the majority of the merchants and manufacturers; such was, forty years ago, the creed of ministers and presidents of boards of trade. It proceeds on the plausible idea, that there can not be provided too much employment, and that our people would be in danger of falling short of work were we to purchase finished articles at the hands of foreigners. But there is not in the natural course of things any such deficiency of labor as to make it necessary, or even expedient, for us to turn things out of their regular order for the sake of giving employment to our population. Providence has evidently ordained that industry should be at no loss for objects; the interruptions to its peaceful course arise from our own wayward policy; from our restraints, prohibitions, and, above all, from our sudden changes from war to peace, and from peace to war.

Equally erroneous is the notion that it is more for our interest to send abroad manufactures than raw produce or money. If you grant a bounty on an export, you do nothing more or less than bribe a foreigner to make a purchase from you; you withdraw from its natural destination a portion of your capital and labor; for the sake of extending one branch of business, you weaken your means of competition in others. Mr. Hume has justly remarked, that in a question of personal right, the perception of a half-educated man may be sufficiently sound; but that the case is different in regard to matters of general policy, where the real is often different from the apparent result. Now this state of half knowledge has been the origin of almost all mercantile miscalculations; we have listened to first impressions, and have not scrupled to give them a practical operation by acts of government, without ever considering that the remote consequences would be injurious to ourselves.

The true Principles of Commerce.—We may safely discharge from our minds all that has been said, and all that has been written, in regard to the greater relative advantage attendant in trading in this or that particular commodity; we may feel satisfied that profits are much more on an equality than is commonly supposed; that no one would long be a dealer in that which did not afford him advantage, or remain a stranger to that which was throwing an extra gain into the pockets of his neighbor. The same rule is applicable in a national sense, the traffic in one commodity being either directly or indirectly as productive of profit as in another. Even foreign articles of luxury should not be discouraged, since the money required to pay for them must be previously raised by the employment of industry in some useful manner. This affords a new proof of the fallacy of first impressions, and leads to the grand practical conclusion of allowing people to "buy commodities wherever they can be got cheapest, without seeking to favor home produce above colonial, or colonial above foreign."

Merchants should possess unrestricted freedom, not only in regard to the articles they deal in, but in respect to the time of keeping them back or bringing them to market; and this not only from the general title which every one has to the management of his own property, but from a conviction that whatever benefits the individual will be productive of corresponding benefit to the public. This is a point of the last importance, as reconciling the lower orders to a variety of unpopular employments of capital, such as buying up goods to be warehoused, and not brought to market till prices are advanced. Take, for instance, the capitalist who buys a thousand hogsheads of sugar on its arrival from the West Indies in August, for the purpose of selling it in the succeeding March or April. Such a transaction is of use to all parties, affording, in the first instance, a customer for the planter or planter's correspondent; a depository for the public during the season that the article ought in great part to be stored up; and finally a seller, at a time when, without such deposits and such forthcoming of supply, the price might have become exorbitant, and might have continued so until the arrival of the next year's crop.

The more we study the natural progress of commerce, the more we shall be satisfied of the expediency of leaving all its various agents to their uncontrolled management. Business then divides itself, particularly in a large city, into a variety of separate branches, each of which may be carried on to a surprising extent by separate establishments. The commission charged by such persons is small, their dispatch extraordinary; capital does not remain locked up in their hands, and goods find their way to the market whenever prices are encouraging, that is, whenever the consumers are in want of them; they are withheld only when the market is glutted, and when to force sales would be productive of eventual injury to the buyers themselves. The doctrine of the happy medium is nowhere more applicable than in commerce: if you reduce prices for one season below what is necessary to indemnify the producer, you discourage production for the next, and you expose yourself to the hazard of a dearth.

Monopolies.—Monopoly is now generally admitted to be highly impolitic. No new grants of the kind have been issued in Great Britain for many years, and every renewal of the charter of the East India Company has been marked by a diminution of its restrictive character, till in 1834 its monopoly was abolished. In the United States monopolies have never been permitted, the government having early seen their injurious effects. The public are now aware that a privileged company can not make its purchases abroad on better terms than individuals, and that the chief operation of the privilege is to enhance the sale prices, or, in other words, to put money into the hands of a few at the expense of the nation. They are further aware that the concerns of a large corporation can not be managed with the minute economy and vigilance of the private merchant, and that its grand advantage lies in the intelligence and dexterity acquired by the transaction of business to a large extent by one establishment; an advantage of great importance, but which has nothing to do with the possession of exclusive privileges.

The final conclusions to be drawn from the principles of commerce are of the most comprehensive and beneficent nature. They teach us that every nation finds its account in the prosperity of its neighbors; that it would experience a corresponding suffering from their decline; that to aim at engrossing more trade than *naturally falls to our share*, is sooner or later injurious to ourselves; and that war, even when successful, is attended with the most serious losses. War turns to waste a large portion of our productive means; it leaves us oppressed with a ruinous burden in peace; it impedes the future extension of our exports, for the injury done to our neighbors recoils on ourselves; in short, it is so replete with evil to the public and individuals, as to be justifiable only in an extreme case, such as the defense of national independence, or the overthrow of a tyrannical usurper.

Division of Employment; its manifold Advantages.—Division and subdivision of employment form the great distinction between a backward and an improved state of productive industry. It increases the efficiency of the mechanic or manufacturer to an extent of which no one who has not studied the subject can have an adequate conception. Now, the degree to which employment is subdivided depends mainly on the size of a city or town; and in estimating the state of civilization in a particular country, we can not have a better guide than the proportion of the inhabitants of towns to those of the open country. Flanders and Holland were long the most improved part of the north of Europe, and had the greatest number of towns on a given extent of territory. This they still have, with the exception of the counties (Lancashire and the West Riding of York, England) which are the chief seats of English manufactures. After the Netherlands in town population come the north of Italy and northeast of France, along with the western part of Germany. Prussia and Austria have each a comparatively small number of towns; Poland has still fewer, and Russia is the most deficient of any country in Europe. In England the increase of town population has been progressive during the last eighty or ninety years, and bids fair to go on in an equal or greater ratio.

The division of employment is the result of commerce and of increased population. It is of two kinds: that among individuals, by which a specific task is appropriated to each, and that among nations, by which particular kinds of products are raised to a greater extent in one country than in another. The latter is as yet only beginning to claim the attention of public men, for it has been a frequent error with government to establish, in their respective territories, a variety of manufactures, without sufficiently weighing the local obstacles or disadvantages. Of this France furnishes some striking examples, particularly in the case of iron. The abundance of coal in England, and the ease in conveying it, and other bulky goods, by canals, give to their manufactures of iron and hardware an advantage which France in vain endeavors to equal. Her true policy would be to repeal the very heavy duties on the import of foreign manufactures, and to trust to her means of supplying the world with wine, brandy, and the other natural products of her country to an equal or greater amount.

Principles of Commerce; how far understood.—In point of knowledge of the great doctrines of political economy, Germany, or, to speak more properly, the Protestant part of Germany, particularly Saxony, may be said to take the lead of other countries on the Continent. The Dutch, however exemplary in their practical legislation, have little turn for speculative reasoning; the French have not patience to follow through its various links a chain of philosophical deductions; but their admiration of whatever is humane or liberal makes them wonderfully delighted with the brilliant conclusions of the science. They have the advantage of possessing, in the work of the late J. B. Say, the best arranged general treatise that has hitherto appeared on the subject; and they are by no means ill prepared for a very extensive application of political improvements, such as the abolition of privateering, the repeal of all heavy duties on foreign goods, and the substitution of inland taxes for those custom-house imposts which impede the free communication of nations. The rest of Europe is so much in the dark in regard to the great truths of political science as to see merely through the medium of local governments. Such is the case likewise in Italy, although that country can boast individuals of some note among the writers on the principles of commerce, and the reflecting turn of the people is favorable to such investigations; and even in Britain a large party is still adverse to the unrestricted application of these simple and beneficent principles, but this party is daily diminishing. The happy effects of the free-trade principles, which have been for some time in operation, as proved by the periodical returns of the English Board of Trade, are facts which can not be withstood; and we may safely calculate that a few years will convert the remaining advocates of protection to the free-trade faith.

Speculation in Trade.—Among men of business this expression is applied to incurring extensive hazards in the hope of extensive emolument; in short, to whatever is foreign to the proper business of the individual, or beyond the control of common rules. It is to such undertakings that vulgar credulity ascribes extraordinary profits; and even well-informed men are apt to give way to the assertions so confidently made, of vast occasional gains in this line of business. Dr. Smith himself, after remarking (*Wealth of Nations*, book i. chap. 10) that to make a fortune in a regular line commonly requires a long life of industry and frugality, adds, no doubt on the faith of repeated assurances from mercantile friends, that there are many examples of fortunes realized by speculators in the course of a few years. Now, the men who embark in speculation are, in general, very loose accountants; their estimate of profits applies to the gross, never to the net return; besides, they are almost always adventurers, and adventurers are seldom noted for the observance of truth. Their favorite season of activity is a time like that of 1808, when the sudden stoppage of ordinary intercourse caused a rapid fluctuation in the price of commodities, and when the regular merchants withdrew from the scene. Now, what sober estimate can be formed of loss or gain in such a chaos? Add to this, that these men trade almost always on credit, are in need of all the support which flattering representations, and rumors of sudden profit, can give them. All these reasons seem to justify a deliberate inquirer in doing what is seldom done on such occasions, we mean in withholding his belief from the confident allegations of speculators, so long as they are not supported by collateral evidence.

Frequency of Disappointment.—Our opinion is, that instead of the large profits commonly ascribed to this course of trade, the individuals concerned in it experience little else than disappointments, and maintain a perpetual struggle to keep up a fair appearance to the world. This opinion is founded partly on a knowledge of the actual career and circumstances of speculators, but more on the well-known fact that almost every line of business is in the hands of established merchants, who, of course, are too vigilant to overlook the opportunity of emolument, and who have much better means of information than temporary interlopers. Still, should there remain doubts as to the accuracy of our opinion, the question may be brought to a point by reference to the account-books of any given number of celebrated speculators; their affairs end almost always in bankruptcy; their papers continue open to access for years in the hands of their solicitors or assignees; and we are much mistaken if an inspection of them would show, in one case out of ten, that the parties had at any period succeeded in realizing their boasted profits.

Pernicious Effects of Speculation.—We have been induced to dwell the more on the boasts of speculators, because they are productive of great mischief in unsettling persons in business, particularly young men, and in making them look on their proper line with comparative indifference. It would be endless to attempt an enumeration of the various ways in which the rage for speculation has brought misfortune on merchants and manufacturers. The opening of a new country, such as Buenos Ayres, Brazil, or Caraccas, led to the export not only of a prodigious overstock of merchandise fitted for the country, but of many articles totally unsuited to the climate and habits of the people. Again, in 1814, when the war with France was drawing to a close, goods, both colonial and manufactured, were poured into the Continent of Europe, as if the compass of the markets was unbounded, and as if the calamities of war had produced no decrease of capital.

Holland; its instructive Example.—The country in which trade shone forth in all its splendor; where it was cultivated without the support of arms or prohibitory regulations; where, in short, it developed its beneficial tendency in all its extent, was Holland. If we look to the early enterprises of the Dutch, we find them enabled, by the power of their productive industry, to assert their independence at home, and to assail their enemies in the remotest part of their empire. The Portuguese in the East, and the Spaniards in the West, were each found unequal to the task of resisting these republicans. A proud stand was made by them against the navy of England, and they did not fall into despair even when assailed by English forces in conjunction with those of France. Afterward, when restored to an alliance with England, and when they co-operated with her in the great struggle against Louis XIV., it is surprising how large a proportion both of troops and subsidies was furnished by this apparently inconsiderable state. "No country," says Sir William Temple, "can be found where so vast a trade has been managed, yet the inhabitants have no native commodities toward building vessels, and hardly any that are considerable for traffic with their neighbors. Holland is grown rich by force of industry, by improvement and manufacture of foreign growths." Proceeding to specify more particularly the causes of this mercantile prosperity, Sir William enumerates "the easy communication of water, particularly by the Rhine and Maese; the security of property; the undisturbed liberty of conscience, and the progressive influx of people persecuted for their religious opinions in Flanders, England, France, and Germany." Such were the original causes: those of subsequent operation were the "general habit of industry and economy; the formation of canals; the institution of banks; the low interest of money; the appropriation of particular towns to particular branches of business; application to the fisheries, and, what he regrets much should not exist in England, the practice of keeping an official register of all purchases of land or houses;" a practice introduced into Holland and Flanders in the reign of Charles V., and which at present exists in Scotland, to the incalculable convenience and security of money transactions.

Effects of Trade upon Individuals.—We are now to say a few words on a different topic, namely, the effects of trade in forming the character of individuals; a matter of no little importance in a country like ours, where merchants both constitute so large a portion of the community, and exercise such influence on the proceedings of government. The mercantile character has a number of good points, being exempt from the vacuity and indecision so frequent in fashionable life, as well as from the various vices consequent on idleness, and which are so strikingly exemplified in the gambling and libertinism of the French metropolis. Whatever good is produced by continued activity, and by a pointed attention to the specific objects of one's occupation, may be confidently looked for among commercial men; with the further advantage, in large concerns, of an exemption from petty jealousies and invidious interferences. In such cities as London and Amsterdam, merchants are aware that the field is ample for all; that the prosperity of one is very far from impeding that of others; and that when disappointment and failure occur, their origin will be found in a very different cause than competition. Here, however, we must close our encomium, and, in the spirit of impartiality, proceed to exhibit the opposite side of the picture. The merchant's knowledge is particular, not general; he obtains a habit of understanding individual character, and a dexterity in managing his own affairs; but he has not, and can not, from his course of occupation, acquire the power of reasoning comprehensively on the interests of trade. If he observe in war a tendency to raise prices, or to invigorate particular lines of trade, such as ship-owning or insurance, he will probably be led to the general inference that to a maritime country war is advantageous. The contests of Great Britain from 1770 to 1810 having been attended with the undisputed command of the ocean, nothing more was required to satisfy the majority of traders that her mercantile marine was in a state of equal ascendency. They took *au pied de la lettre* the custom-house reports of annual exports, without observing how much was to be deducted on account of the depreciation of bank paper, or how surely they were laying the foundation of future distress by submitting to enormous taxation. Again, when in 1807 the long continuance of war had given a serious wound to her trade and navigation, a majority of the merchants ascribed it, not to the true cause, but to the undermining competition of the United States. Their range of reflection was not such as to enable them to perceive that, by overturning the prosperity of the latter, they would sap the foundation of their own; and that every million which they prevented us from adding to our capital was so much withdrawn from a fund devoted to the increase of the productive industry of Britain. Hence the unfortunate orders in council, the main cause of the overthrow of her exchanges with the Continent, of the increase of expenses in Spain and Germany, of her war with the United States; in short, of the long continuance of her sufferings since the peace.

Bad Effect of long Credits.—Nothing would, in our opinion, conduce more to the prosperity of trade than the adoption of the plan of doing all wholesale business for ready money, and the relinquishment of that habit of long credit which prompts to unguarded enterprise, and has for so many years been the principal cause of crowding the columns of the gazettes.

To show the results of long credit, it is necessary to go at some length into practical illustration, and to apprise our readers of the real situation of the majority of our manufacturers and export merchants. A manufacturer on the present footing receives orders in the course of the year from twenty or thirty mercantile houses; the goods to be exported probably to the West Indies, the Spanish Main, or Brazil; the understood term of credit twelve months. The manufacturer does not receive the orders from abroad; he has an intermediate guarantee, that of the exporting merchant. Still the risk is considerable; but he naturally hopes for the best, and is unwilling to decline an order when it comes to him from a quarter of respectability. Now by mercantile respectability our readers are to understand integrity, and the intention of acting up to engagements; but the power of doing so, especially at a remote date, is a very different question, and is, in general, possessed in a much smaller degree than the public imagine. The trader whose capital is large will not scruple to ship goods to the value of 50 per cent. greater than his capital, first in the hope, so general among merchants, of realizing a handsome profit, and next in confidence that, should the foreign market be dull, and should delays occur in obtaining returns within the given time, his credit will procure him indulgence for several months, at the end of which the expected remittances can hardly fail to arrive. He may, and in general does go on for several years without much embarrassment, receiving, indeed, less than he sends out, but informed that all has been well sold, and can not fail to be soon realized. He thus goes on pleasing himself at every balance of his books with the seeming profit, and only regretting that hitherto that profit has not been tangible, since it exists in the shape of a debt due by his correspondents. He continues, however, under a favorable expectation of their making up for past deficiencies, and flatters himself that the delay has resulted from partial or temporary causes. He begins to find himself straitened for funds, but has as yet little difficulty in obtaining relief from a moneyed friend, or a prolonged credit from the manufacturers. His correspondents continue to write in a strain of confidence, and to call for more goods, which if he be of a confiding character, will lead him to extend the annual amount of his shipments; but at all events he is obliged to continue a certain supply for the sake of keeping up the assortment of stock. Still he finds that year after year a larger portion of his capital remains with his correspondents, and that they, however desirous (for we by no means put an extreme case), are unable to prevent an accumulation of debt, because they are in like manner left unpaid by the inhabitants of the country. To go to law would be of no avail, since it is the policy of almost every government in a recently-settled country to favor the debtor, and to give him the means of retaining capital in his hands. Affairs now begin to be serious with the exporter; the manufacturer and other creditors can not or will not give further time, and demand an explanation of his circumstances. This explanation takes place, and serves to show that their debtor is a man of honor, with more assets than debts, but the latter are certain, while the former are at a distance of 3000 miles. The consequence is a grant of time, an allowance to the debtor of two, three, or four years, to act under letter of license, in the hope of accomplishing that which it is evident can not be performed sooner. This is, in general, both the wisest and most liberal course; still it is not often found to succeed, because the foreign debts can seldom be realized in climates where life is held by so uncertain a tenure, where respectable agents are so rarely found, where buyers of goods have so little capital, and, above all, where the law allows them such a length of time for payment. A few of the promised installments are probably made good, but in general the merchant recognizes the impracticability of fulfilling the remainder, and finds it eventually necessary to submit to bankruptcy.

Holland a Country of short Credit.—In Holland we find that in its better days bargains were almost always made for ready money, or for so short a date as six weeks or two months; profits were small in their ratio, but the quickness of returns made them eventually large; failures were rare, even in so distressing an era as the occupation of their country by the French, which began in 1795, and involved from the outset a stoppage of maritime intercourse with all their possessions in India and America. The consequence of this stoppage was a decay of trade, a suspension of various undertakings, a scarcity of work, a miserable dullness in the sale of goods; all leading, in the first instance, to diminished income, and eventually to encroachment on capital; but, amid this distress, the failures were surprisingly few. Another example, equally replete with instruction, was the state of France after the double invasion of 1814 and 1815. There prevailed at that time a general discouragement among the upper ranks, and a great deal of wretchedness among the lower, trade being at a stand, and stocks of goods lying unsold in shops or warehouses for years; still bankruptcy was exceedingly rare. All this shows what a satisfactory prospect we may anticipate when we adopt the plan of transacting the greater part of our business for ready money. Yet we are far from recommending any law or measure to enforce that object; the evident advantage of the plan will not fail to secure its adoption.

II. History of Commerce. *Origin of Commerce.*—It has been an object with many writers to ascertain in what nation of antiquity commerce was first carried to a considerable extent; but as that extent implies a previous population, the more simple inquiry would be, in what country population first acquired density, particularly in towns. The answer is, that mankind first increased their numbers in warm latitudes, especially in situations where irrigation, whether effected by the overflowing of rivers, by the descent of streams from a range of mountains, or by any other means, was so extensive as to counteract the parching effect of heat, and give to vegetation a luxuriance unknown in colder regions. It was thus that the Nile gave fertility to Egypt, the Euphrates to Chaldea, and the Ganges, in the lower part of its course, to Bengal.

The earliest written notice of commercial intercourse is in Scripture, where we read of Joseph being sold by his brethren to a company of Ishmaelites or Arabs, who were going to Egypt with spices, balm, and myrrh, conveyed on the backs of camels. These itinerant traders probably brought back corn, Egypt being, even at that remote period, an occasional granary for Syria and other adjacent countries. The conveying of goods on the backs of animals ought to be remarked as indicative of a primitive state of commercial intercourse—of that which is carried on before the forming of roads or the use of wheel-carriages. Such was the case in England two centuries ago; such at present is the case in Spanish America, and, in some degree, in Old Spain, the mountainous nature of that country making it a matter of some difficulty to form roads.

Phœnicia, Sidon, and Tyre.—But whatever might be the inland traffic of the Arabians, Chaldeans, or Egyptians, they made very little progress in navigation; that was the province of the Phœnicians, who acted as naval carriers to the neighboring nations, in the same way as the Dutch did during the sixteenth and seventeenth centuries to the rest of Europe. This almost exclusive possession of navigation may seem strange in the present age, but the cause was the same in both cases—namely, the difficulty in a rude age of finding men capable of conducting vessels in the open sea.

Seamanship, now so familiar to the inhabitants of almost every port in Europe, was in those days understood by only a limited number, and was carried on with a degree of caution and slowness hardly credible to a modern reader. Thus the seamen of ancient times made it a rule to keep within sight of land, as if trusting for protection to a situation which the mariners of our days look on as attended with considerable risk. This arose from the great difference in the mode of propelling vessels, for which the moderns trust chiefly to the wind, and navigate with comparatively few hands. The small barks of the ancients were fitted out with oars; a method which required a great sacrifice of manual labor, but was attended with the advantage of finding a ready shelter in a bay or creek whenever the sky portended tempestuous weather.

What, it may be asked, was the chief cause of the extension of the navigation of Phœnicia? The vicinity of Egypt, and the quantity of provisions and merchandise exported from that fertile country. The navigation of the Red Sea, also, was conducted chiefly by Phœnicians. History is not sufficiently explicit in regard to the commodities forming the object of traffic along the Red Sea, nor have we any certain knowledge of the era at which the trade with India by that channel commenced. Bonaparte, when meditating his expedition to Egypt, was led, in his sanguine estimate of its advantages, to consider the Red Sea as the fittest line of communication with India, and to ascribe the wealth of Thebes, in Egypt, one of the earliest of commercial cities, to intercourse with the coast of Malabar. But whether the navigators of the Red Sea proceeded at that early date as far as the shores of India, it is evident that an extensive traffic was carried on with Cosseir, or a sea-port on the Red Sea which communicated with Thebes. The epoch at which Homer celebrated the wealth of that city is nearly the same as that at which Phœnician mariners navigated the Red Sea on account of the Jewish government in the reign of Solomon; but no historical investigator has been able to fix with certainty the situation of Ophir and Tarshish, the ports with which these vessels traded. Some confident calculators have considered them to have been in India; but, judging from the limited skill of navigators in that early age, it seems more likely that these harbors were near the eastern or more remote parts of the Red Sea, a part from which there probably was a direct communication with India.

Greece.—Such was the traffic of the Phœnicians with the south and east; it extended also to countries less peopled and in a still more primitive state in the west. The island of Crete seems to have owed to them its early civilization; and after Crete came Attica, Bœotia, the Peloponnesus, in all of which tradition recorded the early introduction of the arts by settlers arriving from Phœnicia or Egypt. These arrivals seem to have taken place about a thousand years before the Christian era, and half of that time elapsed in the gradual attainment of that state of civilization to which Greece had arrived at the period of her political celebrity—the invasion of her territory by the Persians under Darius and Xerxes. Greece is in several respects well fitted for foreign commerce. Her coast is greatly indented by the sea, and presents a number of inlets hardly inferior to the well-known gulfs of Argos and Corinth. Hence an early familiarity with the use of shipping, and the practice of sending out colonies at so early a date as a century after the Trojan war. These colonies proceeded in various directions, to Asia Minor in the east, to Thrace and the Euxine in the north, to Sicily and Italy in the west. The progress made by the inhabitants of these colonial settlements was rapid, particularly at Syracuse, whose capacious harbor soon acquired it extensive commerce and a numerous population. Agrigentum, Messina, Tarentum, were likewise places of considerable importance. It was the custom of these and other colonies to maintain an alliance and mercantile connection with the parent states, such as Athens, Corinth, Argos; and a number of characters eminent in literature and the arts appeared in the colonies at a time when their establishment might have been considered as too recent to afford more than the necessaries of life. But in a newly-settled country, such as the United States of America, various circumstances occur to increase the number and improve the condition of the inhabitants; provisions are abundant, in consequence of the extent of unoccupied land; the connection with the mother country insures a certain extent of trade; while the monopolies and other abuses natural to a long-settled community are in a manner unknown.

Athens.—On the other hand, the inland territory of Greece was not well fitted for commercial intercourse. It is traversed by no navigable river; and being mountainous and rugged, it could not, even in the days of its prosperity, boast of roads, merchandise being in those days, as at present, conveyed, not in carriages, but on the backs of horses and oxen. This deficiency of communication by land was one cause of the different states of Greece so long maintaining their independence, and of the limited ascendency attained by Lacedæmon, which, in extent of military means, was so superior to the other states of the Peloponnesus. Sparta and Thebes being inland towns, and Corinth comparatively a small state, Athens was the chief commercial city of ancient Greece. Her distance from the sea, five miles, was such as to afford her security against a sudden descent from an invading armament, while it was sufficiently near to her harbor, the Piræus, for the easy transmission of merchandise. The trade and shipping of Athens, however small it might appear to a modern reader, was such as to give it an ascendency over the different islands to the eastward of Greece, and to enable it to maintain, in the Peloponnesian war, a long struggle against a strong confederacy. When overcome at last, in consequence of what may be termed an accidental cause, the capture of its fleet by Lysander, its political depression was of short duration; the activity and industry of its inhabitants revived its trade, so that Athens continued for ages the most populous and commercial place in Greece.

Tyre.—Tyre, though at no time a town of great extent, remained long in the enjoyment of considerable trade. From the reign of Solomon, when its commercial activity is described in Scripture, to its capture and destruction by Alexander the Great, there elapsed a period of seven centuries. The formidable resistance it made to the Macedonian arms impressed Alexander with a strong sense of the value of commerce, and of its effect in increasing the sources of national power. Though known to the world chiefly as a warrior, Alexander had considerable claims to the character of a politician. He adopted, and caused his followers to adopt, to a certain extent, the manners of the nations they conquered; and by the expedition of Nearchus from the mouth of the Indus to the Persian Gulf, he discovered a commendable zeal for maritime discovery. Equal judgment was evinced by him in founding his new city of Alexandria in a position such as to command an extensive range of intercourse. The Nile brought to it on one hand the valuable products of Egypt, and afforded on the other a ready inlet to the merchandise imported from Europe. To India, also, the route by Alexandria and the Red Sea was preferable to that of the Persian Gulf, which involved the necessity of a considerable journey by land.

Carthage.—Contemporary with the decline of Athens and the rise of Alexandria, but superior to either in commercial activity, was Carthage, the destruction of which forms one of the foulest blots in the history of the Romans. The situation of Carthage was well adapted for trade; its harbor was good, its range of navigation extensive, both to east and west. Founded by a colony from Tyre, it maintained a friendly intercourse with Phœnicia; while in the west of the Mediterranean, in Sicily, Spain, and the south of France, it met with no commercial rival. These countries, at that time uncivilized, and almost uncultivated, were greatly indebted to Carthage for the introduction of intelligent settlers, and derived from her the same advantages which Greece, several centuries before, had received from Phœnicia and Egypt. In Spain the fine harbors of Carthagena and Cadiz were rendered the resort of shipping by the Carthaginians; and without calling on our readers to believe the traditional assertions of the extent of their navigation, either to the north of Europe or the south of Africa, we may with confidence affirm that, had not this state unhappily fallen, from the jealousy of the Romans, it would have been the means of diffusing industrious habits over a great part of the west of Europe, and of advancing by several centuries the progress of the useful arts.

Rome.—The policy of Carthage, though not uniformly pacific, was far less pernicious than the perpetual tendency to aggression of a military state like Rome. In navigation the Romans were at no time remarkable. During their conflicts with the Carthaginians they sustained repeated losses, chiefly from the unskillfulness of their seamen, and their inability to cope with the fury of the elements. After they had triumphed over the Carthaginians, and extended their conquests to Macedon and Greece, the Romans were no longer under the necessity of equipping fleets, because no maritime power dared to dispute their supremacy. But the extension of the Roman power was favorable, in several respects, to commerce; piracy was suppressed, and merchant vessels had free access to almost every part of the Mediterranean. Hence a gradual increase in the length of mercantile voyages, which now extended on one hand to the north of France and Germany, on the other to the Indian Ocean, to which it became easy, from the progressive improvement of navigation, to proceed either by the Red Sea or the Persian Gulf. The mariners' compass was still unknown, but the uniform direction of the wind in certain seasons enabled the navigators to and from India to complete their voyages with little difficulty.

The Middle Ages.—It was toward the middle of the fifth century, about a hundred years after the removal of the seat of empire to Constantinople, that the Romans became unable to defend their frontier against the uncivilized tribes who pressed on them from the north and east. The consequence was that the country along the Rhine, the inland provinces of Gaul, and, some time afterward, Spain and the north of Italy, were overrun by these rude assailants. The increase in the population of towns was checked, many places being plundered, others subjected to heavy contributions, and property in general rendered unsafe. There was no longer a central or general government; the territory of the empire was divided into a number of separate states, the rulers of which had no just idea of the importance of commerce. These uneducated governors, accustomed to appeal on almost all occasions to the sword, were not sufficiently enlightened to forego the temptation of a present seizure for the sake of the lasting advantage of mercantile intercourse.

Pisa.—Next to Venice in the history of modern commerce came Pisa, a town built on the banks of the Arno, at a distance of nearly three leagues from the sea. Its trade was chiefly with the western coast of Italy, with Sardinia, Corsica, and Sicily. Its commercial importance was prior by two centuries to that of Genoa, although it never equaled the latter in extent of navigation, nor in the number of distant settlements. Pisa declined from its commercial rank in consequence of Leghorn, which was situated immediately on the coast, being better adapted to foreign intercourse.

Genoa.—Genoa continued flourishing from the year 1000 until its ill-judged hostilities with Venice in the latter half of the fourteenth century. These were injurious to both, yet both recovered from the effects so as to hold, during several centuries, a distinguished rank in trade. They were remarkable also, particularly Venice, for a variety of the finer manufactures. Neither could boast of a supply of the raw materials of almost any manufacture in their respective territories; but their numerous merchant vessels brought a variety of products from a distance, and the amount of the population of either city was such as to render practicable that division of employment which is the soul of manufacture, and which was at that time almost unknown in other parts of Europe.

Constantinople.—Constantinople had the good fortune to remain untouched by the enemies of the empire until the middle of the fifteenth century, a time when civilization had made progress in the west of Europe, and literature was on the eve of receiving a great extension by the discovery of the art of printing. To this fortunate coincidence of the revival of the arts in the west, at a time when the east of Europe was sinking under the pressure of barbarism, we owe the preservation of much that was valuable in the ancient world; and, among other things, that of certain manufactures and branches of commerce. Constantinople had all along maintained a commercial intercourse with Venice and other ports in Italy, and, in general, with Alexandria. The same had been the case in regard to India; for when the occupancy of Egypt by the Saracens prevented the trade to India by the Red Sea, it was kept up by the Caspian and Euxine. But by far the shortest course from the east of Europe to India is by the Euphrates and the Persian Gulf. It was to the extent of intercourse carried on by this channel, some time after the Christian era, that we are to ascribe the wealth and grandeur of Palmyra, a city erected in the midst of deserts. This would have continued one of the chief routes of communication between Europe and India during the Middle Ages, had not the caravans been in perpetual danger from the Arabs after the decline of the civilized governments in this part of Asia.

Venice.—The apprehension engendered by the approach of barbarians from the north and east, led a number of traders and manufacturers settled in the north of Italy to fix their families in the small islands near the mouths of the Po. There the surrounding waters afforded them a degree of protection against invaders, who, however formidable by land, had no means of carrying on hostilities by sea. Such was the origin of Venice, a city situated in the midst of the waters, and destined to acquire extensive trade from the security attendant on her position, and to take a lead amid the mercantile states of the Middle Ages.

The growing trade between Europe and India, though of considerable value, was not extensive enough to be productive of the wealth ascribed to it by Dr. Robertson and other historians, who, unacquainted practically with commerce and its limited gains, are ready to lend an ear to the sanguine statements of early writers. Thus the wealth of Venice, commonly ascribed to its trade with Alexandria and India, was the consequence of a variety of causes, no one being of particular importance, because several centuries were passed in the gradual increase of its population and capital. Venice afforded a secure resort in ages when other countries were in danger of invasion and plunder. It had also a prudent government in times when, in most parts of Europe, there was little idea of a free constitution, or of a regular administration of justice. Venice was in this state when, in the twelfth and thirteenth centuries, the increase of traffic, arising from conveying the crusaders, with their military stores, and the readiness of those zealous combatants to extend the sway of a Christian state, enabled that commercial republic to increase her foreign territories. In general, the foreign policy of Venice was pacific, but she found it difficult to avoid hostilities with the Turks, or to escape from taking a part in the repeated contests which took place between France and Austria for the territory of the Milanese. Those who take an interest in tracing the gradual extension of industry will find in Venice the origin of several important commercial institutions. In that city was established the first public bank, and there also was first introduced a funded debt transferable from hand to hand. The same thing held in regard to lesser matters connected with the details of mercantile business. Bills of exchange, if not invented by Venetian merchants, were first carried by them to a great extent; and the principles of book-keeping by double entry were there first understood and applied in practice. However familiar those principles may be to merchants of the present day, they were too refined for the rude and primitive state of most parts of Europe in the Middle Ages.

Spain.—Here it may be well to point out the fallacy of a notion general in Spain, and not uncommon in other parts of Europe, namely, that in the Middle Ages Spain was a flourishing country, and possessed, in Tarragona, Tortosa, and Zaragoza, great population and wealth, each of these towns being said to have contained several hundred thousand inhabitants. This singular opinion was widely spread, in consequence of the prominent figure made by Spain in the politics of Europe, in the reigns of Charles V. and Philip II. The public did not take into account the great addition of power conferred on Spain by her possessions in Italy and the Low Countries; nor were there in these days statisticians capable of explaining the very slow manner in which either cultivation or commerce can acquire extension in a country so mountainous, and with so few means of transport, as Spain. Of roads she can boast only the few that are required for the purposes of government, the cross-roads being little more than bridle paths, and the traffic of the country being in genral carried on by mules. All this indicates a scanty population and backward state of society, as has been the case in Spain in every age; for there is no truth in the traditionary opinion that her population was greatly thinned by emigration to America. The number of persons who proceeded annually from Spain to America never exceeded the tenth part of those who at present go annually from Ireland to Canada. The truth is, that the power of Charles V. and Philip II. was great only because the power of the other princes of Europe was very limited. The military establishments of that age were quite insignificant compared to those of the present times.

The Hanse Towns.—One of the chief features in mercantile history during the Middle Ages was the association of towns in the north of Europe for the purpose of giving security to mercantile property. At that time the different countries of Europe were very imperfectly governed; there were then no regular posts and very few roads, so that the means of redressing grievances, or of making communications from one part to another, were very imperfect. Too much has been said of the political power exercised by the Hanse Towns, but the association was of great use in protecting individual property. It dated from the middle of the thirteenth century, and originated at Lubeck, a sea-port, which had not in those days more population or wealth than at present, but possessed much more comparative importance, because very few places in Europe could at that time boast of 30,000 or 40,000 inhabitants. The trade between the Baltic and the west of Germany centred in the harbor of Lubeck, in ages when navigators were not sufficiently skilled to proceed to or come from the Baltic by the circuitous route of the Sound. The association of the Hanse Towns consisted first of Lubeck, Hamburg, and Brunswick, but soon extended to other places—to Amsterdam, Dordt, Cologne, on the one side, to Dantzic, Königsberg, Riga, on the other. These and many smaller towns, to the number of sixty and upward, became members of this protecting body, which continued in a state of union during three centuries. At the end of that time it was gradually dissolved, not by any violence or exercise of authority, but by the continued progress of civilization; the different governments in the north of Europe having by that time acquired the power of protecting their mercantile subjects. It is now about two centuries since the association of the Hanse Towns ceased to exist in a comprehensive sense; and for a considerable time the name has been confined to Hamburg, Lubeck, and Bremen. Hamburg took the lead of other trading towns of the north of Germany, by means chiefly of the extent of its river, and the consequent easy communication with the sea on the one hand, and the interior of Germany on the other. It gained also by the improvement of navigation in the fifteenth and sixteenth centuries, when vessels from the south of Europe found it no longer necessary to suspend their voyage at Bruges, but found it practicable, and even easy, to proceed at once as far as the Elbe.

The Netherlands.—The wealth and possession of the Netherlands belong, like the early opulence of Tyre, and the magnitude of the trade of Carthage, to the remarkable phenomena of mercantile history. To judge from the physical aspect of Holland, the general marshiness of the soil, the indifferent climate, and the total absence of mineral products, we should be inclined to consider it among the least favored countries of Europe; but all these advantages were balanced, and more than balanced, by the possession of extensive water communication. No part of Europe equals Flanders and Holland in extent of inlets from the sea, in the breadth of navigable rivers, or in the ease with which canals may be excavated. To these advantages, much more than to civil institutions, we are to ascribe the early prosperity of the Netherlands; for these apparently unpromising countries took a lead in civilization almost as remarkable as the more favored regions of the north of Italy. That they were not so early in the career of improvement, was owing to the comparative barbarism of the countries in the north of Europe with which they held intercourse; while Italy had communication on one hand with Constantinople and the Eastern empire, on the other hand with the south of France, the west of Italy, and various sea-ports which still preserved a portion of ancient civilization.

Flanders; Holland.—The soil of Flanders, without being naturally fertile, was more easily cultivated than the comparatively marshy districts of Holland. Hence the early superiority of the Flemings in agriculture and manufactures. It was in the fourteenth century that the art of weaving the finer woolens was introduced from Flanders into England, and in the sixteenth that we derived from the same quarter many useful imports in agriculture and gardening. The progress of the Dutch in navigation was equally remarkable. The Maese and Rhine enabled them to bring down the bulky produce of the interior, such as timber, corn or cattle, to their own coast, as well as to carry up these rivers to the inland provinces the various articles of merchandise imported from the south of Europe. Hence the increase of Dordt at Rotterdam. The rise of Amsterdam was owing to a different cause; to the extent of the Zuyder Zee; to the easy access which that expanse of water afforded to vessels from the Elbe, the Weser, and the Baltic.

Bruges.—Bruges owed its increase to its adoption as an intermediate port for vessels from the north and south of Europe. A voyage from the Mediterranean to the Baltic was in those days a formidable undertaking; sea-faring men accounted it too long to be performed out and home in one season, and gladly embraced the opportunity afforded by the warehouses of Bruges for landing their cargo from the south, and taking on board another from the north, without the delay of a passage through the Sound. This plan of dividing the voyages to the north continued during the thirteenth and fourteenth centuries; in the fifteenth it in a great measure ceased, because the improvements in seamanship made it easy for vessels to proceed directly to Hamburg, Copenhagen, and other northern parts.

Antwerp.—Antwerp succeeded Bruges as the station authorized by the Hanse Towns; but its prosperity was mainly owing to the width and depth of the Scheldt, which may be said to surpass any of the maritime inlets in the north of Europe. The time of the chief prosperity of Antwerp was in the sixteenth century; its population and wealth had attained a great height for so unimproved an age, and would have continued to increase, had not the tyranny of Philip II. provoked the inhabitants to insurrection, and exposed them to all the evils of a siege and capture by a military force. The consequence of this misfortune, and of the continued intolerance of the Spanish government, was the removal to Amsterdam of many of the inhabitants, and of a great share of the mercantile business of Antwerp. In the next century the Dutch acquired great political weight, and took advantage of it to prevent the navigation of the Scheldt, that Amsterdam and Rotterdam might possess exclusively the trade with the interior provinces. This singular prohibition, unexampled in the history of commerce, remained in force 150 years; for the Scheldt was not opened to merchant vessels until 1794, when the Netherlands fell under the dominion of France. During all that time Antwerp was deprived of the benefit of foreign trade; its population ceased to increase, and remained stationary at the number, on an average, of 50,000.

Maritime Route to India.—The great object of navigators in the fifteenth century was to reach India by the ocean, and to carry on what was accounted a lucrative traffic without interruption from the Turks or Arabs. The discoveries required for this purpose were made by the Portuguese, who, in situation, were nearer than other Europeans to the western coast of Africa, the line necessarily followed by those who aimed at reaching India by a new course. The Portuguese had in those days more than one prince of the blood disposed to patronize maritime discovery; but their seamen were very unskillful, so that in following their awkward efforts at discovery, we find season after season passed in tracing the unknown part of the coast of Africa to a distance of only fifty or sixty leagues. This inconceivable slowness marked the navigation of the Portuguese in their progress toward the equator, until, in 1484, they ventured to forsake the coast, stood out to the open ocean, and penetrated 1500 miles to the south of the line. From that time a bolder course was taken by these adventurers, and at last the discovery of the route to India by the Cape of Good Hope was accomplished in 1497.

Discovery of America.—The discovery of America was effected in a very different manner. Though accomplished by Spanish vessels, the honor of the enterprise belonged more properly to Italy; for it was only in a country accustomed to navigation, and possessing well-educated mariners, that so distant a voyage could have been accounted practicable. Many years were passed, as is well known, by Columbus in forming his plan, and soliciting the aid required to carry it into effect; but, once embarked in the attempt, the success was speedy, because the mind of the conductor was sufficiently enlightened to persevere in the voyage, instead of returning, as would probably have been done by an inferior navigator before traversing the half of the Atlantic.

We now come to the sixteenth century, the time when the productive industry of Europe received a considerable impulse from the influx of the precious metals from America. At that time the chief trading towns of Europe were in Italy, the Netherlands, and, in a much less degree, in France, England, and Germany. In the latter countries the towns were very small, not being peopled to the extent of one third of their present numbers. Nothing shows more clearly the backwardness of manufactures in that age, the imperfect division of employment, or the limited communication between one province and another. There were in those days few lines of intercourse entitled to the name of roads, or fit for conveying corn or merchandise by wheel carriages. Even in countries comparatively level, such as the south of England, the north of France, the north of Germany, there were no carriage roads, and goods were conveyed on the backs of mules and horses, in the same manner as over the mountainous regions of the Alps. Nor were there in that time post-office establishments for the service of either governments or merchants.

An increase in town population is the best evidence of improvement in agriculture, as in commerce. In a rude state of cultivation, the labor of seventy or eighty persons is required to raise provisions for a hundred; so that three fourths of the inhabitants are obliged to live in country districts, for the mere purpose of raising subsistence. But as machinery and implements become improved, and the art of husbandry is better understood, the farmer can render more effectual the labor of himself and his assistants; there remains a greater surplus of provisions for the support of the inhabitants of towns; and somewhat more of the population are enabled to attach themselves to employments distinct from agriculture, namely, those of mechanics and manufactures. To this improved condition Europe was slowly advancing, when the discovery of the silver mines of America had the effect of materially quickening its progress. This renders it proper to make a few remarks on the supply of gold and silver in early ages.

The precious Metals.—It is somewhat singular that Egypt, a country never remarkable for mines in its own territory, should have been among the first to give an example of mining on a large scale. But the Egyptians had extended their conquests to the southward, where, in the mountains of Nubia, there were extensive mining districts. In these, as in the mines of other parts of the world, masses of ore contained only particles of silver, and the task of raising the ore to the surface was very laborious. This was performed in the Nubian mines with little aid from machinery, and chiefly by manual labor, as is still the case in many parts of Spanish and Portuguese America. The next accounts of mining in ancient history relate to Greece, where, from the mountainous nature of the country, the mines were numerous, though not particularly productive. They were wrought in Attica, Thrace, and several of the islands. The laborers were paid partly in money, partly in provisions; and the accounts handed down to us by Greek writers show that mining, like agriculture, afforded a fair return for the capital and labor employed, but no remarkable profit. Spain in those times, as at present, was remarkable for extensive mining; as were in a less degree Sardinia, Corsica, and the small island of Elba.

Such undertakings were long carried on for the public account; but toward the fifth century of the Christian era, the Roman government withdrew from most of its mining establishments, allowing individuals to carry them on for their own account. The quantity of gold and silver in circulation appears to have subsequently decreased; but we are greatly at a loss for correct information in regard either to the state of mines or the prices of commodities, as represented in money, during the Middle Ages.

Influx of Silver from America.—It is now three centuries since the importation of silver from America, in particular from Mexico and Peru, amounted at first to half a million annually, and increased to one, and afterward to two millions. This sum was such as to affect the prices of corn, labor, and merchandise generally. It caused a gradual rise of prices, carried to the greatest length in maritime districts, in parts connected with each other by navigation. The published works of the sixteenth century contain many notices of the rise in the price of commodities, and of the inconvenience resulting to the consumers from such rise: the advantages to agriculturists and producers generally were not so clearly perceived, or the humble classes enjoying them had not equal means of stating them to the public. The supplies of gold and silver from America to Europe continued during the seventeenth and eighteenth centuries, and on a much larger scale than during the sixteenth; yet their effect was not so great for several reasons. First, the number of persons among whom silver now circulated was far greater than formerly. Gold also had become more common, and began to form the chief, or almost the sole medium for large payments; and, lastly, the use of silver for plate, jewelry, watches, and other ornamental purposes, increased greatly in consequence of the improved circumstances of the middle and upper classes. There remained thus less silver to add to the coin in circulation.

Bank-notes.—It was in the eighteenth century, particularly after 1750, that the use of bank-notes became general in England, and subsequently in the United States of America. This may be compared in its effect on prices to an additional supply of gold from the mine, because its tendency to raise prices is considerable, though not so great as is vulgarly supposed; because bank paper payable in cash on demand, of which alone we speak, can never be unduly extended. Bank-notes have as yet obtained little currency on the Continent of Europe; but in Great Britain, Ireland, and North America, their effect on prices may be said to have been similar to that of the importation of the precious metals from America. In either case, the consequence was a rise in the money price of corn, and commodities generally. To comprehend the benefit of such rise, we should consider society as divided into two great parts; the producing and the non-producing classes. The latter consist of capitalists, landholders, or fixed annuitants; the former of farmers, especially tenants on lease, manufacturers, merchants, and, in general, all persons who carry on business with borrowed capital. If a tenant on lease continue to pay during twenty-one years the same rent, while the market price of his crops experiences a progressive rise, it follows that his circumstances will improve. Thus, on the augmented importation of silver from America to Great Britain, which began three centuries ago, there took place a slow but steady rise in prices, the effect of which was of great advantage to agriculturists, in particular to those who held land on lease. The yeoman who was cautious and persevering thus laid the foundation of a little property, the next generation added to it, and the third rose from the condition of cottagers to that of farmers. This, or something like this, was the course of circumstances in England, during the chief part of the sixteenth, seventeenth, and eighteenth centuries. If the effect was at no time very great, it was continued and progressive; for we can trace no great or general decline in the price of agricultural produce until the general peace of 1814.

Trade of Great Britain.—The trade and navigation of Great Britain, great as it now is in extent, did not by any means make an early figure in the commercial history of Europe. Of this the principal cause was the thinness of her population compared to that of the north of Italy or the Netherlands, and the consequent insignificance of her towns. The slow progress in trade is also to be ascribed to political causes, to the civil troubles originating with the great barons, the frequent wars with France, and still more to the long and sanguinary contests in the fifteenth century, respecting the rival claims of the houses of York and Lancaster. It was not till the reign of Henry VII., little more than three centuries ago, that the advantages arising from the extent of coast and abundance of fuel began to be brought into active operation. During the reign of his successor, the progress of improvement received little patronage from the court, but a most efficient indirect aid from the introduction of Protestantism. The advantages resulting from that happy change, and the development of national industry, were strongly displayed during the long reign of Elizabeth, under the wise administration of Cecil. At that time, also, was felt the benefit arising to the productive classes, from the augmented import of gold and silver from America.

Exports to North America.—A striking feature in the trade of England, compared to that of France, Germany, and other Continental countries, is the magnitude of its exports to distant parts, such as India, North America, and the West Indies. These different branches of trade employ a number of seamen, and make a conspicuous figure in the list of yearly exports. They are considered as the pillars of commercial prosperity; but those who estimate them so highly have no idea of the large sums of capital that have been withdrawn by each of these countries from England. The United States of America consumed English manufactures largely for nearly a century, but in no one year did we remit back to Great Britain the full value of the articles which we imported. The amount due from the United States to England has exceeded the general estimate, and is known only to the merchants, who feel the deduction thus made from their pecuniary means. A similar drain has long been made by her West India colonies, but in a less degree, until within these fifty years, since which the capital drawn from England has amounted to many millions. With India commercial intercourse was more limited; and the exports, confined to the East India Company and to a few mercantile houses in London, were on a comparatively small scale until the present age, during which the extension of the private trade from Liverpool, and the advance of capital on indigo plantations, made the India business assume a considerable resemblance to that with North America and the West Indies. The real and substantial benefit arising from commerce takes place at home, and shows itself in the extension of manufactures, the increase of towns, the improvement of roads, canals, and harbors.

Of the course of trade in Great Britain during the last half century, the following is a brief summary. After the peace with the United States of America in 1783, her trade suffered for some time by the transition from war to peace, but gradually improved; and in the years 1789, 1790, 1791, 1792, was decidedly prosperous. After this came the war with France, which was at first injurious to trade, but after the abundance of money consequent on the extended circulation of bank paper in 1797, assumed a very different appearance, and seemed to bring a yearly addition to the national wealth. This ostensible increase of profits was kept up during the chief part of the war, but at the peace the state of circumstances underwent a complete change; the transition was great beyond example; prices fell in every department of business, and the year 1816 was among the most gloomy in the commercial history. A revival of trade took place in 1817 and 1818, but it was succeeded by a long depression. In 1823 trade revived once more; in 1824 it became prosperous, and in 1825 afforded a striking example of the abuse of mercantile prosperity; at the end of that year a general fall of prices, and afterward the heavy calls to meet the expenses of the late gigantic railway undertakings, aggravated by the failure of the potato crop of 1846, occasioned the greatest difficulty in procuring pecuniary accommodation, and led to the crisis of 1847.

Effect of War Expenditure.—From the ease with which money was borrowed by the government of Great Britain during the eighteenth century, the wars carried on were both of frequent occurrence and on a scale of great expense. The result was a continued increase of debt and taxation; but the burden did not appear beyond her means, until the unprecedented length to which it was carried by the wars of 1793 and 1803.

Both took place under the ministry of Mr. Pitt, and the extreme to which he allowed expenditure to be carried was the more remarkable when we consider his long experience in finance, and that from the time of his coming into office his attention was given to the state of the trade and revenue. Several of his early measures, such as the commutation of the duty on tea, and the commercial treaty with France in 1786, were entitled to great commendation. A similar opinion is not now entertained of his revival of the sinking fund; and it was in an evil hour that he allowed himself to be diverted from his pacific course by the urgency of the aristocracy and his sovereign to take up arms against the French revolutionists. Unfortunately the atrocities of these men, the endless usurpations of Bonaparte, and, above all, the facilities afforded by the unchecked issue of bank paper, carried the expenditure to an unprecedented height.

In the midst of this hazardous career, the death of Mr. Pitt, and the removal from office of his immediate successors, transferred the management of British finances to the hands of men wholly unequal to the task: of men unconscious of the precarious nature of paper currency, and of the danger of such measures as a stoppage of neutral navigation, or a war with the United States of America. The consequence was a depreciation of the bank paper during five years, an enormous waste of the public money, and a burden on the country of unparalleled amount. A state of war is attended by a great demand for the service of individuals, as well in the army and navy as in the public offices. A great number of persons are thus withdrawn from productive employment, and the consequence is an increase of the wages and incomes of those who remain so employed, as well as bringing into activity a number of persons who in a season of peace would hardly have been accounted worthy of employment. A rise in the price of corn and other produce is another consequence of a state of war; this leads to a rise of rent; a rise of rent to increased expenditure on the part of the landlord; and that to a general activity and continued employment of working classes. Such was the condition of Great Britain during the twenty years from 1794 to 1814, while in the twenty years that followed the peace there was a corresponding decline, and then a gradual return to higher prices. The fall in the price of produce lowered rents, and greatly lessened the income of the upper classes; hence a contracted expenditure, and a want of employment for the lower orders. All this exemplifies the precarious nature of such a rise of prices as took place in the late wars, and will, more than any other argument, confirm the public in an adherence to peace.

Decrease of the precious Metals.—The supply of gold and silver from America to Europe continued regularly to increase until the year 1810, since which the disorders in Spanish America, particularly in Mexico, shortened the supply from that quarter by at least one-half. Mr. Jacob, in his work on the precious metals, calculated the reduction in the quantity of circulating coin, during the twenty years that succeeded the peace of 1814, at not less than 20 per cent. This decrease in the supply of the precious metals must have had some effect in lowering the prices of commodities, but to what extent it is not possible, with our imperfect data, to form an opinion. But the discovery of gold in California in 1848, and in Australia in 1851, has not only made up for any deficiency in the supplies from other quarters, but from these two countries alone there has been furnished more than twice the amount of the entire annual produce of the precious metals from all parts of the world in the most productive periods of their working. The effect of this has been to raise wages and prices very largely both in Europe and America, and to give a great stimulus to emigration from Britain, and especially from Ireland, and to some extent from Germany.—*See* Emigration.

Free Trade.—In 1845 Sir Robert Peel abolished the customs duties on 420 different articles. This measure was a virtual abandonment of the system of protection, which was shortly after followed by the total repeal of the corn laws.

Progress of American Commerce.—The sixteenth century introduced the leading European powers to a minute acquaintance with the continent of America. Adventurous navigation had rescued a world from savage dominion, and there were adventurous spirits enough to people that world, and identify thenceforward their destinies with it. A hundred years after, and civilization planted her abodes through all this waste. Peculiar, indeed, is the feeling with which these infant days of our country are regarded, so like an illusion does it seem—so like a dream of glowing imagery. We look back as to a classic era, and the romance of Pocahontas, and of Raleigh, of Fernando de Soto, and Juan Ponce de Leon, do they thrill us less than the beatific visions of the Greek, recurring to ages long ago, when Ilion resisted the shock of Agamemnon's heroes, and the Argo sailed away to distant Colchis? The dim antiquity seems gathered around both of them alike. But let it pass, all—the romance of our history. They imagined not, the men of that day imagined not the stupendous results which have occurred so soon. They saw not the benign and regenerating influences of a virgin land, preserved for countless ages uncorrupted by tyranny, and ignorant of oppression. Could such a soil have nurtured else than freemen? They saw it not, and do we—even we—see other than darkly yet the great consummation, the mighty destinies of the regions which, three centuries ago, were proclaimed from the mast-head of a crazy ocean bark, a speck upon the distant heaven?

The development of American character is replete with instruction, and solves one of the most remarkable problems in the history of mankind. The untried scenes of a new world, cut off by trackless oceans from contact and communion with the civilization of unnumbered generations, were sufficient to introduce, what might have been predicted of them, results new, striking, and without a precedent. The indomitable will, the stern endurance, the inflexible and hardy spirit of independence, the high daring, the lofty patriotism, the adventurous, unlimited enterprise, the genius resolute, active, intrepid; inexhaustible in resources, elastic in vigor and in freshness, buoyant ever and hoping on, and executing amid every trying scene, every danger, and difficulty, and disaster—triumphing every where and in all things. Philosophy could have argued this complexion for the men whose fathers braved so much beyond the ocean, and would philosophy have won less than the fame of prophecy by her judgment?

But we pause not here to lament the causes which have counteracted these genial influences, and left whole regions of America stagnated, as it were, in the very elements of vitality and yet living hopelessly on. Should we refer to Mexico and the South American States? What is there here of progress to chronicle, and how much of humiliation? Regions blessed by Heaven in every thing but in men. Changing ever their dynasties and their despots in revolution and in blood. In motion always, without progress. In arms, without valor. Loving change rather than hating oppressors. Proclaiming civilization and annihilating its advances. The bitterness of Voltaire's sneer has no cruelty or injustice in its application to many of them. "*en pansant les chevaux de leurs maitres ils se donnent le titre d'electeurs des rois et de destructeurs des tyrans!*" Under Heaven, as it was the destiny of the savage aboriginal, incapable of civilization, and with no law of progress ingrafted upon his nature, to fade away before the steady advances of European arms and policy, so the Anglo-Saxon element of America, by its flexibility and its power, by the new elements which it has taken to itself in the trying, yet triumphant scenes through which it has passed, will and must, in the inevitable course of events, preside over the destinies of the continent of America, aiding and directing them, adding life and vitality, rousing dormant and sleeping energies, and developing, upon the theatre of the world, movements in comparison with which all that history can furnish before the deluge, before the era of Christ, and since, shall dwindle into insignificance! It needs no ardent temperament to draw a stronger picture.

American Commerce in the seventeenth Century.—The early colonists were exposed for a fearful probation to the most extraordinary vicissitudes and necessities. With the axe in one hand they reduced the sturdy forests into the farm-yard, and with the knife in the other they resisted the approaches of the stealthy and sanguinary savage. A meagre subsistence rewarded the toils that knew no rest, and the charities of the mother country were invoked for men whose determined wills grew stronger as they suffered. This period had its different limits. Fifteen years after the landing of William Sale, we find the proprietary government in England complaining to the Carolinas, "we must be silly indeed to maintain idle men." Thirty-three years after the landing of Bienville in Louisiana, the Western Company threw up their charter in utter hopelessness and despair.

New England's rugged soil yielded a too reluctant tribute to the industry of her sons. They went out early upon the ocean by which they were girt in search of bread that the plow yielded not. To this hardy and daring people the boons of Nature were to be found in her apparent denial of them all.

The seventeenth century affords us, however, but a few particulars of the trade which had been started in the colonies. That it was limited can be readily imagined; that it should be worthy of any regard at all, is the only source of surprise. The materials of this portion of our history are meagre. It is sufficient that, in 1647, a trade had been opened from the Northern ports to Barbadoes and others of the West Indies; that a collector of the customs was appointed at Charleston in 1685, and that the hardy enterprises of the Nantucket whalemen received their first impulse in 1690.

American Commerce from 1700 *to the Revolution.*—In the year 1731 we find a petition read in Parliament from the American colonies that the African trade be thenceforward laid open to them. In the same Parliament it was conceded that the whole gain of the mother country from the trade of Virginia and Maryland alone amounted annually to £180,000. The Pennsylvanians were exporting corn to Spain and to Portugal, and with the proceeds of their ships and cargoes selecting out merchandise in the English markets. To the Dutch alone they sold 5000 pistoles annually in liquor and provisions. They had their invoices to Surinam, and Hispaniola, the West Indies, Canaries, Newfoundland, and the other colonies, and £150,000 from the proceeds to traffic in Britain. "New York," says a chronicle of this epoch, "sends fewer ships to England than some other colonies do, but those they do send are richer, as dealing more in furs and skins with the Indians, and they are at least of equal advantage to England with those of Pennsylvania. The soil of New England is not unlike that of Britain. It employs about 40,000 tons of shipping, and about 600 sail of ships, sloops, etc., about half which shipping sails to Europe." Now began the parent's jealousy of her offspring. Nothing, it was said in Parliament, nothing is more prejudicial, and in prospect more dangerous to any mother kingdom than the increase of shipping in her colonies. The only use of colonies, added Lord Sheffield, is the monopoly of their consumption and the carriage of their produce. In 1730 the Commons of England struck an ineffectual blow at the American trade with the French and Dutch colonies, it having been represented to them as greatly detrimental to England and *her* colonies.

In 1732 a writer gravely announced that the convenience of the Americans from the plenty of beavers, hare, coney wool, and many other furs, gave them such advantages that, unless restrained, they would soon supply all the world with hats. The Board of Trade of the same year report that there are more trades carried on and manufactures set up in the provinces on the continent of America, northward of Virginia, prejudicial to the trade and manfactures of Great Britain than in any other of the British colonies. In 1750 the Americans were forbidden to work in iron, and Lord Chatham declared not long after in Parliament that the colonies of North America had not even the right of manufacturing a nail. So stringent had become the protective policy.

In 1764 was imposed an onerous burden upon American commerce by the mother country, grown jealous of its too great extension. This commerce had greatly enriched the home as well as the colonial government, but the former was too much blinded by erroneous policy to perceive it. She heeded not the annual purchases made in her markets with the avails of lumber, beef, fish, pork, butter, horses, poultry, live-stock, tobacco, corn, flour, bread, cider, apples, cabbages, onions, etc., disposed of by our traders to the eager West India planters; and Lord Sheffield, in his observations on the commerce of the American States, tells us that at this time the Carolinians, of their exports to Kingston, Jamaica, took back one-half in the produce of that country, the middle provinces one-fourth, New England one-tenth, and the balance in specie dollars. The trade of Britain with the American colonies employed in 1769, 1078 ships, and 28,910 seamen. The value of her imports from them for that year amounted to £3,370,000, and of their imports from her to £3,724,606, showing a large difference in favor of the parent country.

In 1770 the imports of Carolina were £535,714, those of New England £564,034, of Maryland and Virginia £851,140, the exports of Virginia at the same time being double the value of those of either of the others named. Mr. Burke triumphantly announced in the House of Commons, "Our trade with America is scarcely less than that we carried on at the beginning of the century with the whole world! In the six years ending with 1774 there was an average import from the colonies into England of £1,752,142, and an average export to them in turn of £2,732,036. Crippled as our energies were, they could not be repressed. It was a vain effort to confine the enterprise of a people whose views embraced the world itself, into the narrow compass afforded by English ports, and by portions of Europe southward of Cape Finisterre. When the day of reckoning came, as it did at last, for these reckless abuses of power, and they were proclaimed in the bill of rights, not the least of the usurpations for which retribution was demanded is to be found in the clause: 'She has cut off our trade with all parts of the world.'"

In the article Colonies a table will be found compiled from the most authentic sources, which exhibits the trade of the mother country during the whole of the periods we have been considering; the table is of great interest, embracing as it does in one view almost the entire commerce of America for seventy-six years.

From these statistics we learn the relative commercial position of the different provinces. Dividing the whole time embraced into periods of twenty-five years each, we observe in the *first* period that Virginia, Maryland, and Carolina furnish almost the entire exports, and import much more largely than New England and New York. In the *second* period New York greatly increases her imports, which still fall short of those of New England, or Virginia and Maryland, while her exports are enhanced but little. The whole exports of New York, Pennsylvania, and New England combined did not reach the amount of those of Carolina singly. In the *third* period Pennsylvania imports more largely than New York, but less than New England; the Southern provinces retain their rank as exporters, Carolina being still greater than New York, New England, and Pennsylvania together; and Georgia, a new plantation, equals New York. Truly is the empire of trade a fickle and inconstant one.

Commerce of the United States under the Articles of Federation.—During the Revolution all foreign enterprise was of necessity suspended, and in struggling for liberty men taught themselves to forget and despise every mere physical want. Leagued together for common defense, the states were able to resist every device of power, and sustain a long and bloody contest. But when that contest was ended and liberty won, the confederation exhibited at once its nervelessness for peace, and for the arts, and policy, and duties of peace. The fabric which could resist the storm crumbled away when the sunshine succeeded. So true is it that the necessities of men are the only durable bond of their union, and that without this union there is no strength.

From the close of the war until the adoption of the Constitution there may be considered to have been no great regulating head in America. No uniformity or system prevailed among the states, and their commerce was consequently exposed to the utmost uncertainty, fluctuation, and loss. Tonnage duties were levied in different ports, as it suited the caprices of the several governments, and as they were more or less desirous of encouraging particular branches of navigation and trade at the expense of others. By a policy more astute than that of her neighbors, New York managed in this way soon to increase largely her foreign trade, and laid the foundation of the empire she now maintains. From 1784 to 1790 our commerce exhibited the most remarkable results. For seven years consecutively the imports into American cities from Britain were never otherwise than twice the amount of the exports to her, and for several years were three and even five times their value. A drain of specie is said to have been the consequence, a very natural, though not necessary one, and great commercial embarrassment and distress.

The following table made up from records of the English custom-house will be found of interest:

Years.	Exports, America to Britain.	Imports, America from Britain.
1784	£749,345	£3,679,467
1785	893,594	2,308,023
1786	443,119	1,603,465
1787	893,637	2,009,111
1788	1,023,784	1,886,142
1789	1,050,198	2,525,298
1790	1,191,071	3,431,778

Commerce of the United States under the Constitution and until 1812.—In this crisis the attention of thinking men and patriots in all parts of the nation was aroused, and there was perhaps nothing which contributed so much in urging the States into a general convention, and into the adoption of a constitutional government and union, calculated to preserve their liberties, their fortunes, and their glory in all the future. One of the first grants of power conceded to Congress under this Constitution was that of "*regulating commerce with foreign nations, among the several states, and with the Indians.*" Referring to the state of things which existed under the articles of federation, an able writer observes, "Interfering regulations of trade and interfering claims of territory were dissolving the attachments and the sense of the common interest which had cemented and sustained the Union during the arduous struggles of the Revolution. Symptoms of distress and marks of humiliation were rapidly accumulating. The finances of the nation were annihilated. In short, to use the language of the authors of the Federalist, each state, yielding to the voice of immediate interest or convenience, successively withdrew its support from the confederation, till the frail and tottering edifice was ready to fall upon our heads, and to crush us beneath its ruins. Most of the federal constitutions of the world have degenerated in the same way, and by the same means."—KENT, vol. i. p. 217.

No more, said a memorial from Charleston, on the adoption of this Constitution—no more shall we lament our trade, almost wholly in the possession of foreigners, our vessels excluded from the ports of some nations and fettered with restrictions in others; our materials, the produce of our own country, which should be retained for our own use, exported and increasing the maritime consequence of other powers. With this memorial before them, and others of a similar character, Congress at its first session appointed a committee to report upon "the expediency of increasing the duty upon foreign tonnage carrying American produce to places in America not admitting American vessels; and to frame a bill placing the same restraints upon the commerce of foreign American states that they place upon us."

By the report of Alexander Hamilton in 1790, it appears that the total tonnage of the United States at that time was as follows:

American vessels in foreign trade	363.093 tons.	
Coasters above twenty tons	113.181 "	
In the fisheries	26,252 "	—502.526 tons.
Total foreign tonnage		262.913 "
United States and British		312 "
United States and other foreign		338 "
Total..................................		766.089 "

The tariff of 1789 was specific and *ad valorem*, and discriminated 10 per cent. in favor of the trade conducted by our own shipping. In this we but imitated the navigation acts of European states, by means of which it has been supposed the enormous maritime consequence of some of them was principally secured. We shall not pause to argue a point in political economy so long mooted among writers of the greatest ability. The jealousies of nations have gone and still go very far. Even the philosophical Voltaire thought that their gain could not otherwise accrue than with each other's loss. England long imposed the most onerous restrictions upon all other commerce than her own, and her advances in consequence, or notwithstanding, have been unprecedented. Her tonnage when she commenced this system was less than that of the United States at the adoption of the Constitution.

There was one department of our maritime industry which demanded the earliest attention of government, and we think its general interest will be sufficient apology for any space we may allot to its consideration—THE FISHERIES. Mr. Jefferson, in 1791, then Secretary of State, furnished an admirable report upon the subject, which we proceed to analyze. As early as 1520 there were fifty ships upon the Newfoundland coasts at a time for cod. In 1577 the French had 150 vessels there, the Spaniards 100, Portuguese 50, and English 15. The French fisheries began early to decline. In 1768 the Americans took but little less than the English, and the French took least of all. In 1789 England obtained double the quantity of America and France together. During the Revolution the American fisheries were almost entirely abandoned, and Mr. Jefferson left it to the wisdom of Congress to decide whether they should not be restored, by opposing prohibitions to prohibitions and high duties to high duties, on the fish of other nations.

The whale fishery was prosecuted by the Biscayans as early as the fifteenth century. The British began its encouragement in 1672 by bounties. The Americans opened their enterprises in 1715. They succeeded early in the discovery in the Southern Seas of the spermaceti whale, which they attacked instead of the Greenland hitherto known to navigators. In 1771 we had 204 whalers. During the war England held out the largest bounties to the trade, and so irresistible were these in the depressed condition of our fishermen, that it is said many of them were on the eve of removing to Halifax, to prosecute the business there, and were only deterred by a letter from Lafayette declaring that

France would abate her duties upon oil. The little island of Nantucket is the great heart of these fisheries. A sand-bar, said Mr. Jefferson, fifteen miles long and three broad, capable by its agriculture of maintaining twenty families, employed in these fisheries, before the Revolution, between 5 and 6000 men and boys, and contained in its only harbor 140 vessels. In agriculture, then, they have no resource, and if that of their fisheries can not be pursued from their own habitations, it is natural they should seek others from which it can be followed, and principally those where they will find a sameness of language, religion, laws, habits, and kindred.

In 1803 Mr. Huger stated to Congress in his report, that it would seem the cod fisheries had gained ground since the Revolution, but that the whale fisheries, on the contrary, had been for some time past on the decline. The war of 1812 was most disastrous to the fishermen, but they soon afterward recovered their prosperity, and on the first of January, 1844, we had 644 vessels engaged at sea, of the value, including catchings, of $27,784,000. On the first of January, 1846, there were 680 ships, 34 brigs, 21 schooners, and 1 sloop; tonnage 233,149; manned by about 20,000 seamen and officers, consuming over three million dollars annually of American produce. Proceeds of whale fisheries $9,000,000 per annum, of which only $2,000,000 are re-exported.

In 1844, Mr. Grinnell stated in Congress:

> "This fleet of whaling ships is larger than ever pursued the business before. Commercial history furnishes no account of any parallel. The voyages of those engaged in the sperm fishery average three and a half years; they search every sea, and often cruise three or four months with a man at each mast-head on the look-out, without the cheering sight of a whale. They are hardy, honest and patriotic, and will, as they did in the last war, stand by their country when in danger; they will man our ships, and fight our battles on the ocean."

Mr. Clayton remarked in February, 1846:

> "We have at this time a commerce of 2,417,000 tons of shipping, England has 2,420,000 tons; so that we are nearly, nay, it is my opinion, we are completely on a par with her. I doubt, sir, whether England has a greater commercial marine or greater interests to protect. We have more than 700 whale ships in the Pacific, an extensive Indian commerce and a great and daily growing commerce with China."—Browne's *Whaling Cruise and History of the Whaling Fishery*, 1846, p. 539.

At the close of the last century there were many causes which tended to add a vast importance to the commerce of the United States. For several years this commerce enjoyed unparalleled and almost unmeasured prosperity. Scarcely admitted into the family of nations, we found the whole civilized world engaged in the fiercest and most sanguinary conflict. A wise and indeed "masterly" neutrality was of course the true policy of the nation. The carrying trade of the world fell at once into our hands. We supplied the mother countries with the products of their own colonies. The East and West Indies alike were opened to our shipping. Their rich products filled our warehouses, supplying consumption and re-export. Prosperity such as this, however, was fated to be brief. The conflicting powers sacrificed every thing to their mutual hatred, and minded little the rights of a nation they had not even learned to respect. Protestation ended in war, and the rights of our sailors were established on every sea. With the return of peace in Europe, the carrying trade departed rapidly from us.

In 1791 the king and council of England admitted American unmanufactured goods, except fish, oil, blubber, whale fins, certain naval stores, etc., into Britain at the same duties as British American produce. The treaty of commerce of 1794 between the two governments was a reciprocity one, both parties binding themselves to impose no greater restrictions upon each other than they imposed upon others. This treaty regulated our East India commerce, then newly opened and promising a great extension.

From 1790 until 1797 Pennsylvania continued largely the greatest exporter in the Union. In 1791 South Carolina occupied the third rank. In 1797 New York for the first time took a leading position, which she has ever after maintained. The first exports of Tennessee and Mississippi date from 1801, those of Kentucky and Indiana from 1802, of Michigan 1803, Orleans Territory 1804, and Ohio 1806. This we shall see more particularly hereafter. It is sufficient now to indulge the reflections which the facts before us so naturally awaken. Mysterious have been the changes. Old age and premature decay have fallen upon cities once famous for their trade; and the quays, where the flags of all nations floated, have come at last to be comparatively deserted. We look around, and there have started up others like mature creations, full of vigor and stalwart even in their infancy. How hardly can reason realize that these wondrous changes are not all the pictures of a fertile imagination. Where is placed Virginia now, that mother of states, who in 1769 exported to foreign lands four times as much as New York? and where is Carolina, whose exports at the same time doubled those of New York and Pennsylvania together, and were equal to five times those of all New England? If trade grow to colossal stature, its proud empire, hastens also to swift decay.

The difficulties which beset our commerce in the early part of the present century, when the rival hostile powers of Europe, jealous of our prosperous neutrality, strained every nerve to involve us in their disputes, will be called to mind by every one familiar with history. We were made the victims of the policy and arts of these nations, and even as early as 1793 their depredations upon our commerce were considerable. In five months alone of that year it was stated in the House of Peers, that *six hundred American vessels* were seized or detained in British ports for alleged violations of orders and decrees claimed as principles under the law of nations. These aggressions upon our rights were long and extensively practiced, as the following table will exhibit:

SEIZURES OF AMERICAN VESSELS FROM 1803 TO 1812.

By the British	917
By the French	558
By the Neapolitan	47
By the Danish tribunals	70
Total vessels	1592

And this at a time when we were at peace with all the nations on earth! Indemnity for these spoliations has been the subject of numerous treaties; among others, that of England in 1794, France 1803, and Spain in the Florida treaty of 1819. But this whole period, so interesting in our annals, deserves a minute survey.

On the conquest of Prussia in 1806, Bonaparte conceived the idea of crushing the maritime power of Britain, by prohibiting all the world, in his famous *Berlin Decree*, from conducting any trade with her or her numerous dependencies. The retaliatory British *orders in Council* followed at once, and all countries in the world connected in any way with France, or opposed to England, were declared to be under precisely the same restraints as if actually invested in strict blockade by British forces. Incensed by so unexpected and ruinous a measure, Napoleon issued the memorable *Milan Decree*, making lawful prize of all vessels submitting at any time or in any way to British search or taxation. It was natural that these illegal and unauthorized proceedings should excite the utmost interest and concern in the United States so materially and even vitally affected by them. We protested in vain. The administration recommended as the sole remaining alternative of peace an *embargo*, which Congress adopted in 1807. This measure the commercial interests warmly opposed as ruinous to them, and memorials were forwarded from many quarters praying for its repeal. To these it was replied by government, "The embargo, by teaching foreign nations the value of American commerce and productions, will inspire them with a disposition to practice justice. They depend upon this country for articles of first necessity, and for raw materials to supply their manufactures." Such a view of the matter, however, did not occur to the mind of Napoleon, who regarded the embargo as greatly favorable to France, and aiding him in his warfare against English commerce. "To submit," said he to Mr. Livingston, "to pay England the tribute she demands, would be for America to aid her against him, and a just ground of war."

In 1809, a *non-intercourse* with Britain and France was substituted for the embargo, which the latter power regarded as such an evidence of hostility as to justify her in proceeding at once to condemn millions of American property as lawful prize.

The Congress of 1810 determined upon the admission of the commercial vessels of the powers above-named, if the act were preceded by a revocation of their hostile and arrogant decrees. The French government pretended to close in at once with the proposal, but it was nearly one year later before her repealing ordinance was officially promulgated, evidencing a disposition on the part of Napoleon to play with us in bad faith, and to turn the game at any time to his advantage—so humiliating to our pride are the events of this entire era. With England it was long doubtful what relationship we might expect to sustain. Hostile and peaceable alternately, according to her caprices or her interests, she had provoked in American minds a resentment too deep to be subdued, and forbearance longer was regarded a crime. The Orders of Council remaining in force, and the aggressions increasing daily, a non-intercourse act of *sixty days* was resorted to, the prelude only to a solemn *declaration of war*. Then was the hour of severe retribution, and then was the national honor and dignity of America triumphantly vindicated!

Commerce of the United States since 1812.—This has been an era of prosperity and rapid advance, and the great powers of the civilized world seem to have realized for once the rich benefits of a prolonged armistice, or, if another expression be preferred, a protracted, and we hope permanent peace. In commercial rank, the United States of America, subordinate to Britain only, and having outstripped all the world else, is prepared to share a divided sceptre, until that sceptre can be wielded alone by her hand, and the empire of the seas be transferred to her keeping.

The history of our trade for the last thirty years has material enough for many more pages than we can allot to it, even with the greatest condensation. The period has been celebrated by an approach to a more liberal *internationality*, and a *reciprocity* something else than in name. The progress in the last year or two has been most strongly marked toward that *ultimatum*, in the minds of every lover of truth and of human advancement, perceived first by Lord Bacon, and ably, though imperfectly, presented by his followers—*commerce unfettered as the winds that waft it*—free religion, free government, free press, free traffic—freedom every where, and in every righteous thing throughout all the world! When shall nations sacrifice their foolish jealousies, and meet each other on this high, broad and Christian ground? We are no partisan here, but a cosmopolite. We advocate a policy as wide as the earth, and as generous. No single nation can afford to act alone—the movement, if made at all, must be *universal*.

The condition of Europe now, however, argues little for the early triumph of those principles to which we have been referring. The latest British, French, and Austrian tariffs have been restrictive, though in the case of the first-named nation her policy would appear about to be radically changed, as in the late repeal of the corn-laws. The German states maintain the exclusive policy, as do also the Spaniards and Portuguese. Russia was latest in adopting the restrictive system, but we see by her last tariff some evidences of improvement, which neither Sweden nor Denmark furnishes. The duties of the Italian states have been generally moderate, except for Rome and Naples, and we recognize a great improvement in these in the late tariff of his Holiness the Pope. The commercial system of Holland is the most liberal in all Europe, but the South American states appear to be governed by the same spirit as that which dictated the policy of Spain.

In 1824, Great Britain seemed desirous of removing in some degree her restrictions upon the navigation of other powers. She entered into reciprocity treaties with many of them, and in this was soon after imitated by the United States, in the treaties of 1825–6–8–9 with Central America, Denmark, Sweden, Hanse Towns, Prussia, Brazil, Austria, Hungary and Bohemia, Mexico, Russia, Venezuela, Greece, Sardinia, Netherlands, Hanover, and Portugal. We also entered into similar but limited reciprocity treaties with France in 1822, continued afterward, and with England in 1821, 1825, and 1833, and a full reciprocity treaty with Canada in 1854. These treaties were arranged by Mr. Kennedy, Chairman of the Committee of Commerce, into three classes.

1. Those securing mutual privileges of export and import of produce, the growth, produce, or manufacture of the stipulating powers, transported in their own vessels, without discrimination on tonnage.

2. Those providing for a levy of duties not less favorable upon the tonnage of either than are levied upon the tonnage of other powers.

3. Those requiring equality of port charges.

For statistics of the commerce of the United States, see article United States.

Commercial Policy of the United States.—The United States have, since the very commencement of their existence as an independent government, ever been willing and ready to reciprocate, to the fullest extent and in the most liberal spirit, all privileges and favors, whether of navigation or commerce, extended to their flag by foreign nations. To this end, and in order to anticipate the usually dilatory process of treaty negotiations, the President of the United States is vested, by act of Congress, with authority to issue his proclamation granting to the vessels of foreign nations equal and similar privileges and favors to those extended to the vessels of the United States in the ports of such foreign nations, on receiving official notice thereof from the accredited agents of such governments.

Vessels belonging to the following nations are admitted, under the provisions of law, treaties of commerce and navigation, or conventions, into the ports of the United States on the same terms as American vessels, with the produce or manufactures of their own or any other country: Argentine Confederation, Austria, Belgium, Brazil, Chili, Denmark,* Ecuador, Great Britain, Greece, New Granada, Guatemala, Hanover, Hanse Towns (Hamburg, Bremen, and Lubec), Mecklenburg-Schwerin, Netherlands, Oldenburg, Peru, Prussia, Russia, San Salvador, Sardinia, Sweden and Norway, Tuscany, Two Sicilies,† Venezuela.

Vessels belonging to the following nations, with which the United States have reciprocal treaties on the footing of the "most favored nations," or with whom reciprocity exists, are admitted into the ports of the United States on the same terms, *as respects tonnage or navigation duties*, as vessels of the United States, with the produce or manufactures of their own or any other country: Bolivia, Costa Rica, Mexico, Muscat, Ottoman Empire, Portugal, and Uruguay.

---

* The treaty between the United States and Denmark expired on the 14th day of April, 1856.

† By decree of December 18, 1854, equality with the national flag is offered by the government of the Two Sicilies to the vessels of such nations as reciprocate the favor. This equality applies to the direct and indirect trade.

LEADING EVENTS OF A COMMERCIAL CHARACTER IN THE 16TH, 17TH, 18TH, AND 19TH CENTURIES.

Sixteenth Century.—1503. The Portuguese commander Albuquerque, on his way to India, discovered Zanzibar.—1504. Death of Isabella, Queen of Spain, and friend of Columbus, November 26, Æ. 53. Columbus returned from his fourth and last voyage. The Venetians, jealous of the new Indian trade of the Portuguese, incite the mamelukes of Egypt to commence hostilities against them.—1505. Francesco de Almeira, Portuguese viceroy, established factories along the coast of Malabar, and his fleets interrupted the commerce of Egyptians and Venetians.—1506. The sugar-cane brought to Hispaniola from the Canaries. The *Great Harry*, the first ship of the English navy, built.—1507. Margaret of Savoy, governess of the Netherlands, concluded a commercial treaty with England. Portuguese settlements formed on Ormus by Albuquerque, and on Ceylon by Almeida. Madagascar visited by Tristan d'Acunha.—1509. The Venetians recover Padua, and rise again in power. Diego Columbus (son of Christopher) governor of Spanish America.

1510–1520.—The Portuguese established themselves at Malacca (1511), which becomes the centre of their trade with the neighboring islands and with China.—1513. Vasco Nunez de Balboa crosses the Isthmus of Darien, and reaches the Pacific.—1515. The Rio de la Plata discovered by Juan Diaz de Sotis.—1516. Death of Ferdinand of Spain, January 23, Æ. 64.—1517. The Portuguese trade with China at Macao. Negro slaves brought to Hispaniola. The sweating sickness (cold plague) raged in London.—1518. Silveyra opens the Portuguese trade with Bengal.—1519. Fernando Cortez attacked Mexico. Fernando de Magelhaens sailed on his expedition to the Pacific, and having passed through the Straits now bearing his name, discovered the Ladrones and Philippines, and was murdered by the natives.—1520. Cortez took the City of Mexico.

1521–1530.—After the death of Magelhaens (1521), Cano conducted the squadron to the Moluccas, and (in 1522) returned to Seville, via Cape of Good Hope; having concluded the first circumnavigation of the globe, in 1154 days.—1524. First discovery of Peru, by Pizarro and Almagro.

1531–1540.—Porto Bello and Cartagena (Spanish Main) founded in 1532.—Mines of Zacatecas discovered.—1533. Cortez conquered Cuzco and Quito, the capitals of Peru.—1534. The Sound opened to the Netherland merchants. Canada discovered by Cartier.—1535. The use of tobacco first known in Europe.—1536. Final subjugation of Peru; discovery of California by Cortez.—1537. Conquest of New Granada.—1540. Cherry-trees brought from Flanders and planted in Kent, England.

1541–1550.—The Portuguese admitted (1542) to trade with Japan.—1543. Death of Copernicus: he deferred until his last days the publication of his great work, *De Orbium Cœlestium Revolutionibus.*—1545. Discovery of the mines of Potosi.—1546. Rate of interest in England fixed at 10 per cent. (37 Henry VIII.).—1548. Introduction of the orange-tree from China into Portugal.

1551–1560.—The London Steelyard Company (the first commercial company established in England, 1232) deprived (1551) of their privileges.—1552. All loans at usury declared illegal, and subject to forfeiture in England. The King of France (Henry II.) prohibits the export of money.—1558. The Salters' Company, London, established.—1560. Ordinary rate of interest at Antwerp, 12 per cent.; and fixed at the same rate in Germany, Flanders, and Spain, by Charles V. Bourse established at Antwerp.

1561–1570.—Merchant Tailors' School, London (1561), instituted.—1564. The Manillas, ceded by Portugal to Spain, received the name of the Philippines.—1567. The Royal Exchange, London, founded by Sir Thomas Gresham, September 7. Caraccas, in Venezuela, built by the Spaniards.—1568. Some ships, conveying money from Spain to the Duke of Alva, are detained by Queen Elizabeth at Southampton and Plymouth.—1569. Luis de Atalde revives the waning power of Portugal in India. Drawing of the first English lottery.—1570. The Royal Exchange, London, opened by Queen Elizabeth.

1571–1580.—Rate of interest limited in England to 10 per cent.—1571. Large accumulations of gold from America. Manilla built (1573), and made the seat of a Spanish viceroy.—1576. The plague devastated Italy. 70,000 died at Venice. Martin Frobisher sailed, June 11, to seek a northwest passage; failed, and returned.—1577. Drake commenced his voyage round the world, November 15.—1578. The Norwegians attempted to interrupt the English commerce with Archangel. California explored by Drake. First colony planted in Virginia, by Gilbert. Tulips introduced into England.—1579. Queen Elizabeth entered into a treaty of commerce with the Sultan, and established the Turkey Company.—1580. Drake returned from his voyage, November 3; the order of knighthood conferred upon him.

1581–1590.—Correction of the Calendar by Gregory III. (1582); October 5th made the 15th.—1583. Queen Elizabeth claimed the sovereignty of Newfoundland, and fortified St. John's.—1584. Raleigh conducted a second colony to Virginia.—1585. Drake and Frobisher, with a powerful fleet, attacked the Spanish settlements in the West Indies. Davis explored the northeast coast of America. Coaches first used in England.—1586. Success of Drake in Hispaniola, San Domingo, and Florida. Potatoes and tobacco introduced into England. Cavendish sailed on his expedition.—1587. The Scottish Parliament (James VI.) adopted 10 per cent. as the maximum rate of interest.—1588. The Spanish armada sailed from Lisbon May 29, entered the English channel July 19, and was defeated. Lord Burleigh established the first newspaper, *The English Mercury.*—1589. Cavendish returned with great wealth, taken from the Spanish settlements during his voyage round the world. The stocking frame invented by Rev. William Lee, of Cambridge.—1590. The first paper-mill in England established by John Spillman, at Dartford, in Kent.

1591–1600.—English ships pursued the whale-fishery (1591) at Cape Breton. Telescopes improved and brought into general notice by Jansen, of Middleburg.—1593. Whalebone first used in England.—1594. The Falkland Islands discovered by Hawkins.—1595. Oranges first known in England.—1598. Whale-fishery commenced at Spitzbergen.—1600. The English East India Company established.

Seventeenth Century.—1601–1610.—Debate on monopolies (1601), defended by Francis Bacon—abolished by Queen Elizabeth. The first English factories established on the Malabar coast.—1601. The rate of interest in France (Henry IV. and Sully) fixed at 6¼ per cent.—1602. Artichokes introduced into England from Holland; Asparagus from Asia; Cauliflower from Cyprus.—1604. The plague raged violently in London.—1606. English companies chartered for settlements in Virginia. The French established themselves in Canada. New Holland discovered by the Dutch.—1608. Hudson explores the bay now known as Hudson's Bay. Quebec built.—1609. Many Puritans left England for Virginia, with Sir Thomas Gates and Sir G. Somers—the latter driven to the Bermudas (or Somers' Islands). The Dutch, by levying heavy tolls at the mouth of the Scheldt, transfer the commerce of Antwerp to Amsterdam and Rotterdam. Copper coin first issued by the Mint, London. Armistice of twelve years concluded between Spain and the United Provinces.—1610. Batavia settled by the Dutch on the island of Java. The invention of the thermometer ascribed to Fra Paolo, to Sanctorio, and to Drebbel of Alkmaar.

1611–1620.—The United Provinces obtained (1612) from the Turks advantageous terms in their commerce in the Levant.—1613. English factories established at Surat, in India, and at Gombroon, on the Persian Gulf. The buccaneers noted on the coasts of America.—1614. Logarithms invented by Lord Napier.—1615. Coffee in use at Venice.—1616. Baffin explored the bay to which his name was given.—1618. First voyage of the Danes to India, and settlement at Tranquebar. Patent granted for a fire-engine for raising ballast and water, nearly on the principle of the steam-engine.—1620. Silk first manufactured in England. Plymouth colony settled.

1621–1630.—The conquests of the Dutch commenced. First permanent settlement on Manhattan Island (1621) by the Dutch. The colony at Nova Scotia (1622) settled by the Scotch.—1624. The rate of interest in England reduced to 8 per cent. (21 James I.), and in Scotland in 1632.—1625. The culture of silk commenced in Virginia.—1626. French settlements at Senegal and Guyana.—1627. Success of the Dutch admiral, Hein, in Brazil: Essequibo, in Guyana, founded by him.

1631–1640.—Charles I. revived monopolies, sold patents and privileges to new companies, and imposed a stamp on cards.—1632. A colony of Catholics, under Lord Baltimore, settled in Maryland. The Dutch acquired the island of St. Eustatia.—1634. Writ for levying ship-money in England. The Dutch took Curacoa.—1535. Proclamation in England against hackney-coaches standing in the streets. Guadaloupe and Martinique appropriated by France.—1637. The levy of ship-money unpopular.—1640. Ship-money voted to be illegal.

1641–1650.—Tasman discovered Van Diemen's Land (1642), and named it in honor of the Dutch governor of Batavia.—1643. Cayenne colonized by the French. Van Diemen sent De Vries and Schaep to explore the ocean north of Japan.—1645. The greater part of Candia conquered by the Turks.—1647. Huygens invented and applied the pendulum to clocks.—1650. The Dutch took possession of the Cape of Good Hope.

1651–1660.—Quarrel between the English and the Dutch (1651) about the right of fishing; the massacre at Amboyna; and colonial encroachments. Rate of interest reduced by the Rump Parliament to 6 per cent.—1660. Tea used in London.

1661–1670.—Bombay and Tangier ceded to England (1662), and free trade with Brazil.—1663. The profits of the English Post-office and wine licenses, granted to the Duke of York. The finances, manufactures, commerce, marine and colonial system of France, improved under Colbert.—1665. London afflicted by the plague, April 28.—1666. Great fire in London, from September 2 till September 6; property destroyed valued at £8,000,000.—1667. A tax of twelve-pence levied on every ton of coal brought into London, January 18, to aid the rebuilding of London. The first stone of the new Royal Exchange laid (August 23) by Charles II.

1671–1680.—The money in the Exchequer (12th January, 1672) seized by Charles II. Great confusion and commercial distress followed.—1680. The publication of newspapers and pamphlets without a license declared (May 16) to be illegal in England.

1681–1690.—A penny-post first established in London (1683) by a private individual named Murray.—1685. The Pope of Rome, by compulsory process, reduced the rate of interest on the public debt from 4 to 3 per cent.—1688. The Venetians made further progress in Dalmatia.

1691–1700.—Origin of the Bank of England (1694, 25th April), under William III. Stamp duties in England commenced, 28th June.—1695. Commissioners appointed for building Greenwich Hospital.—1697. Charter of Bank of England renewed till 12 months' notice.—1698. Address of the English House of Commons to William III., for the discouragement of the woolen manufacture and the promotion of the linen, 10th June.—1699. Czar Peter introduced the computation of time in Russia by the Christian era, but adhered to the old style. Dampier explored the northwest coast of New Holland.

Eighteenth Century.—1704. The *Boston News Letter* published—the first newspaper in the American colonies.—1708. Bank of England charter renewed, and again in 1713.—1709. Copyright act in England, 8 Anne.—1710. The South Sea Company originated, 6th May.

1711–1720.—A capital of £4,000,000 raised (1711) for the South Sea Company.—1711. Rio Janeiro taken by the French admiral, Duguai Trouin.—1712. The first stamp duty on newspapers levied in England.—1713. The *Clarendon Press* established at Oxford, by the profits of the History of the Rebellion.—1714. The rate of interest in England reduced from 6 to 5 per cent., and all contracts at a higher rate declared void.—1716. John Law originated his banking and Mississippi schemes.—1717. First project of a sinking fund for the liquidation of the English national debt. Law obtained extended privileges for his bank.—1718. Law's Company declared to be the Royal Bank.—1720. The South Sea Company Act, passed 7th April. South Sea stock rose to 890, June 2. Rage for speculative schemes. Seventeen petitions for joint-stock patents refused. South Sea bubble burst, 30th September.

1721–1730.—The directors of the South Sea Company (1721) taken into custody, 24th January. Aislabie, and other members of Parliament implicated, expelled. Walpole, Lord Treasurer and Chancellor of the Exchequer, 2d April. The estates of directors of South Sea Company, amounting to two millions sterling, forfeited.—1723. Act passed to prohibit English subscriptions to the Ostend Company.—1725. Tumults at Glasgow, 25th June, on account of the Malt tax.—1726. Cotton a staple product of Hispaniola.—1729. Fire at Constantinople; 12,000 houses and 7000 people perished. John Law died at Venice, 21st March, Æ. 58.—1730. Charter of the East India Company renewed.

1731–1740.—Culture of silk commenced (1732) in Georgia. Parliamentary grant to Sir Thomas Lambe (1732, April 3) for having introduced the silk-engine.—1733. The English government refused to join the Dutch in stopping the East India commerce of the Danes and Swedes.—1733. The Excise law proposed in England, and abandoned by Walpole.—1734. English act passed against stock-jobbing. The new Bank of England building opened 5th June, in Threadneedle Street.—1736. High tide in the Thames. Westminster Hall flooded. Parliamentary debates published in the *Gentleman's Magazine*.—1740. The first circulating library in London established at 132 Strand. Parliamentary debates prepared by Dr. Johnson.

1741–1750.—Charter of Bank of England (1742) renewed. Lord Anson returned (1744) from his voyage round the world, with £1,250,000 in treasure.—1750. A riot at Tiverton against the introduction of Irish worsted yarns, 16th January. Bounties granted, and a company formed, to encourage the British and white herring and cod fisheries.

1751–1760.—An act of Parliament (1751, 24 Geo. II.) orders the Gregorian (or new) style to be used in Great Britain.—1753. Two thousand bales of cotton exported by Jamaica.—1754. Commencement of war between England and France, and military operations under Washington in Virginia, etc.—1759. The Bank of England issued £15 and £10 notes, 31st March.—1760. Culture of silk commenced in Connecticut.

1761–1770.—Opening of the Duke of Bridgewater's Canal (1761) between Manchester and Liverpool.—1762. The island of Cuba surrendered to Lord Albemarle and Admiral Pococke. Martinique, St. Lucia, St. Vincent, and other islands taken from the French.—1764. First improvement of the steam-engine by Watt. Bank of England charter renewed.—1765. Stamp Act for America passed by the British Parliament, March.—1767.

The House of Commons resolved to impose duties on various articles imported into America.

1771–1780.—Arkwright's second patent (1771) for his improvement in cotton spinning. Culture of silk commenced in Pennsylvania.—1772. Commercial panic in London, caused by the failure of Neal, Fordyce, & Company, bankers.—1773. Tea destroyed in Boston harbor, 16th November. The Governor of Bengal made governor of all the British settlements in India.—1774. The petition of the Massachusetts Assembly to Parliament presented (January) by Dr. Franklin, who was then removed from office of deputy postmaster-general for the colonies. Burke's celebrated speech on the tea tax, April 19.—1774. Watt, in partnership with Boulton, founds his steam-engine establishment at Soho.—1776. Captain Cook sailed on his third voyage.—1780. Charter of the first Bank of North America, approved by Congress 26th May.

1781–1790.—Bank of England charter renewed, on making further advances to government of £3,000,000. Necker published his financial statement for France 1781, and retired from office.—1782. National Bank of Ireland established.—1783. Charter granted to the Bank of Ireland.—1784. The Bank of New York chartered, 9th June.—1786. British treaty of commerce with France.—1787. "Pennsylvania Society for the encouragement of Manufactures and the useful Arts" formed. Cotton exported by West India Islands.—1789. Issue of assignats in France, 17th December.

1791–1800.—Vancouver's voyage of discovery (1791). The buckle-makers of Birmingham petitioned Parliament against the use of shoe-strings. Numerous riots at Birmingham.—1793. The first embassador from Turkey arrived in London, December 20. Whitney's cotton-gin invented and first used.—1795. Embargo on all Dutch ships in English ports, 26th January. Warren Hastings acquitted, 23d April.—1797. Suspension of the Bank of England, 26th February. Notes of £1 and £2 first issued, March 11.—1798. Silver tokens issued by the Bank of England, 1st January.—1799. Sugar first extracted from beet-root, by the Prussian chemist Achard.—1800. General distress and riots in England, caused by the high price of bread, January. Dispute respecting the close of the century. Lalande decided that 31st December, 1800, is the last day of the 18th century. Union of Great Britain and Ireland, 2d July. Bank of England charter renewed until 1833.

Nineteenth Century.—1801–1810.—Embargo laid (January, 1801) on all Russian, Danish, and Swedish vessels in English ports.—1802. Santee Canal, South Carolina, completed.—1803. Louisiana sold by France to the United States for $15,000,000. The first printing-press in New South Wales established at Sydney. Caledonia Canal opened for travel. Trial of steamboat on the Seine by Fulton, 9th August. The first bank in Ohio chartered.—1804. Wilberforce's slave-trade bill rejected by the House of Lords. The Code Napoleon adopted. Ice first exported from the United States to the West Indies.—1805. The Gregorian calendar again adopted in France.—1806. The Cape of Good Hope surrendered to the English. Abolition of the slave-trade by English Parliament, 10th June. The loom invented by Jacquard, a mechanic of Lyons. East India docks opened at London, 4th August.—1807. Milan decrees against English commerce, 11th November. Fulton's first voyage on the Hudson. The Bank of Kentucky chartered. First manufactory of woolen cloths in the United States established at Pittsfield, Massachusetts. Middlesex Canal, Massachusetts, completed.—1808. Manufacturing districts of Manchester, etc., petitioned for peace.—1810. Deaths, by suicide, of Abraham Goldschmidt, Francis Baring, and other English merchants.

1811–1820.—English guineas publicly sold for a pound note and seven shillings.—1811. Mr. Horner's proposition for resumption of cash payments in England rejected. First steamboat built at Pittsburgh.—1812. Serious riots in the manufacturing districts of Lancashire and Yorkshire. Declaration of war by the United States against England, 18th June.—1814. London *Times* first printed by steam, 29th November.—1815. Veto of the United States bank bill by President Madison. Bank rechartered for 20 years.—1816. The new Russian tariff prohibited the importation of nearly all British goods. Bank of England advanced £3,000,000 further to government, making a total of £14,000,000.—1817. Paris first lighted by gas. First steamboat from New Orleans to Louisville.—1818. First Polar expedition of Captain John Franklin left England. Steamboats built on Lake Erie.—1819. Emigration to Cape of Good Hope encouraged by the British government. The steamship *Savannah* arrived at Liverpool from the United States, 15th July. Commencement of the suspension bridge over the Menai by Telford. The first bank in Illinois chartered.—1820. Florida ceded to the United States by Spain. Suspension bridge over the Tweed. First steamer ascended the Arkansas River.

1821–1830.—Captain Parry's and Lyon's expedition to the Arctic Ocean left England 30th March, 1821. Bank of England resumed specie payments.—1822. Funeral of Coutts, the London banker, 4th March. The first cotton-mill in Lowell erected.—1823. Revival of business in the English factories.—1824. Advance in the prices of agricultural produce in England. Act passed for the Thames Tunnel, 24th June. Fauntleroy, banker, hung for forgery, 30th November. Champlain Canal, New York, completed.—1825. Panic in the English money market (December). Failure of numerous country banks. Erie Canal completed.—1826. Mr. Huskisson's free-trade policy advocated in House of Commons by vote of 223 to 40. Coin in Bank of England reduced to £2,460,000, 28th February.—1827. Commercial confidence restored in England, and employment for the poor. "Society for the Diffusion of useful Knowledge," established at the instance of Lord Brougham. Union Canal, Pennsylvania, completed. Quincy Railroad completed.—1828. Delaware and Hudson Canal, Syracuse and Oswego Canal, New York, completed. India rubber goods manufactured in Connecticut.—1829. Increase of silk manufactures in England and reduction of duty on raw silk. Prize awarded to Mr. Stephenson for his locomotive engine on the Liverpool and Manchester Railway. Subscription by Congress to the Chesapeake and Ohio Canal, May 3. Departure of Captain Ross on his voyage of discovery. Chesapeake and Delaware Canal opened, 17th October.—1830. Opening of the Liverpool and Manchester Railway, 15th September. Free navigation of the Black Sea opened to the United States by treaty, 7th May. Charles X. fled from Paris, 31st July. West India trade with the United States opened to British vessels. Independence of Belgium acknowledged. Pennsylvania State Canal finished.

1831–1840.—Parliamentary reform bill introduced in 1831 by Lord John Russell; rejected by the House of Lords, 8th October. Free trade convention at Philadelphia, October 1. Stephen Girard died 26th December, Æ. 84. Insurrection in Jamaica, 28th December.—1832. Veto of United States Bank bill by President Jackson, 10th July. New tariff act passed by Congress, July. Ohio State Canal finished. Albany and Schenectady Railroad, Columbia Railroad, Pennsylvania Railroad, Newcastle and Frenchtown Railroad, completed.—1833. Ice first exported to the East Indies from the United States, 18th May. Opening of the China trade to the English. East India Company charter renewed; ceased to be a commercial body. Bank of England charter renewed. Usury restrictions removed in England from all commercial paper having less than three months to mature. Mr. Clay's tariff bill passed by Congress. Removal of the deposits from the United States Bank, September.—1834. The Chinese suspend intercourse with the English at Canton. The first bank in Indiana chartered. London and Westminster Bank commenced business, 10th March. Resolution of the United States Senate condemning President Jackson for removal of deposits, March. Nomination of Roger B. Taney as Secretary of the Treasury, rejected by vote of 28 to 18. Abolition of slavery in British West Indies. Baltimore and Ohio Railroad opened for travel to Harper's Ferry, 1st December. Bank of Maryland failed, 24th March.—1835. French indemnity bill passed, 18th April. Baltimore and Washington Railroad opened for travel, 23d August. Bank of Maryland riots in Baltimore, 8th August. Loss of $20,000,000 by fire in New York, 16th December. Boston and Providence Railroad, Boston and Worcester Railroad, completed.—1836. Charter of United States Bank expired March 4, and succeeded by Pennsylvania United States Bank. Reduction of the newspaper Stamp duty in England, 15th September. Failure of the Commercial and Agricultural Bank of Ireland. Anthracite coal used for steamboats on North River. Independence of South American republics acknowledged by Spain, 4th December.—1837. Panic in the London market, June. Failures of American bankers in London. Further modifications of the usury laws of England. Failure of banks in the city of New York, May 10. Grand Junction Railway, England, opened 4th July. Revolt in Canada. Mont de Piété, Limerick, established.—1838. Railway opened from London to Southampton, 17th May. Wreck of the *Forfarshire:* heroism of Grace Darling, 5th September. Royal Exchange, London, burned, 10th January. Resumption of specie payments in New York, May. Sub-treasury bill defeated in Congress, June. United States Exploring expedition, under Captain Wilkes, left Hampton Roads, 19th August. Imprisonment for debt abolished in England.—1839. British trade with China stopped, December. Second suspension by the banks at Philadelphia (9th September), followed by bank failures in the South and West. Western Railroad, Worcester to Springfield, opened 1st October. Union Bank, London, commenced business.—1840. Penny postage adopted in England. Antarctic continent discovered by Wilkes, 19th January. First steam vessel at Boston arrived from England, 3d June. First Cunard steamer, (the *Britannia*) arrived at Boston 18th July; and the *Acadia*, 17th August. Fiscal Bank bill vetoed by President Tyler, 16th August. Bankrupt law passed by Congress, 18th August. Bill for distribution of public lands passed by Congress, 23d August. Fiscal corporation bill vetoed by President Tyler, 9th September. Loan of $12,000,000 authorized by Congress.

1841–1850.—The island and harbor of Hong Kong ceded (1841) by the Chinese to England. Pennsylvania United States Bank failed third time, 5th February, and made an assignment 4th September. Union of Upper and Lower Canada, 10th February. Foreign trade of Canton suspended, and hostilities with the English renewed, 21st May. Canton taken 27th. American clocks exported to England.—1842. Anti-corn-law movement in Parliament by Sir R. Peel. Captain Wilkes returned from his exploring expedition, 11th June. Ashburton treaty ratified by the Senate, 20th August. British treaty with China (29th August), by which it was agreed to open five free ports.—1843. Return of Captain Ross from the South Pole, 6th September. Treaty of commerce by Sir H. Pottinger with China.—1844. Treaty of annexation of Texas to the United States rejected by the United States Senate, 8th June. Anti-rent riots in New York, August. Recharter of Bank of England. Magnetic telegraph between Baltimore and Washington. Cheap postage act of United States went into operation July 1.—1845. Treaty between United States and China ratified by United States Senate, 16th January. Sir John Franklin left England 25th May on his Arctic expedition. Anti-corn-law league at Manchester. Steamship *Great Britain* arrived at New York, 10th August. Treaty of annexation of Texas ratified by United States Senate, 1st March. Loss of $6,000,000 by fire in New York city, 19th July. Peel ministry resigned, 11th December.—1846. Oregon treaty between England and the United States signed in London, 17th July. Second failure of the potato crop in Ireland. Steamship *Great Britain* stranded in Dundrum Bay, 22d October. Declaration of war with Mexico by the United States, 12th May. New tariff bill passed by Congress, 28th July. Veto of French spoliation bill by President Polk, 8th August.—1847. Gold in California discovered. United States ship *Jamestown* left Boston 28th March, and frigate *Macedonian*, 18th July, with provisions for relief of the Irish. Great commercial distress throughout Great Britain, Sept.–Nov.—1848. The State of Maryland resumed payment of interest 1st January. Treaty of peace between Mexico and United States, signed 30th May. Suspension bridge at Niagara Falls, completed 29th July. Edict to incorporate Bank of France with nine branches, 27th April. India rubber life-preservers invented.—1849. Penny postage adopted in Prussia. First experiment of a submarine telegraph at Folkstone.—1850. Lopez invasion of Cuba. £20,000 reward offered by Parliament for discovery of Sir John Franklin, 8th March. Collins line of steamers to Liverpool commenced operations. Steamer *Atlantic* left New York, 27th April. The celebrated Koh-i-noor diamond, valued at $2,000,000, brought to England, July.

1851–1858.—The London exhibition opened 1851, May 1. Contract of Pacha of Egypt with Mr. Stephenson for a railway from Alexandria to Cairo. Railways completed between St. Petersburg and Moscow, Dublin and Galway. Collins steamer *Pacific* arrived in Liverpool, May. Yacht *America* won the race at Cowes, 22d August. Hudson River Railroad opened to Albany, 8th October. Dr. Kane returned from the Grinnell expedition, October.—1852. Construction of French Crystal Palace ordered, February. Expedition of United States naval forces to Japan, March. Dr. Rae returned from his search for Sir John Franklin, February. Ship *Prince Albert* returned from search for Sir John Franklin, 7th October.—1853. Trial trip of the caloric steamship *Ericsson* from New York to the Potomac, 11th January. Second Arctic expedition left New York, 31st May. American expedition arrived at Japan, 8th July. Loss of the steamship *Humboldt*, 5th December.—1854. Combined fleets of England and France entered the Black Sea, 11th January. Loss of the steamer *San Francisco*, 5th January. Steamer *City of Glasgow* lost, March. Declaration of war by England against Russia in behalf of Turkey, 28th March. Commercial treaty between United States and Japan. French loan of 250,000,000 francs, announced March 11, and Turkish loan of £2,727,400. London joint-stock bankers admitted to the clearing-house, June 7. Crystal Palace at Sydenham, opened 10th June. Bombardment of San Juan by ship *Cyane*, 13th July. Loss of steamer *Arctic*, 27th September. Captain M'Clure returns from Arctic discovery, 28th September.—1855. Discovery of Captain Franklin's remains. £10,000 awarded Captain M'Clure by Parliament. Paris exhibition opened 15th May. Submarine telegraph wire laid in Black Sea. Resistance by United States to payment of Sound dues. First railroad train crossed suspension bridge at Niagara, 14th March. French loan of 500,000,000 francs taken, 18th January. Suspension of Page, Bacon, & Company, Adams & Company, San Francisco, 22d February. English loan of £16,000,000 taken by Rothschilds, 20th April. Ships *Arctic* and *Release*, Captain Hartstene, left New York for relief of Dr. Kane and party.—1856. The Arctic discovery-ship, *Resolute*, was delivered to the British authorities at Portsmouth, 30th December.—1857. Trial trip of the United States frigate *Niagara*, 22d April. Suspension of Ohio Life and Trust Company, New York, 24th August. Suspension of the banks at Philadelphia, 25th September; Baltimore, etc., 26th; New York, 14th October.

Commerce, Code de. This was a part of the Code Napoleon known as *Les Cinq Codes* and afterward as *Les Six Codes.* The Code de Commerce was promulgated in January, 1808. It was founded in some measure upon the ordonnances of 1673–'81 of Louis XIV. On account of the many modifications which the code of 1805 had undergone, a new text of the code was promulgated in January, 1841. The Code de Commerce is considered the best part of French legislation. The institution of the commercial tribunals has been of great advantage to France, and has been adopted in other countries. These courts, of which there are 213, consist of a president and two or more judges, all chosen by the merchants among themselves, and for a limited time: they are not paid for their services, but the *greffier* or registrar receives a salary. The *Code de Commerce* consists of four books: the first treats of commerce in general; of the various descriptions of commercial men; of the keeping of books; of companies and partnerships; of brokers, commissioners, carriers, etc. The second treats of maritime commerce; shipping; insurances; bankruptcy, etc. The third concerns bankruptcies; and the fourth treats of the commercial tribunals, their jurisdiction, and proceedings. By a law of April, 1838, appeals in matters above 1500 francs (formerly 1000 francs) are carried to the Cour Royale of the district.—BOHN'S *Cyclopedia.*

The French code is retained in Rhenish Prussia; in the kingdom of Naples with some few modifications; in the Canton of Geneva, in Switzerland, and in Belgium; and formed the basis of the code of Louisiana, suggested or prepared by the late Edward Livingston.

Commercial Treaties. The first treaty of commerce made by England with any foreign nation, was entered into with the Flemings, 1 Edward I., 1272. The second was with Portugal and Spain, 2 Edward II., 1308.—*See* TREATIES.

Commodore, a general officer in the navy, invested with the command of a detachment of ships of war destined on any particular enterprise, and his ship is distinguished from the rest of his squadron by a broad pendant tapering toward the outer end, and sometimes forked. The word is corrupted from the Spanish *comendador*, which signifies both the superior of a monastery and a knight who holds a commandery. Commodore is also a name given to the convoy or leading ship in a fleet of merchantmen, which carries a light in her top to guide the other ships.—E. B. *See* CONVOY.

Companies. In commerce or the arts a company is a number of persons associated for the purpose of carrying on some commercial or industrial undertaking. When there are only a few individuals associated, it is most commonly called a *copartnery;* the term company being usually applied to large associations, like the East India Company, the Bank of England, etc., who conduct their operations by means of agents acting under the orders of a board of directors. Companies have generally been divided into two great classes —exclusive or joint-stock companies, and open and regulated companies.

1. *Exclusive or Joint-stock Companies.*—By an institution of this sort is meant a company having a certain amount of capital, divided into a greater or smaller number of transferable shares, managed for the common advantage of the shareholders by a body of directors chosen by and responsible to them. After the stock of a company of this sort has been subscribed, no one can enter it without previously purchasing one or more shares belonging to some of the existing members. The partners do nothing individually; all their resolutions are taken in common, and are carried into effect by the directors and those whom they employ. According to the common law, all the partners in a joint-stock company are jointly and individually liable, to the whole extent of their fortunes, for the debts of the company. They may make arrangements among themselves, limiting their obligations with respect to each other; but unless established by an authority competent to set aside the general rule, they are all indefinitely responsible to the public.

"In a private copartnery, no partner, without the consent of the company, can transfer his share to another person, or introduce a new member into the company. Each member, however, may, upon proper warning, withdraw from the copartnery, and demand payment from them of his share of the common stock. In a joint-stock company, on the contrary, no member can demand payment of his share from the company; but each member may, without their consent, transfer his share to another person, and thereby introduce a new member. The value of a share in a joint stock is always the price which it will bring in the market: and this may be either greater or less, in any proportion, than the sum which its owner stands credited for in the stock of the company."—*Wealth of Nations*, p. 333.

2. *Utility of Joint-stock Companies.*—Whenever the capital required to carry on any undertaking exceeds what may be furnished by an individual, it is indispensable, in order to the prosecution of the undertaking, that an association should be formed. In all those cases, too, in which the chances of success are doubtful, or where a lengthened period must necessarily elapse before an undertaking can be completed, an individual, though ready enough to contribute a small sum in connection with others, would, generally speaking, be very little inclined, even if he had the means, to encounter the whole responsibility of such enterprises. Hence the necessity and advantage of companies or associations. It is to them that we are indebted for those canals and railways by which every part of the country is intersected, for the formation of so many noble docks and warehouses, for the institution of our principal banks and insurance offices, and for many other establishments of great public utility carried on by the combined capital and energies of large bodies and individuals.

3. *Branches of Industry, for the Prosecution of which Joint-stock Companies may be advantageously established.*—In order to insure a rational prospect of success to a company, the undertaking should admit of being carried on according to a regular systematic plan. The reason of this is sufficiently obvious. The business of a great association must be conducted by factors or agents; and unless it be of such a nature as to admit of their duties being clearly pointed out and defined, the association would cease to have any effectual control over them, and would be, in a great measure, at their mercy. An individual who manages his own affairs reaps all the advantage derivable from superior skill, industry, and economy; but the agents, and even directors of joint-stock companies labor, in most cases, entirely or principally for the advantage of others; and can not therefore, however conscientious, have the same powerful motives to act with energy, prudence, and economy. "Like," says Dr. Smith, "the stewards of a rich man, they are apt to consider attention to small matters as not for their master's honor, and very easily give themselves a dispensation from having it. Negligence and profusion therefore must always prevail more or less in the management of the affairs of such a company." It also not unfrequently happens that they suffer from the bad faith, as well as the carelessness and extravagance of their servants; the latter having in many instances endeavored to advance their own interests at the expense of their employers. Hence the different success of companies whose business may be conducted according to a nearly uniform system—such as dock, canal, and insurance companies, railroad companies, etc.—and those whose business does not admit of being reduced to any regular plan, and where much must always be left to the sagacity and enterprise of those employed. All purely commercial companies, trading upon a joint stock, belong to the latter class.

Not one of them has been able to withstand the competition of private adventurers; they can not subject the agents they employ to buy and sell commodities in distant countries to any effectual responsibility; and from this circumstance, and the abuses that usually insinuate themselves into every department of their management, no such company has ever succeeded, unless when it has attained some exclusive privilege, or been protected from competition.

The Abbé Morellet has given, in a tract published in 1769 (*Examen de la Réponse de M. M.*, p. 35–38), a list of 55 joint-stock companies, for the prosecution of various branches of foreign trade, established in different parts of Europe since 1600, every one of which had failed, though most of them had exclusive privileges Most of those that have been established since the publication of the Abbé Morellet's tract have had a similar fate. But notwithstanding both principle and experience concur in showing how very ill fitted a large association is for the purpose of prosecuting commercial undertakings, there are cases in which they can not be prosecuted except by associations of this sort, and when it may be expedient to grant them certain peculiar privileges. When, owing either to the disinclination or inability of government to afford protection to those engaged in any particular department of trade, they are obliged to provide for their own defense and security, it is obviously necessary that they should have the power to exclude such individuals as may refuse to submit to the measures, or to bear their due share of the expense, required for the common protection of all. The Russian Company, the East India Company, the Levant or Turkey Company, and most of the other great trading companies that have existed, seem principally to have grown out of a real or supposed necessity of this sort. It was not believed that any safe or advantageous intercourse could be carried on with barbarous countries without the aid of ships of war, factories, interpreters, etc.; and as government was not able or willing to afford this assistance, the traders were formed into companies or associations, and vested with such peculiar privileges as appeared to be necessary for enabling them to prosecute the trade without any extrinsic support. "When," says Dr. Smith, "a company of merchants undertake, at their own risk and expense, to establish a new trade with some remote and barbarous nation, it may not be unreasonable to incorporate them into a joint-stock company, and to grant them, in case of success, a monopoly of the trade for a certain number of years. It is the easiest and most natural way in which the state can recompense them for hazarding a dangerous and expensive experiment, of which the public is afterward to reap the benefit. A temporary monopoly of this kind may be vindicated upon the same principles upon which a like monopoly of a new machine is granted to its inventor, and that of a new book to its author. But upon the expiration of the term, the monopoly ought certainly to determine; the forts and garrisons, if it was found necessary to establish any, to be taken into the hands of the government, their value to be paid to the company, and the trade to be laid open to all the subjects of the state."—*Wealth of Nations*, p. 339. It may be doubted, however, whether it be really necessary, even in such a case as that now mentioned, to establish *a joint-stock company* with peculiar privileges, and whether the same thing might not be more advantageously effected by the establishment of an open or regulated company.

4. *Open or Regulated Companies.*—The affairs of such companies or associations are managed by directors appointed by the members. They do not, however, possess a common or joint stock. Each individual pays a fine upon entering into the company, and most commonly an annual contribution: a duty applicable to the business of the company is also sometimes charged upon the goods imported and exported from and to the countries with which they trade. The sums so collected are applied by the directors to fit out embassadors, consuls, and such public functionaries as may be required to facilitate commercial dealings, or to build factories, maintain cruisers, etc. The members of such companies trade upon their own stock, and at their own risk; so that when the fine, or the sum payable on admission into a regulated company, is moderate, it is impossible for its members to form any combination that would have the effect of raising their profits above the common level; and there is the same keen and close competition among them that there is among other classes of traders. A regulated company is, in fact, a device for making those engaged in a particular branch of trade bear the public or political expenses incident to it, at the same time that it leaves them to conduct their own business with their own capital, and in their own way. Should, therefore, government at any time refuse, or be unable to afford, that protection to those engaged in any branch of trade which is necessary to enable them to carry it on, their formation into a regulated company would seem to be the most judicious measure that could be adopted, inasmuch as it would obtain for them that protection which is indispensable, without encroaching on the freedom of individual enterprise. The African and the Levant companies in Great Britain, and some other branches of trade, were for a long time conducted by open or regulated companies. These, however, have been recently abolished: the African Company, by the act 1 and 2 Geo. IV. c. 28; and the Levant Company, by the act 6 Geo. IV. c. 33. The Russia Company still exists.—*See* RUSSIA COMPANY.

In so far as relates to protection, it may perhaps be thought, for the reasons given by Dr. Smith, that a joint-stock company is better calculated to afford it than a regulated company. The directors of the latter having, Dr. Smith alleges, no particular interest in the prosperity of the general trade of the company, for behoof of which, ships of war, factories, or forts have to be maintained, are apt to neglect them, and to apply their whole energies to the care of their own private concerns. But the interests of the directors of a joint-stock company are, he contends, in a great measure identified with those of the association. They have no private capital employed in the trade; their profits must depend upon the prudent and profitable management of the common stock; and it may therefore, it is argued, be fairly presumed that they will be more disposed to attend carefully to all the means by which the prosperity of the association may be best secured. On the other hand, however, it is seldom that the directors of joint-stock companies stop at the proper point; having almost invariably attempted to extend their commercial dealings by force, and to become not only merchants but sovereigns. Nor is this any thing but what might have been expected, seeing that the consideration and extensive patronage accruing from such measures to the directors is generally of far more importance to them than a moderate increase of the dividends on their stock. Whenever they have been able, they have seldom scrupled to employ arms to advance their projects; and instead of contenting themselves with shops and factories, have constructed fortifications, embodied armies, and engaged in war. But such has not been the case with regulated companies. The businesses under their control have uniformly been conducted in a comparatively frugal and parsimonious manner; their establishments have been, for the most part, confined to factories; and they have rarely, if ever, allowed themselves to be seduced by schemes of conquest and dominion.

And hence, considering them as *commercial machines*, it does not really seem that there can be any doubt as to the superiority of a regulated over a joint-stock company. The latter has the defect, for which nothing almost can compensate, of *entirely excluding individual* *enterprise and competition.* When such a company enjoys any peculiar privilege, it naturally, in pursuing its own interest, endeavors to profit by it, how injurious soever it may be to the public. If it have a monopoly of the trade with any particular country, or of any particular commodity, it rarely fails, by understocking the home and foreign markets, to sell the goods which it imports and exports at an artificially enhanced price. It is not its object to employ a comparatively large capital, but to make a large profit on a comparatively small capital. The conduct of the Dutch East India Company, in burning spices, that their price might not be lowered by larger importations, is an example of the mode in which such associations uniformly, and, indeed, almost necessarily act. All individuals are desirous of obtaining the highest possible price for what they have to sell: and if they are protected by a monopoly, or an exclusive privilege, from the risk of being undersold by others, they never hesitate about raising the price of their products to the highest elevation that the competition of the buyers will allow them; and thus frequently realize the most exorbitant profits. And yet, notwithstanding these advantages, such is the negligence, profusion, and peculation inseparable from the management of great commercial companies, that even those that have had the monopoly of the most advantageous branches of commerce have rarely been able to keep out of debt. It will be shown in the article East India Company, that that association has lost by its trade; and that, had it not been for the aid derived from the revenues of India, it must long since have ceased to exist. To buy in one market; to sell with profit in another; to watch over the perpetually occurring variations in the prices and in the supply and demand of commodities; to suit with dexterity and judgment the quantity and quality of goods to the wants of each market, and to conduct each operation in the best and cheapest manner, requires a degree of unremitting vigilance and attention, which it would be visionary to expect from the directors or servants of a great joint-stock association. Hence it has happened, over and over again, that branches of commerce which proved ruinous to companies have become exceedingly profitable when carried on by individuals.

5. *Constitution of Companies.*—When application is made for an act to incorporate a number of individuals into a joint-stock company for the prosecution of any useful undertaking, care should be taken not to concede to them any privileges that may be rendered injurious to the public. If a company be formed for the construction of a dock, a road, or a canal, it may be necessary, in order to stimulate individuals to engage in the undertaking, to give them some peculiar privileges for a certain number of years. But if other persons were to be permanently hindered from constructing new docks, or opening new lines of communication, a lasting injury might be done to the public. It may be highly expedient to incorporate a company for the purpose of bringing water into a city; but, supposing there were no springs in the vicinity other than those to which this company had acquired a right, they might, unless restrained by the act incorporating them, raise the price of water to an exorbitant height, and make large profits for themselves at the expense and to the injury of the public. In all cases of this sort, and in the case, indeed, of all joint-stock companies established for the formation of canals, railroads, etc., it would be sound policy to limit the rates charged for their services, or on account of the water, ships, goods, etc., conveyed by their means, and also to limit the dividends, or to fix a *maximum* beyond which they should not be augmented: enacting, that if the rates charged by the company produce more than sufficient to pay the maximum rate of dividend, and to defray the wear and tear of the aqueduct, canal, etc., they shall be allowed to reduce them till they only yield this much; and, in the event of their declining to do so, that the whole surplus above paying the dividend shall be applied to purchase up the stock of the association, so that ultimately the charges on account of dividends may be entirely abolished.

6. *Companies en Commandite.*—In France there is a sort of companies denominated *sociétés en commandite.* A society of this description consists of one or more partners, liable, without limitation, for the debts of the company; and one or more partners, or *commanditaires*, liable only to the extent of the funds they have subscribed. A *commanditaire* must not, however, take any part in the business of the company; if he do this, he loses his inviolability, and makes himself responsible for the debts of the association. The names of the partners in such societies must be published, and the amount of the sums contributed by the *commanditaires.* It has been proposed to introduce partnerships of this sort into this country; but it seems very doubtful whether any thing would be gained by such a measure. Partnerships *en commandite* may be very easily abused, or rendered a means of defrauding the public. It is quite visionary to imagine that the *commanditaires* can be prevented from indirectly influencing the other partners; and supposing a collusion to exist among them, it might be possible for them to divide large sums as profits, when perhaps they had really sustained a loss; and to have the books of the association so contrived that it might be very difficult to detect the fraud. This, it is alleged, is by no means a rare occurrence in France.

7. *Civic Companies, or Corporations.*—Exclusive of the companies previously mentioned, a number of ancient companies or corporations exist in most European countries, the members of which enjoy certain political as well as commercial privileges. When the feudal system began to be subverted by the establishment of good order and regular government in the towns, the inhabitants were divided into certain trades or corporations, by which the magistrates and other functionaries were chosen. The members of these trades, or corporations, partly to enhance the value of their privileges, and partly to provide a resource, in case of adversity, for themselves, acquired or usurped the power of enacting by-laws regulating the admission of new members, and at the same time set about providing a fund for the support of such as accident or misfortune might reduce to a state of indigence. Hence the origin of apprenticeships, the refusal to allow any one not a member of a corporation to carry on any business within the precincts of any town corporate, and the various regulations that had to be submitted to, and the fees that had to be paid by the claimants for enrollment in corporations. For a lengthened period these privileges and regulations were very oppressive. Within the last century, however, their influence has been progressively diminishing. In France, where the abuses inseparable from the system had attained to a very great height, it was entirely swept off by the Revolution: and though corporations still exist in Great Britain, they have been stripped of several of their peculiar franchises; and should now, for the most part, be regarded more perhaps in the light of charitable than of political institutions. It would be well, however, were they reduced entirely to the former character, and were the few political and commercial privileges which they still enjoy communicated to the rest of the citizens. At their first institution, and for some time after, corporations, considered as political bodies, were probably useful: but such is no longer the case; and in so far as they now possess any special immunities, they tend to obstruct that free competition that is so advantageous.

The following extract from a *Report on the Commerce and Manufactures of the United States*, drawn up by Albert Gallatin, Esquire, then Secretary of the Treasury, and laid before Congress in 1816, sets the superior advantages resulting from the unrestricted freedom of industry in a very striking point of view. "No cause," says he, "has, perhaps, more promoted in every respect the general improvement of the United States, than the absence of those systems of internal restrictions and monopoly which continue to disfigure the state of society in other countries. No laws exist here, directly or indirectly, confining men to a particular occupation or place, or excluding any citizen from any branch he may at any time think proper to pursue. Industry is, in every respect, free and unfettered; every species of trade, commerce, and profession, and manufacture, being equally open to all, *without requiring any regular apprenticeship, admission, or license.* Hence the improvement of America has not been confined to the improvement of her agriculture, and to the rapid formation and settlement of new states in the wilderness; but her citizens have extended their commerce to every part of the globe, and carry on with complete success even those branches for which a monopoly had heretofore been considered essentially necessary."

There is in Rees' *Cyclopedia*, art. Company, a list of the different civic companies belonging to the city of London, in which the periods of their incorporation, and various other important particulars with respect to several of them, are specified.

Among the earliest commercial companies in England may be named the Steel-yard Society, established A.D. 1232. The second company was the merchants of St. Thomas à Becket, in 1248.—Stowe. The third was the Merchant Adventurers incorporated by Elizabeth, 1564. There are ninety-one city companies in London; the first twelve are,

		A.D.
1	Mercers	1393
2	Grocers	1345
3	Drapers	1409
4	Fishmongers	1384
5	Goldsmiths	1327
6	Skinners	1327
7	Merchant Tailors	1466
8	Haberdashers	1447
9	Salters	1558
10	Ironmongers	1464
11	Vintners	1437
12	Cloth-workers	1482

Companies, Bubble. Ruinous speculations coming under this name have been formed, commonly by designing persons. Law's Bubble, in 1720–'21, was perhaps the most extraordinary of its kind, and the South Sea Bubble, in the same year, was scarcely less memorable for its ruin of thousands of families. Many companies were established in Great Britain in 1824 and 1825, and most of them turned out to be *bubbles;* and owing to the rage for taking shares in each scheme as it was projected, immense losses were incurred by individuals, and the families of thousands of speculators were totally ruined.—*See* Law's Bubble *and* Bankrupts.

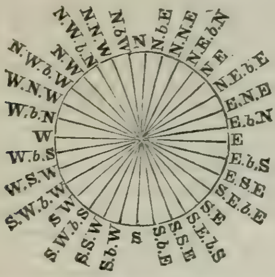
Compass (Germ. *Ein Kompass;* Du. *Zeekompass;* Da. *Söekompass;* Sw. *Sjöcompass;* Fr. *Boussole, Compas de mer;* It. *Bussola;* Sp. *Aguja de marear;* Port. *Compasso de marear;* Russ. *Kompass korabelnii*), or mariner's compass, an instrument composed of a needle and card, by which the ship's course is directed. The needle, with little variation, always points to the north; and hence the mode of steering by the compass.

The common opinion is that the compass was invented by Flavio Gioia, a citizen of the once famous republic of Amalphi, very near the beginning of the fourteenth century. Dr. Robertson has adopted this opinion, and regrets that contemporary historians furnish no details as to the life of a man to whose genius society is so deeply indebted.—*History of America*, vol. i. p. 47, 8vo ed. But though Gioia may have made improvements on the compass, it has been shown that he has no claim to be considered as its discoverer. Passages have been produced from writers who flourished more than a century before Gioia, in which the polarity of the needle, when touched by the magnet, is distinctly pointed out. Not only, however, had this singular property been discovered, but also its application to the purposes of navigation, long previously to the fourteenth century. Old French writers have been quoted (Macpherson's *Annals of Commerce*, anno 1200; Rees' *Cyclopedia*), that seem fully to establish this fact. But whatever doubts may exist with respect to them can not affect the passages which the learned Spanish antiquary, Don Antonio de Capmany (*Questiones Criticas*, p. 73–132), has given from a work of the famous Raymond Lully (*De Contemplatione*) published in 1272. In one place Lully says, "as the needle, when touched by the magnet, naturally turns to the north" (*sicut acus per naturam vertitur ad septentrionem dum sit tacta à magnete*). This is conclusive as to the author's acquaintance with the polarity of the needle; and the following passage from the same work—"as the nautical needle directs mariners in their navigation" (*sicut acus nautica dirigit marinarios in sua navigatione, etc.*), is no less conclusive as to its being used by sailors in regulating their course. There are no means of ascertaining the mode in which the needle Raymond Lully had in view was made use of. It has been sufficiently established (see the authorities already referred to, and Azuni, *Dissertation sur l'Origine de la Boussole*) that it was usual to float the needle, by means of a straw, on the surface of a basin of water; and Capmany contends that we are indebted to Gioia for the card and the method now followed of suspending the needle; improvements which have given to the compass all its convenience, and a very large portion of its utility. But this part of his *Dissertation*, though equally learned and ingenious, is by no means so satisfactory as the other. It is difficult to conceive how mariners at sea could have availed themselves of a floating needle; but, however this may be, it seems most probable that Gioia had considerably improved the construction of the compass; and that, the Amalphitans having been the first to introduce it to general use, he was, with excusable partiality, represented by them, and subsequently regarded by others, as its inventor.

The reader will not consider these details out of place in a work on commerce, which the compass has done so much to extend. "Its discovery," to borrow the language of Mr. Macpherson, "has given birth to a new era in the history of commerce and navigation. The former it has extended to every shore of the globe, and increased and multiplied its operations and beneficial effects in a degree which was not conceivable by those who lived in the earlier ages. The latter it has rendered expeditious, and comparatively safe, by enabling the navigator to launch out upon the ocean free from the danger of rocks and shoals. By the use of this noble instrument, the whole world has become one vast commercial commonwealth, the most distant inhabitants of the earth are brought together for their mutual advantage, ancient prejudices are obliterated, and mankind are civilized and enlightened."

According to the purposes to which the instrument is chiefly applied, it becomes the *mariner's compass*, the *azimuth compass*, the *variation compass*, each particular application requiring some peculiarity of construction; but whatever modifications it may receive, the essential parts are the same in all cases. These are a magnetized bar of steel, called the *needle*, having fitted to it at its centre a cap, which is supported on an upright pivot made sharp at the point in order to diminish the friction as much as possible and allow the needle to turn with the slightest force. The *mariner's compass* has a circular card attached to its needle, which turns with it, and on the circumference of which are marked the degrees, and also the thirty-two *points* or *rhumbs*, likewise divided into half and quarter points. The pivot rises from the centre of the bottom of a circular box, called the compass-box, which contains the needle and its card, and which is covered with a glass top to prevent the needle from being disturbed by the agitation of the air. The compass-box is suspended within a large box by means of two concentric brass circles or gimbals; the outer one being fixed by horizontal pivots, both to the inner circle which carries the compass-box, and also the outer box, the two sets of axes being at right angles to each other. By means of this arrangement, the inner circle, with the compass-box, needle, and card, always retain a horizontal position, notwithstanding the rolling of the ship.

The notation of the mariner's compass is as follows: The circumference being divided into the four quadrants by two diameters at right angles, the extremities of these diameters are the four cardinal points (cardo, *a hinge*), marked N., S., E., W. (north, south, east, west). Bisecting each of the quadrants, the several points of bisection are denoted by placing the two letters at the extremities of the quadrant in juxtaposition. Thus N.E. (northeast) denotes the point which is half way between north and east; and so with N.W., S.E., S.W. (northwest, southeast, southwest). Let the octants next be bisected; the points of division are denoted by prefixing to each of the above combinations first the one and then the other of the two cardinal points of which it is formed. Thus N.E. gives N.N.E. and E.N.E. (north-northeast and east-northeast); and so in respect of the others. Sixteen points have thus been named. Let the distances be again bisected, then each of the points so found is expressed by that one of the preceding points already named to which it is nearest, followed by the name of the cardinal point toward which its departure from the nearest point leads it, the two being separated by the letter *b* (by). Thus the point half way between N. and N.N.E. is N. by E. (north-by-east); that which is half way between N.N.E. and N.E. is N.E. by N. (northeast-by-north), etc. The whole of the thirty-two points are thus distinguished in the figure.



The principal requisites of a compass are intensity of directive force, and susceptibility. The first of these is obtained by constructing the needle of the material and form best suited to receive and retain the magnetic virtue. A number of experiments on this subject were made by Coulomo, and more recently by Captain Kater, an account of which is given in the *Phil. Trans.* for 1821. Captain Kater found that the kind of steel capable of receiving the greatest magnetic force is shear steel; and that the best form is that of a lozenge or rhomboid, cut out in the middle, so as to diminish the extent of surface in proportion to the mass, it being found that the directive force of the needle, when magnetized to saturation, depends not on the extent of surface, but on the mass. Beyond a certain limit (about five inches) no additional power is gained by increasing the length of the needle; and needles exceeding a very moderate length are apt to have several consecutive poles, the effect of which is to produce a great diminution of directive force. On this account short needles, made very hard, are to be preferred.—BRANDE'S *Encyclopedia of Arts.*

Like many other of the most valuable arts of life, the origin of the compass is entirely unknown. By some writers it is ascribed to Flavio Gioia, who lived in the thirteenth century; yet Guyot de Provence, who lived a century earlier, speaks of the loadstone, to which he gives the name of *marinetti*, or mariner's stone, as useful to navigation. Others pretend that it was invented in France; but there seems to be no other reason for this supposition than the fact that from time immemorial the north point of the compass card has been distinguished and ornamented with a *fleur de lis.* For a reason of a different kind, but perhaps of the same degree of weight, Dr. Wallis and others have supposed the invention to belong to England, the name *compass*, which is given to the instrument by most European countries, being used in England to signify a circle. The term *bussola* in Italian and *boussole* in French, has also been supposed to be derived from our term *box*, by which the compass is frequently designated. Gilbert, in his celebrated work *De Magnete*, affirms that Marco Polo brought the invention to Europe from China, about the year 1260. It appears very probable that the Chinese were acquainted with the directive property of the loadstone at an early period.

The *azimuth compass*, being intended to show the bearing of objects in respect of the magnetic meridian, has its circle divided merely into degrees, instead of the rhumbs used in navigation, and is provided with sights to allow the angles to be taken more accurately.

The *variation compass* is designed to exhibit the diurnal changes in the deviation of the magnetic from the true meridian; and the needle is generally made of much greater length than the mariner's compass, in order to render minute variations more sensible.

Compass Variations.—In a recent publication on the danger to which vessels are exposed from compass variations, there was suggested a plan of much importance to commerce: that in all large ports at least, where vessels are equipped, a competent person ought to be appointed, whose duties should be to select in every ship an advantageous position for a standard compass, combining the two requisites in such selection of a manageable local attraction, and of convenient access for navigating the ship—to determine experimentally the local deviations of the standard compass in different azimuths, to instruct the master how to repeat the same on future occasions, and to see that he rightly and thoroughly understands the deduction of the true magnetic courses from those of the standard compass, and of the course by the standard compass corresponding to the true course which he desires to steer.

Self-registering Compass.—The self-registering compass, by M. Deluil, is designed to register the changes of direction in a vessel for every three minutes during the twenty-four hours. The marking is made upon a compass card. It consists of a clock movement placed at the centre of the apparatus for causing the point or pivot carrying the needles to move up and down at regular intervals—of an endless screw, furnished with a nut carrying the point, for piercing the paper—and of the compass card, made of three needles fixed to a sheet of mica. The mica is covered with a disk of velvet, firmly glued to it by means of strong glue, and whose tissue has been saturated with a kind of glue that is soft when cold. When the needle is fixed toward the north, the axis or diametral line of the compass card is placed in the line of the axis of the ship, and the punctures made every three minutes indicate the deviation of this axis.

Composition, *in Commerce,* commonly implies the dividend or sum paid by an insolvent debtor to his creditors, and accepted by them in payment for their debts.

Coney Wool (Ger. *Kaninchenwolle;* Du. *Konynhair;* Fr. *Poil de lapin;* It. *Pelo di Caniglio;* Sp. *Conejuna*), the fur of rabbits. This article is extensively used in the hat manufacture; and besides the large supplies raised at home, a great deal is imported. The imports usually range from about 300,000 to about 500,000 skins a year.

Congreve Rockets. Invented by General Sir William Congreve in 1803. The Congreve rockets, first used against Boulogne in 1806, are of various dimensions, and differently armed, as they are intended for the field or for bombardment. Those of the former class carry shells or case-shot; those of the latter are armed with a very combustible material contained in a strong metallic cylindrical case with a conical head. When once inflamed, this substance is unextinguishable, it scatters its burning particles in every direction, and when spent, the ball explodes like a grenade. The rocket is projected horizontally, and makes a loud whizzing noise in its passage through the air. The ammunition used varies from 6 to 42 lbs. and upward. These rockets were certainly a very important invention; but from their liability to deflection and other defects, they are now regarded as less advantageous than the ordinary red-hot shot and bombs. The secret of their composition also is not so great as to defy imitation by foreign artillerists. *Sir William Congreve*, Bart. (1772–1828), inventor of the rocket called by his name, was a general of artillery, and co-operated with the Duke of York in reforming the British army. He wrote an *Elementary Treatise on the Mounting of Naval Ordnance* (Lond. 1812); and a *Description of the Hydro-pneumatic Lock* (Lond. 1815). He died at Toulouse in 1828.—E. B.

Connecticut, the southernmost of the New England States, is situated between lat. 41° and 42° 2′ N., and long. 71° 20′ and 73° 15′ W., and between 3° 46′ 24″ and 5° 41′ 24″ E. long. from Washington. It is bounded north by Massachusetts, east by Rhode Island, south by Long Island Sound, and west by New York. It contains 4750 square miles, or 3,040,000 acres. Its population in 1790, was 237,946; in 1800, 251,002; in 1810, 261,942; in 1820, 275,248; in 1830, 297,711; in 1840, 300,015; in 1850, 370,792. The capitals are, Hartford, on the right bank of the Connecticut, at the head of steamboat navigation, 50 miles from its entrance into Long Island Sound, and New Haven, at the head of a bay which sets up 4 miles from the sound. It contained, in 1850, eight counties.

The beautiful river from which the State of Connecticut derives its name was first discovered (in the year 1614) by the Dutch Captain Adrian Block, who sailed into it as far up as the present site of Hartford, and who named it "*De Versche Rivier*" (the Fresh River), probably from the fresh appearance of its waters and green valleys. The Dutch from New Amsterdam made some attempts at settlement along this river. But the English colonists and explorers from Plymouth and Boston, on their way to the west, reached it about the year 1630, and became soon the exclusive proprietors of the river and its valley. They adopted for it the original name of the aborigines, which, in its true Indian shape, is said to have been "*Quonehtucut.*" The meaning of this word is stated to be "*The Long River*," and it appears to be a designation which the Indians applied often as a river name. Among others, we find also in Long Island a Connecticut River. The name was at first written in different ways. We find, for instance, on one map of the year 1635, the orthography "*R. Conokteook.*" At last the orthography "Connecticut" prevailed. The English colonists applied the name of the river for the first time to a territory in the year 1631, when they claimed a tract of land around the present site of Hartford, and intended to erect there a colony, to which the name of "*Colony of Connecticut*" was given. This was an inland country, sometimes also called "*the Colony of Hartford.*" In the year 1662 King Charles II. united with this colony that of New Haven, which was planted on the shores of Long Island Sound, and which had existed for some time separately under a particular name. The king named both united colonies "*The Province of Connecticut*;" and in this way this name was extended to the sea-coast. It included then also a great part of Long Island, which had been settled and was claimed by planters and emigrants from the Connecticut valleys. But soon after the conquest of New Netherland by the English (1664) the Duke of York claimed the whole of Long Island, which now was separated from the colony of Connecticut and became a part of the province of New York. In compensation for this loss the boundaries of Connecticut were extended to the west as far as Mormaromek or Byram's River, within thirty miles from New York, so that now the name Connecticut covered nearly the whole of the northern shore of Long Island Sound. These boundaries along the sea-coast have, upon the whole, remained unchanged ever since. —J. G. Kohl.

Though generally hilly and broken, no part of the surface rises to a great height above the sea. The greatest elevation is a range of mountains commencing at a bluff called East Rock, near New Haven, and continuing northward through the state. The hills are generally of moderate size, and occur in quick succession in ranges trending northward, presenting to the traveler an ever-varying aspect. The soil is generally fertile, but better adapted to grazing than tillage. There were in this state, in 1850, 1,768,178 acres of land improved, and 615,701 of unimproved land in farms. Cash value of farms $72,726,422; and the value of implements and machinery, $1,892,541; live-stock: horses, 26,879; asses and mules, 49; milch cows, 85,461; working oxen, 46,988; other cattle, 80,226; sheep, 174,181; swine, 76,472; value of live-stock, $7,467,490.

Manufactures.—There were in the state, in 1850, 106 cotton factories, with a capital invested of $4,012,600, employing 2665 males, and 3313 females, producing 54,370,527 yards of sheeting, etc., and 950,000 pounds of yarn, valued at $4,122,952; 149 woolen factories, with a capital of $2,583,742, employing 1893 males, and 1665 females, producing 8,950,372 yards of cloth, valued at $4,921,152; 12 establishments making pig iron, with a capital of $207,600, employing 120 persons, producing 13,020 tons of pig-iron, etc.; the entire value of products, $379,600; 60 establishments, with a capital of $580,800, employing 949 persons, and making 11,210 tons of castings, etc., valued at $981,400; 18 establishments, with a capital of $529,500, employing 374 persons manufacturing 6325 tons of wrought iron, etc., valued at $667,560; 117 flouring mills, 115 tanneries, with a capital of $360,500, employing 407 persons; value of products, $731,006. Capital invested in manufactures, $23,890,348; value of manufactured articles, $41,897,848.

The state is watered by numerous rivers and streams. Few of the rivers are navigable for more than a short distance from their mouths. The principal is the Connecticut, which rises on the northern border of New Hampshire, and after a course of about 400 miles falls into Long Island Sound between Saybrook and Lyme. Its general direction is south-by-west, separating New Hampshire from Vermont, and afterward passing through the western part of Massachusetts and the central part of Connecticut. Below Middletown it turns to the south-southeast, and continues in that direction to its mouth. It is navigable to Middletown, 30 miles from the sea, for vessels drawing 10 feet, and to Hartford, 20 miles higher, for vessels drawing 8 feet of water. The canals and other improvements recently made to overcome the rapids and falls, have rendered it navigable for small boats as far as Wells River, 250 miles above Hartford. The principal tributary of the Connecticut in this state is the Tunxis or Farmington, which rises in the eastern slope of the Green Mountains in Massachusetts, and flows southward to Farmington, where it abruptly changes its course to the northward. On breaking through the trap range of the Talcott Mountains, it again takes a southerly direction, and falls into the Connecticut opposite East Windsor. The Housatonic rises in the western part of Massachusetts and enters this state near its northwest corner, after which it has a south and southeast course to the Sound. Its entrance is obstructed by a bar, but there is a sloop navigation for 12 miles. The Thames, formed by the junction of the Quinebaug, Shetucket, and Yantic Rivers near Norwich, falls into the Sound at New London. The mineral wealth of Connecticut is considerable. Iron ore of excellent quality is found abundantly in various parts. The copper mines of Bristol and Plymouth are said to be the most profitable in the United States. According to Professor Silliman, the Bristol vein extends in a southerly direction for more than 30 miles, and if fully worked is capable of affording employment to 30,000 miners. The Plymouth mines are considered to be equally rich. Copper is also found at Granby. Fine marbles of different kinds are abundant, and extensive quarries of freestone exist in the mountain regions, and furnish an excellent building material. Zinc, cobalt, manganese, and plumbago are also found; and the mineral waters of Stafford have long been celebrated.

Connecticut has a larger productive school fund, in proportion to its population, than any other state, amounting to $2,049,482. This originated chiefly from the sale of the Western Reserve, constituting a large part of the northern portion of the State of Ohio included in its original charter, and ceded to it by the United States by way of compromise. In 1852 there were in the state 53 banks, with a capital of $12,509,808. It has no state debt. There is a state prison at Wethersfield, erected in 1826.

The following synopsis of the length, cost, capital, earnings, etc., of the Connecticut railroads, is from the Official Report of the Railroad Commissioners of that state for 1856:

Names.	Total Length.	Length in Connecticut.	Capital Paid in.	Debt Funded and Unfunded.	Cost.	Earnings. 1855.	Net Earnings.	Dividends.
	Miles.	Miles.						
New York and New Haven.........	62¼	47½	$2,992,450	$2,888,010	$5,070,979	$958,275	$338,877	....
New Haven and Hartford..........	72	65	2,350,000	146,000	3,318,932	730,012	352.799	$235,000
Norwich and Worcester...........	66	50	2,122,300	1,564,589	2,597,153	304,236	88,458	52.787
Hartford, Providence, and Fishkill..	122¼	96	2,008,110	2,030,665	4,060,868	258,685	119,611	18,141
N. London, Willimantic, and Palmer	66	57	509,200	1,073,672	1,594,682	124.043	663,330	....
New Haven and New London.......	50	50	738,538	761,462	1,455,569	88,007	30.318	....
Housatonic......................	74	74	2,000,000	414,240	2,431,773	339,196	176.529	....
Naugatuck......................	57	57	1,031,800	524,244	1,580,723	220,459	95.955	....
Danbury and Norwalk.............	23¾	23¾	279,050	97,100	373,460	56,241	21,900	13,970
New York, Providence, and Boston.	50	6	1,508,000	446,700	2,158,000	250,627	74.834	37.692
New Haven and Northampton......	55¼	55¼	922,500	500,000	1,400,000	145,135	74.054	36,900
Boston and New York Central......	74¼	8	2,240,300	1,518,671	3,463,818	59,917	8,139	....
Total..................	772¾	590¼	$18,702,248	$12,165,356	$29,505,662	$3,534,839	$1,448,412	$394,491

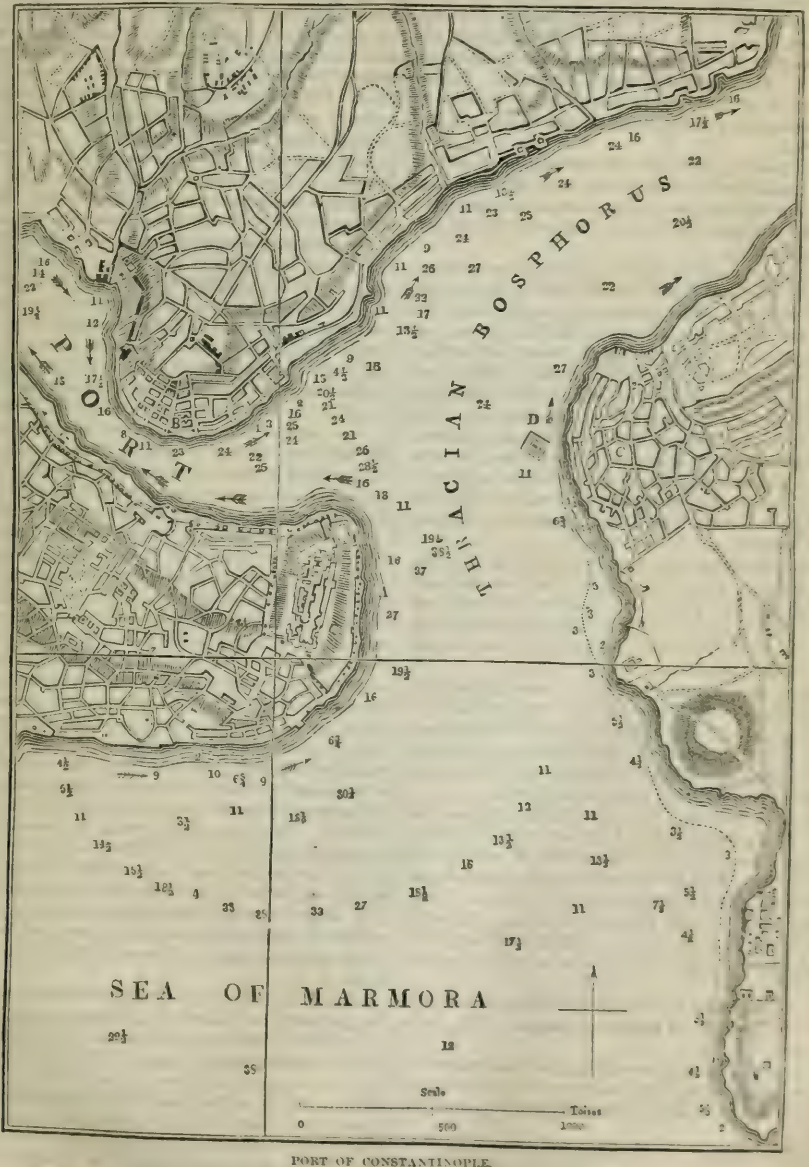
COMMERCE OF THE STATE OF CONNECTICUT (SHOWING ALSO THE DISTRICT TONNAGE IN 1821, 1831, 1841, AND 1851) FROM OCT. 1, 1820, TO JULY 1, 1856.

Years ending	Exports.			Imports.	Tonnage Cleared		District Tonnage.	
	Domestic.	Foreign.	Total.	Total.	American.	Foreign.	Registered.	Enrolled and Licensed.
Sept. 30, 1821.......	$366,180	$10,007	$376,187	$312,090	14,749	....	74,084	31,720
1822.......	479,353	5.959	485,312	507,094	17,442	....	....	....
1823*......	480,941	1,120	482,061	456.463	16,733	108	....	....
1824.......	570.634	5,218	575,852	581,510	20.946	....	....	....
1825.......	684,686	4,584	689,270	707,478	24,395	....	....	....
1826.......	695,454	13,439	708,893	736,194	21,634	....	....	....
1827.......	567,100	23,175	590,275	630,004	18,078	....	....	....
1828.......	493,925	27,620	521,545	485,174	17,588	....	....	....
1829.......	450,985	6,985	457,970	309,538	16,090	....	....	....
1830.......	385,610	3,901	389,511	269,583	18,285	77	....	....
Total...	$5,174,868	$102,008	$5,276,876	$4,995,128	185,940	185	....	....
Sept. 30, 1831.......	$482,073	$810	$482,883	$405.066	20,139	....	18,068	34,810
1832.......	430,466	....	430,466	437,715	20,944	367	....	....
1833.......	427,603	....	427,603	352,014	18,458	606	....	....
1834.......	421.419	997	422,416	385,720	18,548	204	....	....
1835.......	487,510	25,460	512,970	439,502	10,528	618	....	....
1836.......	431,176	7,023	438,199	468,163	20,342	1,542	....	....
1837.......	523,103	9,487	532,590	318,849	20,299	2,145	....	....
1838.......	543,610	....	543,610	343.331	18,892	420	....	....
1839.......	583,226	....	583,226	442,847	26,308	916	....	....
1840.......	518,210	....	518,210	277,072	24,122	479	....	....
Total...	$4,848,396	$43,777	$4,892,173	$3,870,279	198,580	7,297	....	....
Sept. 30, 1841.......	$599,348	....	$599,348	$295,989	27.886	3,027	26,421	38,858
1842.......	532,392	....	532,392	335,707	27,253	4,791	....	....
9 mos., 1843*......	307,223	....	307,223	230,841	14,113	2,743	....	....
June 30, 1844.......	798,725	1,291	800,016	323,299	38,381	4,780	....	....
1845.......	960,810	8.245	969,055	372,075	37,086	2,101	....	....
1846.......	765,912	10,000	775,912	413.478	31,131	5,937	....	....
1847.......	598,702	490	599,192	275,823	20.536	1,966	....	....
1848.......	501,064	....	501,064	229,310	23.500	4.313	....	....
1849.......	264,000	....	264,000	234,748	20,440	3,719	....	....
1850.......	241.262	668	241,930	372,390	17.515	9,802	....	....
Total...	$5,569,438	$20,694	$5,590,132	$3,083,655	252,841	43,179	....	....
June 30, 1851.......	$433,894	$184	$434,078	$342,994	22,534	8,127	41,805	74,374
1852.......	505,904	270	506,174	394.675	27,507	10,237	....	....
1853.......	497.769	11.665	509,434	545.793	19,942	8,962	....	....
1854.......	721.307	18.264	739,575	562,977	23,750	7.342	....	....
1855.......	859.492	19.382	878.874	633.826	21,369	7,379	....	....
1856.......	860,582	20,292	968,876	741,756	31,417	8,929	....	....

* Nine months to June 30, and fiscal year begins July 1, 1843.

Consolidated Fund. Down to 1816 the exchequers of Great Britain and Ireland were kept separate, certain portions of the public revenue arising in each kingdom being especially appropriated to the discharge of the interest on its own debts, and other peculiar purposes. But on January 5th, 1816, the separate exchequers were consolidated into one; and an act was at the same time passed consolidating certain portions of the joint revenue of Great Britain and Ireland into one fund, hence called the Consolidated Fund, and providing for its indiscriminate application to the payment of the public debts, civil lists, and other specified expenses of both kingdoms. Some portions of revenue are not included in this fund; but it embraces by far the largest part of the public income. Thus, in 1838, of a total net income of £47,333,460, the Consolidated Fund included no less than £44,144,438: the expenditure on account of the peculiar charges to be defrayed by the fund during the same year amounted to £31,742,918, leaving a surplus of £12,401,570 applicable to other objects.—FAIRMAN *on the Funds*, 7th ed. p. 896; *Parl. Paper*, No. 849. Sess. 1839, etc.

Constantinople, a famous city of southeastern Europe, formerly the metropolis of the Eastern, as it still is of the Turkish empire, on a triangular point of land, on the European side of the Sea of Marmora (Propontis), at the point where it unites with the Bosphorus, or channel leading to the Black Sea, lat. 41° 0′ 12″ N., long. 28° 59′ 2″ E. Population variously estimated at from 300,000 to 600,000, but believed, by the best authorities, to be about 450,000. The situation of this renowned city is, in a commercial point of view, one of the finest imaginable. Standing on the narrow straits uniting the Mediterranean and Euxine Seas, she at once commands and is the *entrepôt* for the commerce between them. The harbor is most excellent. It consists of an extensive inlet, or arm of the sea, stretching along the northeast side of the city, which it divides from the suburbs of Galata and Pera. It has sufficient depth of water to float the largest ships, and can accommodate more than 1000 sail. The strong current that sets through the Bosphorus into the Sea of Marmora strikes against Seraglio Point (*see Plan*); a part of the water, being in consequence forced into the harbor, runs along its southwestern side in the direction marked by the arrows (*see Plan*), till, arriving at its extremity, it escapes by the opposite side. In the middle the water is still. On leaving the port, it is necessary to keep well over to the northern side; for otherwise the ship might be taken by the current,



PORT OF CONSTANTINOPLE.

References to Plan.—A, Seraglio Point; B, Galata; C, Scutari; D, Tower and Light-house of Leander. The arrows show the direction of the currents. The soundings are in fathoms.

and driven on Seraglio Point. It may be worth while, however, to remark that, notwithstanding this inconvenience, the current has been of signal service to the city, by scouring the harbor, and carrying away the filth and ballast by which it must otherwise have been long since choked up. The distance across from Seraglio Point to the opposite suburb of Scutari, on the Asiatic coast, is rather more than an English mile. Within less than a quarter of a mile of the latter is a rocky islet, upon which is a tower and light-house, known by the name of the Tower of Leander. Foreigners reside in Galata, Pera, and the suburbs, on the eastern side of the harbor; and it is there, consequently, that the principal trade of the place is carried on. The quays are good, and ships lie close alongside.

The Bosphorus, or channel of Constantinople, runs in a northeast by north direction about 15 miles, varying in breadth from 1¼ to ½ a mile. It is swept by a rapid current, which it requires a brisk gale to stem, and has throughout a great depth of water. The Hellespont, or Strait of the Dardanelles, leading from the Archipelago to the Sea of Marmora, is about 13 leagues in length. Its direction is nearly northeast. Where narrowest, it is little more than a mile across. It also is swept by a strong current, and has deep water throughout.

The subjoined plan of part of Constantinople and its port is copied, without reduction, from the beautiful plan of the city and Bosphorus, drawn and engraved by M. Merzoff Robert of Munich, and published by Mr. Wilde of London.

Nothing can be more imposing than the appearance of the city when seen from the sea, but on landing the illusion vanishes. The streets are narrow, dark, ill-paved, and irregular. Owing to the want of any effective system of police, and of the most ordinary attention to cleanliness, they are extremely filthy; and are infested with herds of dogs, and also with rats, which perform the functions of scavengers. The houses are mostly built of wood, and fires are frequent. Most of these happen designedly; the burning of a few hundred houses being deemed the readiest and most effectual means of making the government aware of the public dissatisfaction, and of procuring a redress of grievances.

Money.—Accounts are kept in piastres of 40 paras, or 120 aspers. The Turkish coin has been so much degraded, that the piastre, which a few years ago was worth 2*s.* sterling, is now worth little more than 4*d.* A bag of silver (*kefer*) = 500 piastres, and a bag of gold (*kitze*) = 30,000 piastres.

Weights and Measures.—The commercial weights are: 176 drams = 1 rottolo; 2·272 rottoli = 1 oke; 6 okes = 1 batman; 7⅓ batmans = 1 quintal or cantaro = 124·457 (124½ very nearly) lbs. avoirdupois = 56·437 kilogrammes = 116·527 lbs. of Hamburg. The quintal of cotton is 45 okes = 127·2 lbs. avoirdupois.

The pik or pike is of two sorts, the greater and the lesser. The greater, called *halebi* or *arschim*, used in the measurement of silks and woolens, is very near 28 inches (27·9). The lesser, called *endese*, used in the measuring of cottons, carpets, etc. = 27 inches. Hence 100 long piks = 77·498 English yards, and 100 short piks = 75·154 English yards. But in ordinary commercial affairs the pik is estimated at ¾ths of an English yard.

Corn is measured by the *kisloz* or *killow* = 0·941 of a Winchester bushel 8½ kisloz = 1 quarter. The *fortin* = 4 kisloz.

Oil and other liquids are sold by the *alma* or *meter* = 1 gallon 3 pints, English wine measure. The alma of oil should weigh 8 okes.—Nelkenbrecher *and* Dr. Kelly.

The *Port charges* on account of English vessels in the harbors of the Ottoman empire are fixed by treaty at 300 aspers, neither more nor less.

Trade, etc.—Owing to the vicious institutions of the Turks, and the disorganized state of the empire, the trade of Constantinople is very far from being so extensive as might be supposed from its situation and population. The imports consist of corn, iron, timber, tallow, and furs, principally from the Black Sea; and of cotton stuffs and yarn, coal, tin, tin plates, woolens, silks, cutlery, watches and jewelry, paper, glass, furniture, indigo, cochineal, etc., from England and other European countries. Corn and coffee are imported from Alexandria; but considerable quantities of Brazil and West India coffee are also imported, particularly in British and American bottoms. Sugar is partly imported from the East, but principally from the West Indies. The exports consist of silk, which is by far the most important article, carpets, hides, wool, Angola goats' hair, yellow berries, boxwood, opium, galls, bullion and diamonds, and a few other articles. But the exports are always very much less than the imports; and ships carrying goods to Constantinople either return in ballast, or get return cargoes at Smyrna, Odessa, Salonica, etc., on which places they frequently procure bills at Constantinople. By far the largest proportion of the trade of the city, and of the Levant generally, is in the hands of Greek merchants, who by their superior skill, industry, and knowledge of those with whom they have to deal, have completely distanced their English, French, and other European competitors (denominated Franks). The Armenians only have been able to withstand the competition of the Greeks. Bargains are negotiated by Jew brokers, some of whom are rich.

Constantinople was known as the Stanboli of the Greeks, or Istanboul of the Turks. An attempt was made to change this latter name into Islamboul, that is, the town of Islam or Mohammedanism, and coins were even struck bearing the new name; but the attempt failed, and the coinage again bears the impression "struck at Istanboul." The entire civil and ecclesiastical authority of the Turkish empire is concentrated in the city, where reside the chief pashas, muftis, and ulemas; the patriarch and synod of the Greek Church; an Armenian and a Catholic archbishop. That part of it which is now occupied by the seraglio, and which is separated from the rest by a wall, is understood to have been the Byzantium of the ancients.

Commercial Policy.—It is singular that, as respects commerce, the policy of the Turkish government, whether originating in design or carelessness, is entitled to the highest praise. "No restrictions," says Mr. Thornton, "are laid on commerce, except in the instance of a general prohibition of exporting the articles necessary for the support of human life to foreign countries, especially from the capital, where alone it is rigorously enforced; and this impolitic restraint will no doubt be removed when the Turkish government shall become sensible that what is intended as the means of securing abundance is, in fact, the sole cause of that scarcity which is sometimes experienced. With this one exception, commerce is perfectly free and unfettered. Every article of foreign or domestic growth or manufacture is conveyed into every port, and over every province, without any interference on the part of the magistrates, after payment of the duties. On this subject I speak from actual experience, and may appeal to every foreign or native merchant in Turkey for its general truth."—*Present State of Turkey*, vol. i. p. 82.

The duties, too, are extremely moderate, being only five per cent. on imports, viz., three per cent. on goods when landed, and two per cent. on their being admitted to consumption (*Ubicini*, i. 281), and about three per cent. on most articles of export. Hence, in almost all that relates to her commercial regulations, Turkey is entitled to read a lesson to the most civilized European powers; and this she did in a very able manner, in an official paper published in the *Moniteur Ottoman*, in September, 1832. We extract a few paragraphs from this interesting document.

"Good sense, tolerance, and hospitality have long ago done for the Ottoman empire what the other states of Europe are endeavoring to effect by more or less happy political combinations. Since the throne of the sultans has been elevated at Constantinople, commercial prohibitions have been unknown; they opened all the ports of their empire to the commerce, to the manufactures, to the territorial produce of the Occident, or, to say better, of the whole world. Liberty of commerce has reigned here without limits, as large, as extended as it was possible to be.

"Here every object of exchange is admitted, and circulates without meeting any obstacle other than the payment of an infinitely small portion of the value to the custom-house. The chimera of a balance of trade never entered into heads sensible enough not to dream of calculating whether there was most profit in buying or selling. Thus the markets of Turkey, supplied from all countries, refusing no objects which mercantile spirit puts in circulation, and imposing no charge on the vessels that transport them, are seldom or never the scenes of those disordered movements occasioned by the sudden deficiency of such or such merchandise, which, exorbitantly raising prices, are the scourges of the lower orders, by unsettling their habits, and by inflicting privations. From the system of restrictions and prohibitions arise those devouring tides and ebbs which sweep away in a day the labor of years, and convert commerce into a career of alarms and perpetual dangers. In Turkey, where this system does not exist, these disastrous effects are unknown.

"The extreme moderation of the duties is the complement of this régime of commercial liberty; and in no portion of the globe are the officers charged with the collection of more confiding facility for the valuations, and of so decidedly conciliatory a spirit in every transaction regarding commerce.

"Away with the supposition that these facilities granted to strangers are concessions extorted from weakness! The dates of the contracts termed capitulations, which establish the rights actually enjoyed by foreign merchants, recall periods at which the Mussulman power was altogether predominant in Europe. The first capitulation which France obtained was in 1535, from Soliman the Canonist (the Magnificent). The dispositions of these contracts have become antiquated, the fundamental principles remain. Thus, 300 years ago, the sultans, by an act of munificence and of reason, anticipated the most ardent desires of civilized Europe, and proclaimed unlimited freedom of commerce."

Did the policy of Turkey in other respects harmonize with this, she would be one of the most civilized and powerful of nations, instead of being one of the most abject and degraded. Unfortunately, however, this is very far from being the case. Tyranny and insecurity universally prevail. "The cultivator of the soil," says one of her eulogists, "is ever a helpless prey to injustice and oppression. The government agents have to suffer in their turn from the cruelty and rapacity of which they themselves have been guilty; and the manufacturer has to bear his full share of the common insecurity; he is fixed to the spot, and can not escape the grasp of the local governor. The raw material monopolized by a bey or ayan, may be forced upon him at a higher price than he could purchase it himself, and perhaps of inferior quality; fines may be imposed upon him, he may be taken for forced labor, or troops may be quartered on his workshop."—URQUHART *on Turkey and its Resources*, p. 139.

Some vigorous efforts have been made of late years by the Turkish government to reform abuses; but with little or no practical effect. There is, in truth, neither public virtue nor principle in the country to second these efforts. Corruption of every kind is as prevalent as ever; and the rayahs continue to be exposed to every sort of oppression. There are no roads in any part of the empire; and agriculture is everywhere in the most abject condition. Indeed, vast tracts of the most fertile (and of old the most flourishing) districts of Asia Minor are wholly waste and unoccupied; and the evil, instead of diminishing, is continually increasing. The greater density of population in European Turkey, and the little industry found in it, are due to the energies of the Christian population. And when the latter have been emancipated from the slavery in which they have been long held, by the expulsion of their barbarian task-masters from Europe, the beautiful provinces in which they have been so long permitted to encamp will again become the favorite seats of industry and civilization. But the degradation in which the native inhabitants are involved would have been still more complete, but for the freedom of commerce they have always enjoyed. This has tended to keep alive the seeds of industry, and to countervail to some small extent the destructive influence of oppression and insecurity. Had their intercourse with foreigners been either prohibited or placed under oppressive restrictions, the barbarism of Turkey would have been completed, and it is difficult to suppose that there could have been any thing like wealth or industry in the empire

"As the Turks do not allow a census to be taken, all statements of the number of inhabitants in their dominions must be doubtful and conjectural. Eton calculates the population of Constantinople at no more than 300,000; while General Andréossy calculated it, without including Scutari, at 597,600; his calculation being founded on the daily consumption of bread. The number of houses is about 88,100. According to Andréossy, the division of the inhabitants is as follows: 300,000 Turks, Tâtars, and other Mussulmans; 200,000 Greeks; 50,000 Armenians; 30,000 Jews; and the remainder of the various Frank nations. In 1851, the census of the resident British gave only 200. The mortality is said to be greater than in any other city in Europe; but the recruits that arrive from all parts of the Turkish dominions, and especially the slaves brought for sale, fill up the numbers faster than they fall away by death. Of late years, too, the rayahs seek refuge from the exactions of the provincial pashas in the neighborhood of the seat of government, where the Tanzimat or new constitution is better observed. Although the public slave-market has been shut for a few years, the trade in slaves is still carried on with all its episodes of horror and abomination. The closely latticed windows of the harems of the rich, the prison-like aspect of the better streets, and the caravan of gaunt, shoeless Nubian girls in their cotton wrappers, are part and parcel of the odious system.

"The trade of Constantinople consists chiefly in the supply of the wants of the state officers, and of the military and naval persons who are attracted to the capital; but it is chiefly by foreigners that the handicraft operations are performed. The principal manufactures are those of cotton and silk goods. The Armenians are the chief jewelers and silversmiths. The Jews are perfumers, druggists, and brokers; the Franks are the principal mechanics; and the chief business is transacted at the several bazars.

"The foreign trade of Constantinople is favored by its excellent harbor, capable of containing 1200 ships. It is the medium of intercourse between that part of Asia whence laden camels arrive, and the different divisions of Europe, collecting the drugs and silks of the one, and distributing them among the others. It would require much space to collect and enumerate the ramifications of such a trade as is carried on in minute articles to and from the city of Constantinople. The city is distant 1680 miles from London."—E. B. *See* TURKEY.

Consuls. We propose to divide this article into three parts: I. Consuls, their Origin, and Laws respecting them; II. Duties of Consuls; III. Diplomatic and Consular Law of the United States.

Consul (ὕπατος), the highest ordinary magistrate of the Roman republic. It is probable that the word is compounded of *con* and *salio*, and is formed like *exsul* and *præsul*, so that *consules* signifies those who go together. They were anciently called *prætores*, *imperatores*, or *judices*.

I. CONSULS, THEIR ORIGIN, AND LAWS RESPECTING THEM.—Consuls, in the nineteenth century, are commercial agents, appointed to reside in the sea-ports of foreign countries, with a commission to watch over the commercial rights and privileges of the nation deputing them. The establishment of consuls is one of the most useful of modern commercial institutions. They were appointed about the twelfth century in the opulent states of Italy, such as Pisa, Lucca, Genoa, and Venice, and their origin has been ascribed to the necessity for extraordinary assistance in those branches of commerce formerly carried on with barbarous and uncivilized nations. The utility of such a mercantile officer has been perceived and felt by all trading nations, and the Mediterranean trade in particular stands highly in need of such accredited persons. Consuls have been multiplied and sent to every part of the world where navigation and commerce can successfully penetrate; and their duties and privileges are now generally limited and defined by treaties of commerce, or by the statute regulations of the country which they represent. In some places they have been invested with judicial powers over disputes between their own merchants in foreign ports; but in the commercial treaties made by Great Britain there is rarely any stipulation for clothing them with judicial authority, except in treaties with the Barbary powers; and in England it has been held that a consul is not strictly a judicial officer, and they have there no judicial power. It has been urged by some writers, as a matter highly expedient, to establish rules requiring merchants abroad to submit their disputes to the judicial authority of their own consuls, particularly with reference to shipping concerns. But no government can invest its consuls with judicial power over their own subjects in a foreign country, without the consent of the government of the foreign country, founded on treaty; and there is no instance in any nation of Europe, of the admission of criminal jurisdiction in foreign consuls. The laws of the United States, on the subject of consuls and vice-consuls, especially authorize them to receive the protests of masters and others in relation to American commerce, and they declare that consular certificates under seal, shall receive credit in the courts of the United States. It is likewise made their duty, where the laws of the country permit, to administer the personal estates of American citizens dying within their consulates, and leaving no legal representative; and to take charge of and secure the effects of stranded American vessels in the absence of the master, owner, or consignee; and they are bound to provide for destitute seamen within their consulates, and to send them at the public expense to the United States. It is made the duty of American consuls and commercial agents to reclaim deserters, and to discountenance insubordination, and to lend their aid to the local authorities for that purpose, and to discharge the seamen cruelly treated. It is also made the duty of masters of American vessels on arrival at a foreign port, to deposit their registers, sea-letters, and passports, with the consul, vice-consul, or commercial agent, if any, at the port. These particular powers and duties are similar to those prescribed to British consuls, and to consuls under the consular convention between the United States and France, in 1788; and they are in accordance with the usages of nations, and are not to be construed to the exclusion of others, resulting from the nature of the consular appointment. The consular convention between France and this country in 1778, allowed consuls to exercise police over all vessels of their respective nations, "within the interior of the vessels," and to exercise a species of civil jurisdiction by determining disputes concerning wages, and between the masters and crews of vessels belonging to their own country. The jurisdiction claimed under the consular convention with France, was merely voluntary, and altogether exclusive of any coercive authority; and we have no treaty at present which concedes even such consular functions. The doctrine of our courts is, that a foreign consul, duly recognized by our government, may assert and defend, as a competent party, the rights of property of the individuals of his nation in the courts of the United States, and may institute suits for that purpose without any special authority from that party for whose benefit he acts. But the courts, in that case, said that they could not go so far as to recognize a right in a vice-consul to receive actual restitution of the property, or its proceeds, without showing some specific power for the purpose from the party in interest. No nation is bound to receive a foreign consul unless it has agreed to do so by treaty, and the refusal is no violation of the peace and amity between the nations. Consuls are to be approved and admitted in the usual form; and if any consul be guilty of illegal or improper conduct, he is liable to have his *exequatur* (a written recognition of his character) revoked, and to be punished according to the laws of the country in which he is consul; or he may be sent back* to his own country, at the discretion of the government which he has offended. The French and American consuls are forbidden to be concerned in commerce, but British consuls are generally allowed to be concerned in trade; and in such cases the character of consul does not give any protection to that of merchant, when these characters are united in the same person. Though the functions of a consul would seem to require that he should not be a subject of the state in which he resides, yet the practice of the maritime powers is quite lax on this point; and it is useful, and thought most convenient, to appoint subjects of the foreign country to be consuls at its ports.

A consul is not such a public minister as to be entitled to the privileges appertaining to that character, nor is he under the special protection of the law of nations. He is entitled to privileges to a certain extent, such as for safe conduct; but he is not entitled to the *jus gentium*. Vattel thinks that his functions require that he should be independent of the ordinary *criminal* jurisdiction of the country, and that he ought not to be molested unless he violates the law of nations by some enormous crime, and that if guilty of any crime he ought to be sent home to be punished. But no such immunities have been conferred on consuls by the modern practice of nations; and it may be considered as settled law that consuls do not enjoy the protection of the law of nations, any more than other persons who enter the country under a safe-conduct. In civil and criminal cases they are equally subject to the laws of the country in which they reside. The same doctrine, declared by the public jurists, has been frequently laid down in the English and American courts of justice. It seems, however, from some decisions in France, mentioned by Mr. Warden, that foreign consuls can not be prosecuted before a French tribunal for acts done by them in France by order of their government, and with the authorization of the French government, and that in general a consul can not be prosecuted without the previous consent of his government.

Consular privileges are much less extensive in Christian than in Mohammedan countries. In the latter, they can not be imprisoned for any cause whatever, except by demanding justice against them of the Porte, and they partake very considerably of the character of resident ministers. They are diplomatic agents under the name of consuls, and enjoy the rights and privileges which the Ottoman Porte recognizes in relation to the foreign ministers resident at Constantinople. By treaty an entire immunity is usually given to the persons, domestics, and effects of the resident consuls, and no consuls reside with the Barbary States but under the protection of treaties.

Considering the importance of the consular functions, and the activity which is required of them in all great maritime ports, and the approach which consuls make to the efficacy and dignity of diplomatic characters, it was a wise provision in the Constitution of the United States, which gave to the Supreme Court original jurisdiction in all cases affecting consuls as well as embassadors and other public ministers; and the federal jurisdiction is understood to be exclusive of the state courts.—KENT'S *Comm.*, Lect. II.

---

* As was the case with the British consuls at New York, Philadelphia, and Cincinnati, in the year 1856. The official exequatur of these gentlemen was withdrawn by President Pierce, and their official functions ceased.

In the treaty between Sweden and the United States of America, ratified on the 24th of July, 1818, it is stipulated that the consuls appointed by either government to reside within the dominions of the other, or their substitutes, "shall, as such, have the right of acting as judges or arbiters in all cases of differences which may arise between the captains and crews of the vessels of the nation whose affairs are intrusted to their care. The respective governments shall have no right to interfere in this sort of affairs, except in the case of the conduct of the crews disturbing public order and tranquillity in the country in which the vessel may happen to be, or in which the consul of the place may be obliged to call for the intervention and support of the executive power, in order to cause his decision to be respected; it being, however, well understood, that this sort of judgment or arbitration can not deprive the contending parties of their rights of appealing, on their return, to the judicial authorities of their country."

II. *Duties of Consuls.*—The duties of a consul, even in the confined sense in which they are commonly understood, are important and multifarious. It is his business to be always on the spot, to watch over the commercial interests of the subjects of the state whose agent he is; to be ready to assist them with advice on all doubtful occasions; to see that the conditions in commercial treaties are properly observed; that those he is appointed to protect are subjected to no unnecessary or unjustifiable demands in conducting their business; to represent their grievances to the authorities of the place where they reside, or to the embassador of the sovereign appointing him at the court on which the consulship depends, or to the government at home; in a word, to exert himself to render the condition of the subjects of the country employing him, within the limits of his consulship, as comfortable, and their transactions as advantageous and secure as possible.

The following more detailed exposition of the *general* duties of a consul is taken from Mr. Chitty's work on *Commercial Law:* "A consul, in order to be properly qualified for his employment, should take care to make himself master of the language used by the court and the magistracy of the country where he resides, so as to converse with ease upon subjects relating to his duties. If the common people of the court use another, he must acquire that also, that he may be able to settle little differences without troubling the magistracy of the place for the interposition of their authority; such as accidents happening in the harbor, by the ships of his nation running foul of and doing damage to each other. He is to make himself acquainted, if he be not already, with the law of nations and treaties, with the tariff or specification of duties on articles imported or exported, and with all the municipal ordinances and laws.

"He must take especial notice of all prohibitions to prevent the export or import of any articles, as well on the part of the state wherein he resides, as of the government employing him; so that he may admonish all his countrymen against carrying on an illicit commerce, to the detriment of the revenues, and in violation of the laws of either; and it is his duty to attend diligently to this part of his office, in order to prevent smuggling, and consequent hazard of confiscation or detention of ships, and imprisonment of the masters and mariners. It is also his duty to protect from insult or imposition his countrymen of every description within his jurisdiction. If redress for injury suffered is not obtained, he is to carry his complaint by memorial to the minister residing at the court on which the consulship depends. If there be none, he is to address himself directly to the court; and if, in an important case, his complaint be not answered, he is to transmit the memorial to the secretary of state.—BEAWES, WARDEN, etc.

"When insult or outrage is offered by one from his country to a native of the place, and the magistrate thereof complains to the consul, he should summon, and in case of disobedience, may by armed force bring before him the offender, and order him to give immediate satisfaction; and if he refuse, he resigns him to the civil jurisdiction of the magistrate, or to the military law of the garrison; nevertheless *always acting as counselor or advocate at his trial*, when there is question of life or property. But if a subject be accused of an offense alleged to have been committed at sea, within the dominion or jurisdiction of his sovereign, it is then the duty of the consul to claim cognizance of the cause for his country, and to require the release of the parties, if detained in prison by the magistracy of the place on any such accusation brought before them, and that all judicial proceedings against them do instantly cease; and he may demand the aid of the power of the country, civil and military, to enable him to secure and put the accused parties on board such a ship as he shall think fit, that they may be conveyed home to be tried by their proper judges. If, contrary to this requisition, the magistrates of the country persist in proceeding to try the offense, the consul should then draw up and transmit a memorial to the minister at the court of that country; and if that court give an evasive answer, the consul should, if it be a sea offense, apply to the proper authorities, stating the case; and upon their representation, the secretary for the proper department will lay the matter before the king, who will cause the embassador of the foreign state to write to his court abroad, desiring that orders may immediately be given by that government that all judicial proceedings against the prisoner be stayed, and that he be released. —*See Case of Horseman and his Crew*, BEAWES, vol. ii. p. 422.

"The consul is not to permit a merchant ship to leave the port where he resides without his passport, which he is not to grant until the master and crew thereof have satisfied all just demands upon them; and for this purpose he ought to see the governor's pass of a garrisoned town, or the burgomaster's, unless the merchant or factor to whom the ship was consigned will make himself responsible.—BEAWES, *Lex. Merc.*, vol. ii. p. 423. It is also his duty to claim and recover all wrecks, cables and anchors belonging to the ships of his country found at sea by fishermen or other persons, to pay the usual salvage, and to communicate a report thereof to authorities at home. The consuls and vice-consuls are, by express enactment (46 Geo. 3, c. 98, § 99), empowered to administer oaths in all cases respecting quarantine, in like manner as if they were magistrates of the several towns or places where they respectively reside. It is also laid down that a consul is to attend, if requested, all arbitrations where property is concerned between masters of ships and the freighters, being inhabitants of the place where he resides."—CHITTY *on Commercial Law*, vol. i. p. 58–61, and the numerous authorities there quoted.

Any individual, whether he be a subject of the state by which he is appointed, or of another, may be selected to fill the office of consul, provided he be approved and admitted by the government in whose territory he is to reside. In most instances, however, but not always, consuls are the subjects of the state appointing them. Much, however, of the peculiar duties of a consul must always depend on the nature of the intercourse with the country to which he is sent, and of the instructions given him. Consuls are regularly supplied with copies of all acts relating to trade and navigation, quarantine, slave-trade suppression, emigration, etc., and with the treaties between this and other countries, and must of course shape their conduct accordingly. They are strictly forbidden from corresponding with private parties on public matters. Under the *General Instructions for British Consuls*, "he will bear in mind that it is his principal duty to protect and promote the lawful trade and trading interests of his country by every fair and proper means, taking care to conform to the laws and regulations in question; and while he is supporting the lawful trade, he will take special notice of all prohibitions with respect to the export or import of specified articles as well on the part of the state in which he resides as of his government, so that he may caution all his countrymen against carrying on an illicit commerce to the detriment of the revenue, and in violation of the laws and regulations of either country; and he will not fail to give this Department immediate notice of any attempt to contravene those laws and regulations.

"The consul will give his best advice and assistance, when called upon, to his countrymen, quieting their differences, promoting peace, harmony, and good-will among them, and conciliating as much as possible the subjects of the two countries upon all points of difference which may fall under his cognizance. In the event of any attempt being made to injure his countrymen, either in their persons or property, he will uphold their rightful interests, and the privileges secured to them by treaty, by due representation in the proper official quarter. He will, at the same time, be careful to conduct himself with mildness and moderation in all his transactions with the public authorities, and he will not, upon any account, urge claims on behalf of his countrymen to which they are not justly and fairly entitled. If redress can not be obtained from the local administration, or if the matter of complaint be not within their jurisdiction, the consul will apply to the consul-general, or to his minister, if there be no consul-general in the country wherein he resides, in order that he may make a representation to the higher authorities, or take such other steps in the case as he may think proper; and the consul will pay strict attention to the instructions which he may receive from the minister or consul-general."—*See* M'CULLOCH's *Dictionary of Commerce; KENT's Commentaries; Encyclopedia Britannica*, 8th ed. published by Messrs. Little, Brown and Co., Boston; *Manual for United States Consuls*, 1857; TUSON's *British Consul's Manual*, London, 1856. The reader may with advantage refer to the articles on *Consuls* and *Consular Duties* contained in DE BOW's *Review*, vol i. p. 56; HUNT's *Merchants' Magazine*, vol. vi. p. 297, vol. xiii. p. 551, vol. x. p. 447, vol. xii. p. 211, vol. xvii. p. 43, vol. xviii. p. 60; *Foreign Quarterly Review*, vol. xix. p. 106.

Jurisdiction, Privileges, and Immunities of Consuls.—"The jurisdiction of a consul only extends over the subjects of the nation he is nominated by, either resident in, or arriving at, the place in which he has been appointed to reside. In countries where there are embassies as well as consulates the jurisdiction of the latter generally only extends over the sea-faring subjects of our nation, at the same time it watches over her commercial interests. That of a consul-general presides over the consul, and that of a consul, in most instances, over that of the vice-consuls. The consular jurisdiction depends more entirely into what country the consul may be sent. Thus foreign consuls in England have no judicial authority whatever. British consuls, however, in most countries, have judicial power, and consequently their jurisdiction becomes either retrenched or extended, according to the nature of the stipulations of the ratified treaty.

"When the consul is appointed he is always provided with copies of the conventions with the country he is sent to. In regard to the privileges and immunities a consul enjoys, there have always existed doubts whether he may be considered exempt from the civil jurisdiction of the state to which he is nominated; and although many others have laid down to the contrary, still it may be maintained, and in perfect conformity to the law of nations, that where the regular exequatur has been accorded to the consul, he ought to be exempt from the civil jurisdiction of the state to which he is accredited. By the exequatur the sovereign acknowledges him as the consular representative of his empire, bearing her appointment, and protected by her passport; and, as regards the nature of his mission, only resident for a short time at the state. Under these circumstances he ought to be exempt.

"In countries out of Europe, or where there is no embassy, the consul enjoys the same privileges as an embassador, and is *de facto* the embassador or representative of his sovereign, only under another name. He can perform all acts of a notary public, all deeds executed by him being held to be valid, and acknowledged in our courts of law. He can attend all levees of the sovereign after receiving his exequatur and either after having been presented to the sovereign by the embassador, or, in his absence, by the minister of foreign affairs. The consulate is generally considered as the territory of the power by which it is tenanted, and all deeds, acts, and any other documents executed under the seal of the consul are valid in the country from which he has been sent. At the same time, it must be perfectly understood that all acts thus issued by the consul are, with a few exceptions, not valid in the country in which he resides, except there be a special convention to that effect. All documents, required to be valid before the tribunals of the country he is in, ought to be made out by the proper lawyers appointed for that purpose; for it can not be expected that where a consul is only authorized as judicial authority for his own country, that his acts should be acknowledged and received as legal instruments in the tribunals of the country he is accredited to, although his acts should be respected, as it might be possible that they could be grounded upon quite a different *lex mercatoria*, and could not, therefore, be taken in evidence against documents perhaps quite opposite in a legal point of view, and it would be unjust to allow them to be received."—TUSON's *British Consul's Manual*, 1856.

III. *Consular System of the United States.*—The establishment of a consular system in the United States was nearly coeval with that of the general government. In the second annual address of President Washington to the first Congress, he informed that body that "the patronage of our commerce, of our merchants, and seamen, called for the appointment of consuls in foreign countries; that it seemed expedient to regulate by law the exercise of that jurisdiction and those functions which are permitted either by express convention or by a friendly indulgence in the places of their residence." Prior to this period consuls were not allowed salaries, nor permitted to demand fees or receive perquisites.

In each branch of Congress this recommendation of the President was referred to the appropriate committee, and consular bills were reported in accordance therewith. They failed, however, to become laws, the House having stricken out the whole of the Senate bill with the exception of the first section.

In the early part of the second Congress substantially the same bill, probably drawn by Mr. Ellsworth (afterward Chief Justice), was reported to the Senate by a committee to whom the recommendation of the President had been referred; and, subsequently, after the adoption of several amendments, it passed both branches of Congress unanimously, and became, on the 14th of April, 1792, a law of the land.

From this period till the year 1855, with the exception of the act of July 20th, 1840, regulating the shipment and discharge of seamen and the duties of consuls, scarcely any change was made in the laws affecting the consular system.

In the year 1854, Mr. Perkins, of Louisiana, then a member of the House of Representatives from Louisiana, having devoted himself most assiduously to the study of the subject, prepared a bill to remodel the diplomatic and consular systems of the United States.

The bill was advocated in the House, and finally passed by a vote of 143 yeas to 33 nays.

In the Senate it passed unanimously, received the approval of the President on the 1st of March, 1855, and went into operation on the 1st of July, in the same year.

According to the recommendation of Mr. Marcy, Secretary of State, the subject was again brought forward in August, 1856, and a new act passed by a vote in the House of Representatives of 103 to 56, and passed the Senate unanimously on the 16th of that month.

It has rarely happened that a law so important as this has passed Congress with such unanimity—one involving many and important changes in the diplomatic and consular systems of the United States; creating new offices; increasing, reducing, or entirely abolishing the salaries of many consular officers; containing provisions affecting every American merchant and shipmaster engaged in foreign trade, and every American traveler in Europe; repealing provisions of existing laws; enacting others for the regulation of the agents of the government in foreign countries, and of civil officers in the United States; imposing heavy penalties for the violation of the provisions of the statute; and authorizing and requiring the performance of important duties by the highest executive officers of the government. The favor which the bill received in both branches of Congress was doubtless due, in part, to the fact that the near approach of the close of the session left little time for its discussion and amendment, and to the respect entertained by the House for the committee on foreign affairs, which reported the bill, whose chairman, it was understood, had devoted much time and care in its preparation. The law provides for the rate of compensation to be received by all diplomatic and consular officers, of whatever grade; fixes their compensation; permits the latter to transact business, or prohibits them from doing so, in certain places; prescribes the conditions of official bonds; imposes penalties for the violation of the provisions of the law, and indicates the manner in which actions for the recovery of penalties shall be tried; authorizes the appointment of consular pupils, of interpreters, and of additional secretaries of legations; fixes the period at which the compensation of the officers named in the act shall commence and terminate; provides for the filling of diplomatic and consular offices temporarily vacant, and the pay to be received by officers acting *ad interim;* forbids the exercise of diplomatic functions by unauthorized persons; authorizes the President to define the limits of the several consular and commercial agencies, to provide for the appointment of subordinate consular officers and their compensation, and likewise to fix the rate or tariff of fees for consular services, and designate what shall be regarded as official services; requires the consular tariff to be reported to Congress annually, and also the amount of fees received at the several consulates; directs the mode in which the payment of fees shall be made and accounted for, and the coin in which they shall be payable; imposes additional duties upon collectors and shipmasters in respect to consular services, receipts, and invoices; forbids diplomatic and consular officers to be absent from their posts, or to hold correspondence in regard to the public affairs of any foreign government with the press, or private persons, or otherwise than with the proper officers of the United States; forbids consular officers being pecuniarily interested in the receipt or disbursement of the wages of seamen, or in expenditures made for their relief or transportation; provides that no compensation shall be paid to diplomatic and consular officers, unless they shall be citizens of the United States; authorizes the President to supply the legations and consulates of the United States with certain articles necessary for the transaction of the public business, and to prescribe such regulations, and make and issue such orders and instructions, not inconsistent with the Constitution or any law of the United States, in relation to the duties of all diplomatic and consular officers, the transaction of their business, the rendering of accounts and returns, the payment of compensation, the safekeeping of the archives and public property in the hands of all such officers, the communication of information, and the procurement and transmission of the products of the arts, sciences, manufactures, agriculture, and commerce, from time to time, as he may think conducive to the public interests; requires these officers to conform to such regulations, orders, and instructions; makes it the duty of the Secretary of State to publish official notifications, from time to time, of such commercial information communicated to him by the diplomatic and consular officers as he may deem important to the public interests, and to report to Congress, at least once in each year, a synopsis of so much of the information on all subjects, which shall be so communicated to him, as he may deem valuable for public information; authorizes the granting and issuing of passports, under certain conditions, and the performance of notarial duties by secretaries of legation and consular officers; enacts various provisions in regard to the desertion of seamen, the payment and the forfeiture of wages and extra wages in certain cases, and the settlement of seamen's accounts, and their discharge in foreign countries; provides for the accountability of consular officers for the extra wages of seamen; prescribes the kind of returns and reports to be made by consular officers, and requires all shipmasters to apply to consular officers for the transaction of consular business, and permits the detention of ships' papers till payment shall be made of all demands and wages on account of such ships and vessels; defines the duties of consular officers in respect to all citizens of the United States dying abroad, and the meaning to be affixed to the several titles by which consular officers are designated; imposes heavy penalties for all malfeasance, and for the violation of the provisions of the act; repeals all acts and parts of acts inconsistent with its provisions; and, finally, provides that the act shall take effect on the first of January, 1857. It will thus be seen that the law which now regulates the diplomatic and consular systems of the United States embraces a great number of subjects, and enters into much detail with respect to all matters pertaining to the consular office. Many of its provisions are eminently judicious; the expediency of others must be tested by time and their practical operation. The treaties and conventions of the United States with foreign nations contain many important provisions relating to the duties, rights, and privileges of consuls, especially those which have been negotiated with China and the Ottoman Porte.

But "the most complete consular conventions ever concluded," as remarks Mr. Tuson, the latest writer on the subject of the duties of consuls, "are those between France and the United States, and between the latter country and Holland; the former negotiated at Washington by Mr. Everett and M. Sartiges, and the latter at the Hague, under the instructions of Mr. Marcy. The rules laid down therein are very explicit, and ought to be taken as examples by all other nations. They will be of great utility to all consuls, in showing them what their present duties are, and what they are most likely to become. These conventions are such as are likely to be taken as precedents for future treaties on the same subject." Occurrences which have taken place in the United States and elsewhere, within the last few years, have shown how defective is the legislation of this country in respect to consuls. The subject attracted Mr. Webster's attention, while Secretary of State; and, at his suggestion, the attention of Congress was called to it. He remarked that no country has a deeper interest in securing the protection of diplomatic and consular agents than the United States. Their commerce spreads over every sea, and visits every clime; and these agents are appointed to protect its interests, as well as to guard the peace of the country, and maintain the honor of its flag. While thus engaged in the discharge of important functions, they should be objects of especial respect and protection, each according to the rights belonging to his rank and station.

As much has been done during the last four years as at any former period in this country, by means of consular conventions, by legislation, and by circulars issued by the Secretary of State, not only to secure these objects, but to perfect the consular system, and to render it useful to the country. In obedience to the circulars issued by Mr. Marcy to consular officers on the 8th of October, 1853, the 15th of March, 1854, the 11th of July, 1855, and also the general and special instructions of the Department of State, a vast amount of information relating to ship-building, shipping, navigation, tonnage, seamen, foreign tariffs, commercial regulations, and other subjects, has been transmitted to the Department by the United States consuls. The matter thus collected is important and valuable; its preparation reflects great credit on the industry and intelligence of the consular corps, and affords a striking illustration of the importance of their services.

At the present time the consular corps of the United States consists of seven consuls-general, one hundred and seventeen consuls, and nine commercial agents, who receive for their compensation fixed salaries; ninety consuls, ten commercial agents, and eighty-five consular agents, who are authorized to retain for their compensation the official fees which they receive. Residing as these officers do in all the principal marts of traffic and commerce throughout the world, and having their duties carefully defined by law and the instructions of the Executive, it may reasonably be expected that all information affecting the commercial relations of the United States with foreign nations will be furnished by them to the Department of State, and published for the benefit of their fellow-citizens.

As an illustration of the value to be placed on the correspondence of consuls, it may be stated that in a debate which took place in 1842, in the House of Commons, Lord Palmerston remarked, that, during the time he had the honor of being at the head of the foreign department, he had read every report and every letter received from the consular officers abroad, from the most elaborate report of the highest consul-general down to the least-important letter of the lowest vice-consul. "Very laborious reading it was," he adds, "but, scattered through the voluminous papers that thus came under my eye, I found many important matters with which it was my duty to be acquainted; and it is quite a mistake to suppose that, because there is a superintendent of the consular department, the Secretary of State does not give the same minute attention to the consular as to the other duties of the office, though the consular correspondence amounts to one-half of the whole correspondence of the foreign office." The perfection to which the consular system has attained in France furnishes an illustration of what may be accomplished by a thoroughly organized consular establishment. The objects contemplated by such a system, as has been well remarked by a writer practically acquainted with the subject, are nothing less than the advancement of the prosperity and power of nations. Deputed to watch over the commercial rights and privileges of their respective countries, consular officers are intrusted with the care of the highest interests, and exercise a more important influence upon mercantile prosperity, the foundation of national greatness, than any other foreign agents of government. Scattered throughout the whole world, occupying an eminent social position in all the mercantile cities of every nation, and performing duties which bring them more or less into collision with the people among whom they reside, they, by their conduct and manners, influence the judgment which is formed of the country they represent, and either add to its dignity or reflect dishonor on its national character.

1. *Nature and Duties of the Consular Office.*—The word "consuls," as used in the Constitution of the United States, designates a class of public officers appointed by their government to reside in foreign countries, and especially in sea-ports and other places of commerce, to discharge administrative and sometimes judicial functions in regard to their countrymen who dwell or may be in the country where they reside; to aid in the authentication of documents abroad, and generally to perform such other duties as may be assigned to them by the laws and orders of their government.

2. *Classes of Consular Officers.*—Accordingly, by various laws of the United States, duties are imposed and rights conferred on this description of public officers, under the names of consuls-general, consuls, vice-consuls, deputy-consuls, commercial agents, vice-commercial agents, and consular agents. It is provided by the 31st section of the act of Congress approved August 18, 1856, that these official designations shall be deemed to have the respective meanings therein assigned to them, namely: "consul-general," "consul," and "commercial agent," shall be taken to denote full, principal, and permanent "consular officers," as distinguished from subordinates and substitutes; "deputy-consul" and "consular agent" to denote "consular officers" subordinate to such principals, exercising the powers and performing the duties within the limits of their consulates or commercial agencies respectively—the former at the same ports or places, and the latter at ports or places different from those at which such principals are located respectively; and "vice-consuls" and "vice-commercial agents" to denote "consular officers" who shall be substituted, temporarily, to fill the places of "consuls-general," "consuls," or "commercial agents," when they shall be temporarily absent or relieved from duty; and the term "consular officer" to include all such officers as are mentioned in the said section, and none others.

3. *Application of Acts of Congress.*—It is further provided by the same section that, in the construction and for the purposes of all other acts and parts of acts which shall remain in force after the act above mentioned shall take effect, defining any of the powers, declaring any of the rights, prescribing any of the duties, or imposing any penalty or punishment for any act of omission or commission of any consul, commercial agent, vice-consul, or vice-commercial agent, or allowing or enjoining the performance of any act, matter, or thing, with or before any such officer, all such acts and parts of acts shall in all these several respects, so far as may be consistent with the subject-matter and context of the same, and with the said act and the treaties of the United States, be deemed and taken to include and apply to all consular officers just as though all such officers were specifically named therein.

4. *Certain Consular Powers.*—The important act of 1792 contains a declaratory provision, which is to be understood as implied in all other acts of Congress, as follows:

"The specification of certain powers and duties, * * *, to be exercised or performed by the consuls and vice-consuls of the United States, shall not be construed to the exclusion of others resulting from the nature of their appointments, or any treaty or convention under which they may act."*

So that the powers and duties of consuls, besides being defined by acts of Congress, are indicated by general treaties and consular conventions entered into between the United States and other sovereign powers.

---

* Statutes at large, vol. i. p. 257.

5. *International Law.*—Consuls possess, moreover, by the law of nations, many functions, rights, and privileges, other than such as are defined by convention, by legislative act, or by regulation.

6. *Consular Privileges.*—Their privileges necessarily arise from the character of their appointments; but they are not, like those of embassadors and other public ministers, precisely defined by international law; and, consequently, they may be extended or limited among different nations, either by treaties or the legislative policy of those countries. Although the commissions which United States consuls receive from their government are expressed in the same terms and confer the same authority, yet, as the consular functions are to be exercised in a foreign country, and in accordance with an exequatur issued by its sovereign, they may be more or less restricted. Whenever the immunities, rights, and duties of consuls are prescribed by mutual consular conventions, they are to be enjoyed or exercised in accordance with the stipulations of such conventions. In those countries with which the United States have entered into no consular convention, consular officers may discharge such duties as are allowed or are not forbidden by the laws of those countries, or which are allowed by common usage; and sometimes they are permitted to exercise such privileges as are granted to foreign consuls by the United States within its own territory.

7. *When Obstacles are interposed.*—If the authorities of the places where consuls reside oppose any obstacles to their enjoyment of the privileges which may have been accorded by consular conventions, or which, founded on usage or reciprocity, may have been claimed by themselves, they will refer the subject to the legation of the United States residing in the country, and report the facts, together with their own proceedings and a copy of all their correspondence in relation to the same, to the Department of State, and await its instructions. In no case will they strike the consular flag or abandon their post without the express permission of the Department.

8. *Personal Demeanor.*—One of the first duties of consular officers is to exhibit in their official conduct, and in their intercourse with the local authorities and with the people of the country, a proper respect for the supreme authority.

9. *Style of Official Communications.*—In their communications with official functionaries, they will be careful to set forth their views and opinions courteously but firmly, avoiding in all cases the use of violent or intemperate language. All discussions extending beyond the limits of a just moderation are injurious and defeat their own object.

10. *Influence of Personal Character.*—It is, above all, by their personal influence and character, by circumspect conduct and a conciliatory spirit, that consuls will best succeed in settling difficulties and in the accomplishment of important objects. Commercial intercourse is a common bond of interest among all countries and all men, and it is by arguments drawn from this source, rather than by unreasonable pretensions and disputes, that injurious restrictions can be removed.—De Clercq, tome ii. p. 32 *et seq.*

11. *Duties imposed by Laws.*—The laws of the United States on the subject of consuls and vice-consuls specially authorize them to receive the protests of masters and others relating to American commerce, and declare that consular certificates under seal shall receive faith and credit in the courts of the United States. It is likewise made the duty of consular officers, where the laws of the country permit, to collect and remit the assets of the personal estates of American citizens who may die within their consulates and leave no legal representative, and to take charge of and secure the effects of stranded vessels, in the absence of the master, owner, or consignee; and they are bound to provide for destitute seamen within their consulates, and to send them, at the public expense, to the United States. It is their duty, likewise, to reclaim deserters, to discountenance insubordination and lend their aid to the local authorities for this purpose, to discharge seamen cruelly treated, and to receive from the masters of American vessels, on their arrival at a foreign port, and after the vessel shall have come to an entry, the registers, sea letters, and passports of such vessels. These duties, and some others which are prescribed by legal enactment, are in accordance with the usages of nations [Kent, vol. i. p. 42], and with special treaty stipulations with certain countries.

12. *Variety and Importance of Consular Duties.*—Many of the consular duties arise from peculiar circumstances: such as the character and habits of the nation in which the consul resides, its laws and customs, and the nature of its intercourse with the United States. In the most restricted sense, they are important and multifarious, are quite different from those of other officers employed in foreign affairs, and require for their proper performance an amount of practical information for which the consular officer needs a special training. Consuls are so situated as to exercise toward their countrymen within their consular jurisdiction the duties of judges, arbiters, and peacemakers; they are the registers of marriages, births, and deaths; they act as notaries, and sometimes as revenue officers; they watch over and verify the sanitary condition of their consulates; and, by their domestic relations, they can furnish a full and accurate idea of the commerce, navigation, and industry peculiar to the country of their residence.

13. *Commercial Regulations.*—The commercial interests of their own country are, in a measure, committed to their care. They are to see whether the stipulations in commercial treaties are observed, and report all changes in commercial regulations and municipal ordinances.

Every law, edict, or regulation of the government where they reside, in any way affecting the commerce of the United States, which comes to the knowledge of consular officers, must be immediately transmitted to the State Department; and, if it be a local regulation, operating only on a particular port, they must also give immediate notice thereof to the minister, if there be one in the country to which the district belongs.

14. *Suggestions.*—Consular officers are expected, in their correspondence, to note all events which bear upon the commerce between the country where they reside and the United States, the establishment of new branches of industry within the limits of their consular jurisdiction, and the increase and decline of such as have been before established. They should also make such suggestions as, in their opinion, may lead to an increase of trade, and point out any circumstances which may have produced a contrary effect, with the means that appear proper for avoiding such a result. When new products of the arts, sciences, or manufactures appear to be valuable either for export or import, and this is not generally known, the fact should be communicated to the Department, and samples sent, if not too bulky, with the consular letters; but if too bulky they may be addressed to the collector of some one of our principal ports. Seeds of plants and grain suitable for cultivation in the United States should also be sent. In general, the duties of a consular officer require an attention to every thing that can promote the commerce and navigation of this country, and the interests of its citizens.

15. *Contentions to be avoided.*—Consular officers are particularly cautioned not to enter into any contentions which can be avoided, either with their countrymen or the authorities of the country in which they reside; referring questions of that nature to the min-

ister or to the Department; using every endeavor to settle in an amicable manner all disputes in which their countrymen may be concerned; and countenancing and protecting them before the authorities of the country in all cases in which they may be injured or oppressed, but withholding from them support when they have been willfully guilty of an infraction of the laws, particularly in any attempt to defraud the revenue. In this last case they will aid the proper officers in checking any such practices.

16. *Foreign Politics.*—All consular officers are forbidden to participate in any manner whatever, direct or indirect, in the political concerns of the countries by whose governments they are severally acknowledged and recognized in their public character; and they will be on their guard against the enlistment of their feelings upon the side of any of the political or sectional parties which may exist in these countries. In their letters upon such subjects, even to this Department, they will confine themselves to the communication of important or interesting public events, as they occur, in a clear and concise form, avoiding all unnecessary reflections or criticism upon the character or conduct of individuals or governments; and they will not give publicity, through the press or otherwise, to opinions or speculations injurious to the public institutions of those countries, or the persons concerned in the administration of them; but it is, at the same time, no less their duty to report, freely and seasonably, to their own government, all important *facts* which may come to their knowledge, through authentic channels, touching the political condition of these countries, especially if their communications can be made subservient to, or may affect, the interest and well-being of their own.

17. *Prohibitions.*—All consular officers are prohibited by the 19th section of the act approved August 18, 1856, from corresponding in regard to the public affairs of any foreign government with any private person, newspaper, or other periodical, or otherwise than with the proper officers of the United States, and from recommending any person, at home or abroad, for any employment of trust or profit under the government of the country in which they are located; as well as from asking or accepting, for themselves or any other person or persons, any present, emolument, pecuniary favor, office, or title of any kind, from any such government.

18. *Diplomatic Functions.*—As consuls, excepting in Mohammedan states, are not invested with diplomatic powers, they are not entitled to communicate directly, except under special circumstances, with the government of the country in which they reside. Consular officers are forbidden by the 12th section of the act to exercise diplomatic functions, or hold any diplomatic correspondence or relation on the part of the United States, in, with, or to the government or country to which they shall be appointed, or any other country or government, when there shall be in such country any officer of the United States authorized to perform diplomatic functions therein, unless expressly authorized by the President.

19. *Mode of addressing foreign Governments.*—Whenever application is to be made to such government, it must be done through the minister of the United States, if there be one; if not, and the case should require it, the consul may make the application to the proper department, but in respectful terms, stating the exigency of the case, and that an application to the subordinate officers could not be made, or that it had proved ineffectual.

20. *Privileges.*—A consul is not such a public minister as to be entitled to the privileges appertaining to that character, nor is he under the special protection of the law of nations. In civil and criminal cases, where not otherwise provided by treaty stipulations, he is subject to the laws of the country in which he resides.

21. *Treaties and Conventions.*—It is the duty of consuls to be conversant with all treaties, conventions, and consular conventions, also with the laws and commercial and other regulations relating to their consular functions.—*Manual for Consuls, issued by the Department of State,* Washington, 1857.

An Act to regulate the Diplomatic and Consular Systems of the United States, passed August 16, 1856.—Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that embassadors, envoys extraordinary and ministers plenipotentiary, ministers resident, commissioners, chargés d'affaires, and secretaries of legation, appointed to the countries hereinafter named in schedule A, shall be entitled to compensation for their services, respectively, at the rates per annum hereinafter specified; that is to say, embassadors and envoys extraordinary and ministers plenipotentiary, the full amounts specified therefor in said schedule A; ministers resident and commissioners, 75 per centum; chargés d'affaires, 50 per centum; and secretaries of legation, 15 per centum of the said amounts, respectively; Provided, that the compensation of the Secretary of the Legation to China, acting as interpreter, shall be at the rate of $5000, and if not acting as such, at the rate of $3000; and that of the Secretary of Legation to Turkey, acting as dragoman, at the rate of $3000, and if not acting as such, at the rate of $2000 per annum.

Schedule A.—Great Britain, $17,500; France, $17,500; Russia, $12,000; Spain, $12,000; Austria, $12,000; Prussia, $12,000; Brazil, $12,000; Mexico, $12,000; China, $12,000; all other countries, each $10,000.

Sect. 2. And be it further enacted, that the President be, and is hereby authorized to appoint for the legations at London and Paris, respectively, an assistant secretary of legation, who shall be entitled to compensation for their services respectively, at the rate of fifteen hundred dollars per annum; for the legation to China, an interpreter, when the secretary of legation shall not be acting as such, who shall be entitled to compensation at the rate of $5000; and for the legation to Turkey, a dragoman, when the secretary of legation shall not be acting as such, who shall be entitled to compensation at the rate of $1000 per annum.

Sect. 3. And be it further enacted, that consuls-general, consuls, and commercial agents, appointed to the ports and places hereinafter specified in schedules B and C, shall be entitled to compensation for their services, respectively, at the rates per annum hereinafter specified in said schedules B and C; and if the President shall think proper to appoint a consul to any port or place named in the said schedules B and C, for a commercial agent, instead of such commercial agent, or *vice versa,* and an appointment shall be made accordingly, the compensation for such consular officer shall be the same in any such case as that fixed for such port or place in the schedule embracing the same; and if he shall think the public interests will be subserved by appointing to any such port or place a consul-general, instead of a consul or commercial agent, and an appointment shall be made accordingly, the compensation for such consul-general shall be the same as that fixed for such port or place in the schedule embracing the same.

Sect. 4. And be it further enacted, that consuls-general, consuls, and commercial agents, not embraced in schedules B and C, shall be entitled, as compensation for their services, to such fees as they may collect in pursuance of the provisions of this act, respectively.

Sect. 5. And be it further enacted, that no consul-general, consul, or commercial agent, embraced in schedule B, shall, while he holds his office, be interested in or transact any business as a merchant, factor, broker, or other trader, or as a clerk or other agent for any such person, to, from, or within the port, place, or limits of his consulate or commercial agency, directly or indirectly, either in his own name, or in the name or through the agency of any other person; and if appointed after this act shall take effect, he shall, in his official bond, stipulate, as a condition thereof, not to violate this prohibition; and if appointed before, and retained in office after this act shall take effect, he shall, within such reasonable time as the President shall prescribe, enter into a new official bond, with such stipulation as a condition thereof; and if any such consul-general, consul, or commercial agent, shall violate such prohibition, he shall be liable to a penalty therefor, for the use of the United States, equal in amount to the annual compensation specified for him in said schedule B, which may be recovered in an action of debt at the suit of the United States, either directly for the penalty, as such, against such consul-general, or consul, or commercial agent, or upon his official bond, as liquidated damages, for the breach of such condition, against such consul-general, consul, or commercial agent and his sureties, or any one or more of them; and in every such case all such actions shall be open to the United States for the collection of such penalty till the same shall be collected in some one of such actions; and every such penalty, when collected, shall be paid into the treasury of the United States; and such prohibition shall be applicable to all consuls-general, but not to any consul or commercial agent not embraced in said schedule B, except as hereinafter authorized, unless otherwise expressly provided by law.

Sect. 6. And be it further enacted, that the President be, and is hereby authorized to appoint three interpreters of the Chinese language, who shall be entitled to compensation for their services, respectively, at a rate not to exceed fifteen hundred dollars per annum, to be determined by the President, and to assign such interpreters, from time to time, to such consulates in China, and with such duties as he may think proper.

Sect. 7. And be it further enacted, that the President be, and is hereby authorized, whenever he shall think the public good will be promoted thereby, to appoint consular pupils, not to exceed twenty-five in number at any one time, who shall be citizens of the United States, and entitled to compensation for their services, respectively, at a rate not to exceed one thousand dollars per annum, to be determined by the President; and to assign such pupils, from time to time, to such consulates, and with such duties as he may think proper; and before the appointment of any such pupil shall be made, satisfactory evidence, by examination or otherwise, shall be furnished of his qualifications and fitness for the office to the Secretary of State, and by him laid before the President.

Sect. 8. And be it further enacted, that no person appointed, after this act shall take effect, to any such office as is mentioned in the first, second, third, sixth, or seventh sections of this act, shall be entitled to compensation for his services therein, except from the time when he shall reach his post, and enter upon his official duties, to the time when he shall cease to hold such office, and for such time as shall be actually and necessarily occupied in receiving his instructions, not to exceed thirty days, and in making the transit between the place of his residence, when appointed, and his post of duty, at the commencement and termination of the period of his official service, for which he shall in all cases be allowed and paid, except as hereinafter mentioned, and no person shall be deemed to hold any such office after his successor shall be appointed and actually enter upon the duties of his office at his post of duty, nor after his official residence at such post shall have terminated, if not so relieved; but no such allowance or payment shall be made to any consul-general, consul, or commercial agent, contemplated by the fourth section of this act, or to any vice-consul, vice-commercial agent, deputy consul, or consular agent, for the time so occupied in receiving instructions, or in such transit as aforesaid; nor shall any such officer as is referred to in this section be allowed compensation for the time so occupied in such transit, at the termination of the period of his official service, if he shall have resigned, or been recalled therefrom, or for any malfeasance in his office.

Sect. 9. And be it further enacted, that, when to any diplomatic office held by any person there shall be superadded another, such person shall be allowed additional compensation for his services, in such superadded office, at the rate of fifty per centum of the amount allowed by this act for such superadded office; and such superadded office shall be deemed to continue during the time to which it is limited by the terms thereof, and for such time as shall be actually and necessarily occupied in making the transit between the two posts of duty, at the commencement and termination of the period of such superadded office so limited, and no longer.

Sect. 10. And be it further enacted, that for such time as any secretary of legation shall be lawfully authorized to act as chargé d'affaires *ad interim* at the post to which he shall have been appointed, he shall be entitled to receive compensation at the rate allowed by this act for a chargé d'affaires at such post; but he shall not be entitled to receive, for such time, the compensation allowed for his services as secretary of legation.

Sect. 11. And be it further enacted, that for such time as any consular officer shall be authorized, pursuant to the provisions of this act, to perform diplomatic functions in the absence of the regular diplomatic officer in the country to which he shall be appointed, he shall be entitled, in addition to his compensation as such consular officer, to receive compensation for his services while so authorized, at the rate allowed by this act for a secretary of legation in such country.

Sect. 12. And be it further enacted, that no consular officer shall exercise diplomatic functions, or hold any diplomatic correspondence or relation on the part of the United States, in with, or to the government or the country to which he shall be appointed, or any other country or government, when there shall be in such country any officer of the United States authorized to perform diplomatic functions therein, nor in any case, unless expressly authorized by the President so to do.

Sect. 13. And be it further enacted, that every consul-general, consul, and commercial agent, appointed before, and retained in office after this act shall take effect, shall, without unnecessary delay, and every such officer appointed after this act shall take effect, shall, before he receives his commission or enters upon the duties of his office, enter into a bond with the United States with such sureties, who shall be permanent residents of the United States, as the Secretary of State shall approve, in a penal sum not less than one thousand nor more than ten thousand dollars, and in such form as the President shall prescribe, conditioned for the true and faithful accounting for, paying over, and delivering up of all fees, moneys, goods, effects, books, records, papers, and other property which shall come to his hands, or to the hands of any other person to his use as such consul-general, consul, or commercial agent, under any law now or hereafter enacted; and for the true and faithful performance of all other duties now or hereafter lawfully imposed upon him as such consul-general, consul, or commercial agent; and in the cases of consuls-general, consuls, and commercial agents embraced in schedule B, such bond shall contain, by way of further condition, the stipulation required by the fifth section of this act; and all such bonds shall be deposited with the Secretary of the Treasury, and in no case shall the penalty of such bond be less than the annual compensation allowed to the officer entering into such bond; and the President shall be authorized to require a new or additional bond from any such consul-general, consul, or commercial agent, in like form and in such penalty, within the limits aforesaid, in amount, as he shall prescribe, whenever, in his opinion, the public good shall require it.

Sect. 14. And be it further enacted, that the President be, and he is hereby authorized to define the extent of country to be embraced within any consulate or commercial agency, and to provide for the appointment of vice-consuls, vice-commercial agents, deputy consuls, and consular agents therein, in such manner, and under such regulations as he shall deem proper; but no compensation shall be allowed for the services of any such vice-consul, or vice-commercial agent beyond nor except out of the allowance made by this act for the principal consular officer in whose place such appointment shall be made; and no vice-consul, vice-commercial agent, deputy consul, or consular agent, shall be appointed otherwise than in such manner and under such regulations as the President shall prescribe, pursuant to the provisions of this act.

Sect. 15. And be it further enacted, that every vice-consul and vice-commercial agent shall be entitled, as compensation for his services as such to the whole or so much of the compensation of the principal consular officer, in whose place he shall be appointed, as shall be determined by the President, and the residue, if any, shall be paid to such principal consular officer; and every consular agent shall be entitled, as compensation for his services, to such fees as he may collect in pursuance of the provisions of this act, or so much thereof as shall be determined by the President; and the principal officer of the consulate or commercial agency within the limits of which such consular agent shall be appointed, shall be entitled to the residue, if any, in addition to any other compensation allowed him by this act for his services therein; and the President shall have power to subject any consul or commercial agent contemplated by the fourth section of this act, and any vice-consul, vice-commercial agent, deputy consul, or consular agent, to the prohibition as to trade contained in the fifth section of this act, and to require from any of them such bond as is provided for by the thirteenth section of this act, whenever he shall think the public interests will be promoted thereby.

Sect. 16. And be it further enacted, that the President be, and is hereby authorized to prescribe, from time to time, the rates or tariffs of fees to be charged for official services, and to designate what shall be regarded as official services, besides such as are expressly declared by law, in the business of the several legations, consulates, and commercial agencies, and to adapt the same, by such differences as may be necessary or proper, to each legation, consulate, or commercial agency, and such rates or tariffs shall be reported annually to Congress; and it shall be the duty of all officers and persons connected with such legations, consulates, or commercial agencies to collect for such official services, such and only such fees as may be prescribed for their respective legations, consulates, and commercial agencies, and it shall be the duty of the collectors of the several districts, whenever any clearance is granted to any ship or vessel of the United States, duly registered as such, and bound on any foreign voyage, to annex thereto, in every case, a copy of the rates or tariffs of fees which shall be allowed in pursuance of the provisions of this act, and then in force; and it shall be the duty of all consular officers at all times to keep up in their offices, respectively, a copy of such rates or tariffs as shall be in force, in a conspicuous place, and subject to the examination of all persons interested therein.

Sect. 17. And be it further enacted, that it shall be the duty of all consular officers to give receipts for all fees which shall be collected for their official services respectively, expressing the particular services for which the same were collected; and if any such consular officer shall collect, or knowingly allow to be collected, for any such service, any other or greater fees than such as shall be allowed pursuant to the provisions of this act for such service, he shall, besides his liability to refund the same, be liable to pay to the person by whom or in whose behalf the same shall be paid treble the amount of said unlawful charge so collected as a penalty therefor, to be recovered by such person in any proper form of action, to and for the use of such person, besides costs of suit; and in any such case the Secretary of the Treasury is hereby authorized to retain out of the compensation of such officer the amount of such overcharge and of such penalty, and charge the same to such officer in account, and thereupon to refund such unlawful charge, and pay such penalty to the person entitled to the same, if he shall think proper so to do.

Sect. 18. And be it further enacted, that all fees collected at any of the legations, or by the consuls-general, consuls, and commercial agents mentioned in schedules B and C, and by vice-consuls and vice-commercial agents appointed to perform their duties, or by any other persons in their behalf, shall be accounted for to the Secretary of the Treasury, and held subject to his draft, or other directions; and all such consuls-general, consuls, commercial agents, and consular agents as are allowed for their compensation the whole or any part of the fees which they may collect pursuant to the provisions of this act, and all vice-consuls and vice-commercial agents appointed to perform the duties of said consuls-general, consuls, and commercial agents as are allowed for their compensation the whole or any part of such fees as aforesaid, shall make returns of all such fees as they or any other persons in their behalf shall so collect, in such manner as the Secretary of State shall prescribe; and all such fees as shall be so collected, accounted for, and reported, shall be reported annually to Congress, with the report of the rates or tariffs of fees required by the seventeenth section of this act, with a full list of all consular officers; and if any consul-general, consul, or commercial agent, mentioned in schedules B and C, or any vice-consul, or vice-commercial agent, appointed to perform the duty of any such officer mentioned in said schedules B and C, shall omit to collect any fees which he shall be entitled to charge, pursuant to the provisions of this act, for any official service, he shall be liable to the United States therefor, as though he had collected the same, unless, upon good cause shown therefor, the Secretary of the Treasury shall think proper to remit the same; and every consular officer shall number all receipts given by him for fees received for official services, in the order of their dates, beginning with number one at the commencement of the period of his service, and on the first day of January in every year thereafter; and he shall keep a book, in which he shall register all fees so received by him, in the order in which they shall be received, specifying in such register each item of service and the amount received therefor, from whom, and the dates when received, and if for any service connected with any ship or vessel, the name thereof, and indicating what items and amounts are embraced in each receipt given by him therefor, and numbering the same according to the number of the receipts respectively, so that the receipts and register shall correspond with each other; and he shall, in such register, specify the name of the person for whom, and the date when he shall grant, issue, or verify any passport, certify any invoice, or perform any other official service in the entry of the receipt of the fees therefor, and also number each consular act so receipted for, with the number of such receipt, and as shown by such register; and it shall be the duty of all owners, agents, consignees, masters, and commanders of ships and vessels to whom any receipt for fees shall be given by any consular officer, to furnish a copy thereof to the collector of the district in which such ships and vessels shall first arrive on their return to the United States; and it shall be the duty of every collector to forward to the Secretary of the Treasury all such copies of receipts as shall have been so furnished to him, and also a statement of all certified invoices which shall come to his office, giving the dates of the certificate and the names of the persons for whom, and of the consular officers by whom the same were certified; and every consular officer, in rendering his account or report of fees received, shall furnish a full transcript of the register which he is hereby required to keep, under oath or affirmation that the same is true and correct, and that the same contains a full and accurate statement of all fees received by him, or for his use, for his official services as such consular officer, to the best of his knowledge, during the period for which the same shall purport to be rendered, and that such oath or affirmation may be taken before any person having authority to administer oaths and affirmations at the port or place where such consular officer is located; and if any such consular officer shall willfully and corruptly commit perjury, in any such oath or affirmation, within the intent and meaning of any act of Congress now or hereafter made, he may be charged, proceeded against, tried, and convicted, and dealt with in the same manner, in all respects, as if such offense had been committed in the United States, before any officer duly authorized therein to administer or take such oath or affirmation, and shall be subject to the same punishments and disability therefor as are, or shall be prescribed by any such act for such offense.

Sect. 19. And be it further enacted, that no such officer as is mentioned in the first, second, third, fourth, sixth, or seventh sections of this act shall, nor shall any consular agent, be absent from his post, or the performance of his duties, for a longer period than ten days at any one time, without the permission previously obtained of the President; and no compensation shall be allowed for the time of any such absence in any case, except in cases of sickness; nor shall any diplomatic or consular officer correspond in regard to the public affairs of any foreign government with any private person, newspaper, or other periodical, or otherwise than with the proper officers of the United States, nor recommend any person, at home or abroad, for any employment of trust or profit under the government of the country in which he is located; nor ask nor accept, for himself or any other person, any present, emolument, pecuniary favor, office, or title of any kind, from any such government.

Sect. 20. And be it further enacted, that the compensation provided by this act shall be in full for all the services and personal expenses which shall be rendered or incurred by the officers or persons respectively for whom such compensation is provided, of whatever nature or kind such services or personal expenses may be, or by whatever treaty, law, or instructions such services or personal expenses so rendered or incurred are or shall be required; and no allowance, other than such as is provided by this act, shall be made in any case for the outfit or return home of any such officer or person; and no consular officer shall, nor shall any person under any consular officer, make any charge or receive, directly or indirectly, any compensation, by way of commission or otherwise, for receiving or disbursing the wages or extra wages to which any seaman or mariner shall be entitled who shall be discharged in any foreign country, or for any money advanced to any such seaman or mariner who shall seek relief from any consulate or commercial agency; nor shall any consular officer, or any person under any consular officer, be interested, directly or indirectly, in any profit derived from clothing, boarding, or otherwise supplying or sending home any such seaman or mariner: provided, that such prohibition as to profit shall not be construed to relieve or prevent any such officer who shall be the owner or otherwise interested in any ship or vessel of the United States, from transporting in such ship or vessel any such seaman or mariner, or from receiving or being interested in such reasonable allowance as may be made for such transportation, under and by virtue of the fourth section of the act entitled "An Act supplementary to the Act concerning Consuls and Vice-consuls, and for the further protection of American seamen," approved February 28, 1803.

Sect. 21. And be it further enacted, that no compensation provided by this act for any such officer as is mentioned in the first section of this act, or for any assistant secretary of legation, or for any such officer as is mentioned in schedules B and C of the third section of this act, or any appropriation therefor, shall be applicable to the payment of the compensation of any person appointed to or holding any such office after this act shall take effect, who shall not be a citizen of the United States; nor shall any other compensation be allowed in any such case.

Sect. 22. And be it further enacted, that the President be, and is hereby authorized to provide at the public expense all such stationery, blanks, record and other books, seals, presses, flags, and signs, as he shall think necessary for the several legations, consulates, and commercial agencies in the transaction of their business; and whenever he shall think there is sufficient reason therefor, to allow consuls-general, consuls, and commercial agents, who are not allowed to trade, actual expenses of office rent, not to exceed, in any case, ten per centum of the amount of the annual compensation allowed to such officer, and to prescribe such regulations and make and issue such orders and instructions, not inconsistent with the Constitution or any law of the United States, in relation to the duties of all diplomatic and consular officers, the transaction of their business, the rendering of accounts and returns, the payment of compensation, the safe keeping of the archives and public property in the hands of all such officers, the communication of information, and the procurement and transmission of the products of the arts, sciences, manufactures, agriculture, and commerce, from time to time, as he may think conducive to the public interests; and it shall be the duty of all such officers to conform to such regulations, orders, and instructions. And it shall be the duty of the Secretary of State to publish official notifications, from time to time, of such commercial information communicated to him by such diplomatic and consular officers, as he may deem important to the public interest, in such newspapers, not to exceed three in number, as he may select, and report to Congress, at least once in each year, a synopsis of so much of the information on all subjects which shall be so communicated to him, as he may deem valuable for public information.

Sect. 23. And be it further enacted, that the Secretary of State shall be authorized to grant and issue passports, and cause passports to be granted, issued, and verified in foreign countries by such diplomatic or consular officers of the United States, and under such rules as the President shall designate and prescribe for and on behalf of the United States, and no other person shall grant, issue, or verify any such passport; nor shall any passport be granted or issued to, or verified for any other persons than citizens of the United States; nor shall any charge be made for granting, issuing, or verifying any passport except in a foreign country; and in any such case the fee allowed therefor shall not exceed the sum of one dollar, nor shall any such charge be made for more than one such verification in any foreign country; and if any person acting, or claiming to act, in any office or capacity under the United States, or any of the states of the United States, who shall not be lawfully authorized so to do, shall grant, issue, or verify any passport, or other instrument in the nature of a passport, to or for any citizen of the United States, or to or for any person claiming to be or designated as such in such passport or verification, or if any consular officer who shall be authorized to grant, issue, or verify passports, shall knowingly and willfully grant, issue, or verify any such passport to or for any person not a citizen of the United States, the person so offending shall be deemed and taken to be guilty of a misdemeanor, and, on conviction thereof, shall be imprisoned, not exceeding one year, or fined in a sum not to exceed five hundred dollars, or both, and may be charged, proceeded against, tried, convicted, and dealt with, therefor, in the district where he may be arrested or in custody; and it shall be the duty of all persons who shall be authorized, pursuant to the provisions of this act, to grant, issue, or verify passports, to make return of the same to the Secretary of State, in such manner and as often as he shall require; and such returns shall specify the names and all other particulars of the persons to whom the same shall be granted, issued, or verified, as embraced in such passport: provided, that in any country where a legation of the United States is established, no person other than the diplomatic representative of the United States at such place shall be permitted to grant or issue any passport, except in the absence therefrom of such representative.

Sect. 24. And be it further enacted, that every secretary of legation and consular officer is hereby authorized, whenever he shall be required or may deem it necessary or proper so to do, at the post, port, place, or within the limits of his legation, consulate, or commercial agency, to administer to or take from any person an oath, affirmation, affidavit, or deposition, and also to perform any notarial act or acts such as any notary public is required or authorized by law to do or perform within the United States; and every such oath, affirmation, affidavit, deposition, and notarial act administered, sworn, affirmed, taken, had, or done, by or before any such officer, when certified under his hand and seal of office, shall be as good, valid, effectual and of like force and effect within the United States to all intents and purposes as if such oath, affirmation, affidavit, deposition, or notarial act had been administered, sworn, affirmed, taken, had, or done, by or before any other person within the United States duly authorized and competent thereto: and if any person shall willfully and corruptly commit perjury, or by any means procure any person to commit perjury, in any such oath, affirmation, affidavit, or deposition, within the intent and meaning of any act of Congress now or hereafter made, such offender may be charged, proceeded against, tried, convicted, and dealt with in any district of the United States in the same manner, in all respects, as if such offense had been committed in the United States, before any officer duly authorized therein to administer or take such oath, affirmation, affidavit, or deposition, and shall be subject to the same punishment and disability therefor as are or shall be prescribed by any such act for such offense; and any document purporting to have affixed, impressed, or subscribed thereto or thereon the seal and signature of the officer administering or taking the same in testimony thereof, shall be admitted in evidence without proof of any such seal or signature being genuine or of the official character of such person; and if any person shall forge any such seal or signature, or shall tender in evidence any such document with a false or counterfeit seal or signature thereto, knowing the same to be false or counterfeit, he shall be deemed and taken to be guilty of a misdemeanor, and on conviction shall be imprisoned not exceeding three years, nor less than one year, and fined in a sum not to exceed three thousand dollars, and may be charged, proceeded against, tried, convicted, and dealt with, therefor, in the district where he may be arrested or in custody.

Sect. 25. And be it further enacted, that whenever any seaman or mariner of any vessel of the United States shall desert such vessel, the master or commander of such vessel shall note the fact and date of such desertion on the list of the crew, and the same shall be officially authenticated at the port or place of the consulate or commercial agency first visited by such vessel after such desertion, if such desertion shall have occurred in a foreign country; or if in such case such vessel shall not visit any place where there shall be any consulate or commercial agency before her return to the United States, or the desertion shall have occurred in this country, the fact and time of such desertion shall be officially authenticated before a notary public immediately at the first port or place where such vessel shall arrive after such desertion; and all wages that may be due to such seaman or mariner, and whatever interest he may have in the cargo of such vessel, shall be forfeited to and become the property of the United States, and paid over for their use to the collector of the port where the crew of such vessel are accounted for, as soon as the same can be ascertained; first deducting therefrom any expense which may necessarily have been incurred on account of such vessel in consequence of such desertion; and in settling the account of such wages or interest no allowance or deduction shall be made except for moneys actually paid, or goods at a fair price supplied, or expenses incurred to or for such seaman or mariner, any receipt or voucher from, or arrangement with such seaman or mariner, to the contrary notwithstanding.

Sect. 26. And be it further enacted, that upon the application of any seaman or mariner for a discharge, if it shall appear to the consular officer that he is entitled to his discharge under any act of Congress, or according to the general principles or usages of maritime law, as recognized in the United States, he shall discharge such seaman or mariner, and shall require from the master or commander of the ship or vessel from which such discharge shall be made, the payment of three months' extra wages, as provided by the act hereinbefore mentioned, approved February 28, 1803; and it shall be the duty of such master or commander to pay the same, and no such payment or any part thereof shall be remitted in any case, except such as are mentioned in the proviso of the ninth clause of the act entitled "An Act in addition to the several Acts regulating the Shipment and Discharge of Seamen and the Duties of Consuls," approved July 20, 1840, and as hereinafter provided, and the extra wages required to be paid by the said ninth clause of the last hereinbefore-mentioned act, and by this section, shall be applicable to the same purposes and in the same manner as is directed by the said act, approved February 28, 1803, in regard to the extra wages required to be paid thereby; and if any consular officer, when discharging any seaman or mariner, shall neglect to require the payment of, and collect the extra wages required to be paid in the case of the discharge of any seaman or mariner, by either of the said acts, as far as they shall remain in force under this act or by this act, he shall be accountable to the United States for the full amount of their share of such wages, and to such seaman or mariner to the full amount of his share thereof; and if any seaman or mariner shall, after his discharge, have incurred any expense for board or other necessaries at the port or place of his discharge before shipping again, such expense shall be paid out of the share of the three months' wages to which he shall be entitled, which shall be retained for that purpose, and the balance only paid over to him: provided, however, that in cases of wrecked or stranded ships or vessels, or ships or vessels condemned as unfit for service, no payment or extra wages shall be required.

Sect. 27. And be it further enacted, that every consular officer shall keep a detailed list of all seamen and mariners shipped and discharged by him, specifying their names and the names of the vessels on and from which they shall be shipped and discharged, and the payments, if any, made on account of each so discharged, and also of the number of the vessels arrived and departed, and the amounts of their registered tonnage, and the number of their seamen and mariners, and of those who are protected, and whether citizens of the United States or not, and as nearly as possible the nature and value of their cargoes, and where produced, and make returns of the same, with their accounts and other returns, to the Secretary of the Treasury; and no consular officer shall certify any invoice unless he shall be satisfied that the person making the oath or affirmation thereto is the person he represents himself to be, that he is a credible person, and that the statements made under such oath or affirmation are true; and he shall, thereupon, by his certificate, state that he was so satisfied; and it shall be the duty of every consular officer to furnish to the Secretary of the Treasury, as often as shall be required, the prices current of all articles of merchandise usually exported to the United States from the port or place in which he shall be located.

Sect. 28. And be it further enacted, that it shall be the duty of every master and commander of a ship or vessel of the United States, whenever he shall have occasion for any consular or other official service, which any consular officer of the United States shall be authorized by law or usage officially to perform, and for which any fees shall be allowed by the said rates or tariffs of fees as aforesaid, to apply to such one of the said officers as may then be officially located at the consulate or commercial agency, if any there be where such service shall be required, to perform such service, and such master or commander shall pay to such officer such fees as shall be allowed for such service, in pursuance of the provisions of this act; and if any such master or commander shall omit so to do, he shall be liable to the United States for the amount of the fees lawfully chargeable for such services, as though the said services had been performed by such officer. And all consular officers are hereby authorized and required to retain in their possession all the papers of such ships and vessels which shall be deposited with them as directed by law, till payment shall be made of all demands and wages on account of such ships and vessels.

Sect. 29. And be it further enacted, that if any citizen of the United States who shall die abroad shall, by any lawful testamentary disposition, leave special directions for the custody and management, by the consular officer of the port or place where he shall die, of the personal property of which he shall die possessed in such country, as contemplated by the act entitled "An Act concerning Consuls and Vice-consuls," approved April 14, 1792, it shall be the duty of such officer, so far as the law of such country will permit, strictly to observe such directions; and if any such citizen so dying shall, by any lawful testamentary disposition, have appointed any other person or persons than such officer to take charge of and manage such property, it shall be the duty of such officer, whenever required by such person or persons so appointed, to give his official aid in whatever way may be necessary to facilitate the proceedings of such person or persons in the lawful execution of such trust, and, so far as the laws of the country permit, to protect the property of the deceased from any interference of the local authorities of the country where such citizen shall die; and to this end it shall be the duty of such consular officer to place his official seal upon all or any of the personal property or effects of the deceased, and to break and remove such seals as may be required by such person or persons, and not otherwise.

Sect. 30. And be it further enacted, that all fees collected for and in behalf of the United States, in pursuance of this act, shall be collected in the coin of the United States, or at its representative value in exchange.

Sect. 31. And be it further enacted, that in the construction, and for the purposes, of all other acts and parts of acts which shall remain in force after this act shall take effect, defining any of the powers, declaring any of the rights, prescribing any of the duties, or imposing any penalty or punishment for any act of omission or commission of any consul, commercial agent, vice-consul, or vice-commercial agent, or allowing or enjoining the performance of any act, matter, or thing, with or before any such officer, all such acts and parts of acts shall in all these several respects, so far as may be consistent with the subject-matter and context of the same, and with this act and the treaties of the United States, be deemed and taken to include and apply to all consular officers as though all such officers were specially named therein; and the said official designations in contemplation of all such acts, and parts of acts, and of this act, shall be deemed and taken to have the respective meanings hereinafter assigned to them—that is to say, "Consul-General," "Consul," and "Commercial Agent," shall be deemed and taken to denote full, principal, and permanent "consular officers," as distinguished from subordinates and substitutes: "Deputy Consul" and "Consular Agent" shall be deemed and taken to denote "consular officers" subordinate to such principals, exercising the powers and performing the duties within the limits of their consulates or commercial agencies respectively, the former at the same ports or places, and the latter at ports or places different from those at which such principals are located, respectively; and "vice-consuls" and "vice-commercial agents" shall be deemed and taken to denote "consular officers," who shall be substituted temporarily, to fill the places of "consuls-general," "consuls," or "commercial agents," when they shall be temporarily absent, or relieved from duty; and the term "consular officer," as used in this act, shall be deemed and taken to include all such officers as are mentioned in this section, and none others; and the term "diplomatic officer," as used in this act, shall be deemed and taken to include all the officers mentioned in the first section of this act, and none others.

Sect. 32. And be it further enacted, that if any consular officer shall willfully neglect or omit to perform seasonably any duty imposed upon him by this or any other act, or by any order or instruction made or given in pursuance of this or any other act, or shall be guilty of any willful malfeasance or abuse of power, or any corrupt conduct in his office, he shall be liable to all persons injured by any such neglect or omission, malfeasance, abuse, or corrupt conduct, for all damages occasioned thereby: and for all such damages by any such officer, he, and his sureties upon his official bond, shall be responsible thereon to the full amount of the penalty thereof, to be sued in the name of the United States, for the use of the person or persons so injured: provided, that such suit shall in no case prejudice, but shall be held in entire subordination to the interests, claims, and demands of the United States, as against such officer, under such bond, for every willful act of malfeasance or corrupt conduct in his office; and if any such officer shall refuse to pay any draft, order, or warrant which may be drawn upon him by the proper officer of the Treasury Department for any public moneys of the United States in his hands, or for any amount due from him to the United States, whatever the capacity in which he may have received or may hold the same, or to transfer or disburse any such moneys promptly upon the legal requirement of any authorized officer of the United States, he shall be deemed and taken to be guilty of a misdemeanor, and on conviction thereof shall be punished by imprisonment not to exceed ten years nor less than one year, or by fine not to exceed two thousand dollars nor less than two hundred dollars, or both, at the discretion of the court; and any such officer so offending may be charged, proceeded against, tried, convicted, and dealt with, in any district in which he may be arrested or in custody.

Sect. 33. And be it further enacted, that the fifth, sixth, and seventh sections of the act hereinbefore mentioned, approved July 20, 1840, and all of the act entitled "An Act to remodel the Diplomatic and Consular Systems of the United States," approved March 1, 1855, and all acts and parts of acts whereby any such fees as are contemplated by the seventeenth section of this act are fixed or allowed, and any usage or law whereby any attaché is or may be allowed to any legation other than such as are provided in this act, or requiring any secretary of legation to be employed otherwise than as provided by this act, and all other acts and parts of acts, so far as the same are inconsistent with this act, be and the same are hereby annulled and repealed; and no attaché shall be allowed, in any case, nor any secretary of legation, otherwise than as provided by this act.

Sect. 34. And be it further enacted, that this act shall take effect on the first day of January, 1857, and not before.

SCHEDULE B.

SALARIES OF CONSULS-GENERAL AND CONSULS OF THE UNITED STATES.

I. *Consuls-General.*—Cuba: Havana, $6000. British India: Calcutta, $5000. British North America: Quebec, $4000. Japan: Simoda, $5000. Turkey: Constantinople, $3000. Egypt: Alexandria, $3500. Frankfort-on-the-Main, $3000.

II. *Consuls—First Class.*—Great Britain: London, $7500; Liverpool, $7500; Melbourne, $4000; Hong-Kong, $3500; Glasgow, $3000, Mauritius, $2500; Singapore, $2500; Belfast, $2000; Cork, $2000; Dundee, $2000; Demarara, $2000; Halifax, $2000; Kingston (Jamaica), $2000; Leeds, $2000; Manchester, $2000; Nassau (New Providence), $2000; Southampton, $2000; Turk's Island, $2000.

France: Havre, $6000; Paris, $5000; Marseilles, $2500; Bordeaux, $2000; La Rochelle, $1500; Lyons, $1500.

Russia: Moscow, $2000; Odessa, $2000; Revel, $2000; St. Petersburg, $2000.

Spain: Matanzas, $2500; Trinidad de Cuba, $2500; Santiago de Cuba, $2500; San Juan (Porto Rico), $2000; Cadiz, $1500; Malaga, $1500; Ponce (Porto Rico), $1500.

Austria: Trieste, $2000; Vienna, $1500.

Prussia: Aix la Chapelle, $2500.

China: Canton, $4000; Shanghai, $4000; Foo-tchow, $3500; Amoy, $3000; Ningpo, $3000.

Turkey: Beyrout, $2000; Smyrna, $2000; Jerusalem, $1500.

Netherlands: Rotterdam, $2000; Amsterdam, $1000.

Belgium: Antwerp, $2500.

Portugal: Funchal, $1500; Oporto, $1500.

Denmark: St. Thomas, $4000; Elsineur, $1500.

Sardinia: Genoa, $1500.

Switzerland: Basle, $2000; Geneva, $1500.

Sicilies: Messina, $1500; Naples, $1500; Palermo, $1500.

Saxony: Leipsic, $1500.

Bavaria: Munich, $1000.

Tuscany: Leghorn, $1500.

Würtemberg: Stuttgardt, $1000.

Hanseatic and free towns: Bremen, $2000; Hamburg, $2000.

Barbary States: Tangiers, $3000; Tripoli, $3000; Tunis, $3000.

Brazil: Rio de Janiero, $6000; Pernambuco, $2000.

Mexico: Vera Cruz, $3500; Acapulco, $2000.

Peru: Callao, $3500.

Chili: Valparaiso, $3000.

Buenos Ayres: Buenos Ayres, $2000.

Nicaragua: San Juan del Sur, $2000.

New Granada: Aspinwall, $2500; Panama, $3500.

Venezuela: Laguayra, $1500.

Sandwich Islands: Honolulu, $4000; Lahaina, $3000.

III. *Commercial Agents—First Class.*—Nicaragua: San Juan del Norte, $2000.

St. Domingo: Port au Prince, $2000; St. Domingo (city), $1500.

SCHEDULE C.

I. *Consuls—Second Class.*—Great Britain: Bay of Islands (New Zealand), $1000; Cape Town, $1000; Falkland Islands, $1000.

Austria: Venice, $750.

Prussia: Stettin, $1000.

Turkey: Candia, $1000; Cyprus, $1000.

Netherlands: Batavia, $1000.

Portugal: Fayal, $750; Santiago (Cape de Verdes), $750.

Denmark: Saint Croix, $750.

Sardinia: Spezzia, $1000.

Greece: Athens, $1000.

Muscat: Zanzibar, $1000.

Brazil: Bahia, $1000; Maranham Island, $1000; Para, $1000; Rio Grande, $1000.

Mexico: Matamoras, $1000; Mexico (city), $1000; Tampico, $1000; Paso del Norte, $500; Tabasco, $500.

Peru: Paita, $500; Tumbez, $500.

Chili: Talcahuano, $1000.

New Granada: Carthagena, $500; Sabanillo, $500.

Honduras: Omoa, $1000.

Ecuador: Guayaquil, $750.

Bolivia: Cobija, $500.

Uruguay: Montevideo, $1000.

Society Islands: Tahiti, $1000.

Navigators' Islands: Apia, $1000.

Feejee Islands: Lanthala, $1000.

II. *Commercial Agents—Second Class.*—Portugal: St. Paul de Loanda (Angola), $1000.

Liberia: Monrovia, $1000.

Guinea: Gaboon, $1000.

St. Domingo: Cape Haytien, $1000; Aux Cayes, $500.

Russia: Amoor River, $1000.

Consular Fees of the United States, prescribed by the President, in accordance with the provisions of the act of Congress approved August 18, 1856, regulating the diplomatic and consular systems of the United States:

DEPARTMENT OF STATE, *November* 10, 1856.

The following is the rate or tariff of fees prescribed by the President to be charged by all consular officers for the services herein specified, which "shall be regarded as official services," and the fees therefor collected in American or Spanish silver dollars, or their equivalent.

At the expiration of each quarter the statement of fees must be rendered, in accordance with the printed instructions, by all consular officers entitled to salaries residing at sea-ports and at inland places, to the Secretary of the Treasury, and the amount thereof held subject to his draft or other directions. If the consular officers are not entitled to salaries, the returns must be made to the Secretary of State.

Receiving and delivering Ship's Papers.—For receiving and delivering ship's register and papers, including consular certificates, half a cent on every ton, registered measurement of the vessel for which the service is performed.

Discharging or shipping Seamen or Mariners.—For every seaman, from one to ten, who may be discharged or shipped, including certificates therefor attached to crew list and shipping articles, to be paid by the master of the vessel, 50 cents; but no additional charge shall be made for any number of seamen exceeding ten, who may be discharged from or shipped between the date of the arrival and departure of the vessel.

Protests, Passports, etc.

For noting marine protest	$1 00
For extending marine protest	2 00
And if it exceed 200 words, for every additional 100 words	1 00
For issuing warrant of survey on vessels, hatches, cargo, provisions, and stores, or either	1 00
For a passport, including seal	1 00
For viséing a passport	1 00
For preparing agreement of master to give increased wages to seamen, attested under seal	1 00
For preparing any other official document or instrument of writing, not herein named or enumerated, if under 100 words	1 00
If exceeding 100 words, for every additional 100 words	0 50

For the following Certificates, viz.:

Of the deposit of a ship's register and papers, when required by custom-house authorities	0 25
In cases of vessels deviating from the voyage	0 50
When the ship's register is retained entire in the consulate	0 25
For master to take home destitute American seamen	no fee.
Of conduct of crew on board, in cases of refusal of duty and in cases of imprisonment, etc	0 25
Given to master at his own request	0 50
To a seaman, of his discharge	no fee.
Of appointment of new master, including oath of master	1 00
Of the ownership of a vessel	0 50
Of decision and award, in cases of protests against masters, passengers, or crew	2 00
Of roll or list of crew, when required by the captain or authorities of the port	0 50
To bill of health	0 50
To shipping articles	0 50
Of canceling ship's register	0 50
To debenture certificate, including oaths of master and mate	1 25
To invoice, including oath	2 00
To currency	0 50
Of sea letter	2 00
Of indorsement of bottomry on ship's register	0 50
Of indorsement on payment of bottomry on ship's register	0 50
Of indorsement of new ownership on ship's register	0 50

Acknowledgments.

Of the master to bottomry-bond	1 00
Of the merchant to assignment of bottomry-bond	1 00
Of the vendor to a bill of sale of vessel	1 00
Of the master to a mortgage or mortgage bill of sale of vessel	1 00
Of the master to an order for payment of seamen's wages or voyages, at home, including making up order, if required	0 50
Of one or more persons to a deed or instrument of writing	2 00
Of one or more persons to a power of attorney	2 00

Declarations and Oaths.

Of declaration and oath of master to one or more desertions, including oaths, attached to crew list and shipping articles ... each	0 50
To one or more deaths or losses of seamen overboard at sea, including oaths, attached to crew list and shipping articles ... each	0 50
To not being able to procure two-thirds of a crew of protected American seamen	0 50
To ship's inventories or stores	0 50
To the correctness of log-book	0 50
To ship's bills and vouchers for disbursements and repairs	0 50

Authenticating Copies of Papers.

Of marine note of protest	1 00
Of extended protest	2 00
Of call, warrant, and report of survey on vessel, hatches, cargo, provisions, and stores, or either	1 00
Of inventories and letters, or either, of masters	1 00
Of account of sales of vessel, cargo, provisions, and stores, or either	1 00
Of advertisement for funds on bottomry	1 00
Of advertisement of sale of vessel or cargo, provisions or stores	1 00

Authenticating Signatures.

To reports of survey on vessel or cargo, provisions or stores	$1 00
To estimate of repairs of vessel	1 00
To (auctioneer's) account of sales of vessel or cargo, provisions or stores	1 00
To average bonds	2 00
Of governors, judges, notaries public, custom-house and other officers	2 00
Of merchants and individuals	2 00
For any other consular certificate or services of like character not herein named or enumerated	0 50

Consuls' Orders and Letters.

To send seamen to hospital	no fee.
To send seamen to prison	0 50
To release seamen from prison	0 50
To authorities or captain of the port, in cases of sinking vessels	0 50
Requesting the arrest of seamen	0 50
For any other letter or order of like character	0 50

Filing Documents in Consulate.

Calls of survey on vessel, hatches, cargoes, provisions, and stores, or either	0 25
Warrants of survey on vessels, hatches, cargoes, provisions, and stores, or either	0 25
Reports of survey on vessels, hatches, cargoes, provisions, and stores, or either	0 25
Estimate of repairs of vessel	0 25
Consul's certificate to advertisement for funds on bottomry	0 25
To advertisement of sale of vessel, cargo, provisions, and stores, or either	0 25
Inventories of vessels, cargo, provisions, and stores, or either	0 25
Letter of master notifying consul of sale of vessel, cargo, provisions, and stores, or either	0 25
Of master notifying auctioneer of sale of vessel, cargo, provisions, and stores, or either	0 25
Accounts of sale of vessel, cargo, provisions, and stores, or either	0 25
For filing any other document prepared in or out of the consulate	0 25

Recording Documents.

Calls of survey on vessel, hatches, cargo, provisions, and stores, or either; warrants and reports of ditto, ditto; estimates of repairs; certificates of consuls to advertisements for funds on bottomry, and of sale of vessel; inventories of vessel, cargo, provisions, and stores; letter of master to consul notifying sale of vessel, cargo, provisions, and stores, or either; letter of master to auctioneer, and account of sales of vessel, cargo, provisions, and stores, or either, for every 100 words	0 20

(As the original documents are required to be filed in the consulate, it will not be necessary to record them. Should it ever become necessary, however, to deliver up the originals, they must be recorded before delivery, the party receiving the same paying the record fee, as above mentioned.)

Order and consul's certificate to pay seamen's wages or voyages, at home	0 25
Certificate given to master at his own request, when required	0 25
Appointment of new master	0 25
Application of a citizen of the United States for a sea letter	0 25
Sea letter, for every 100 words	0 20
Bill of sale, when required, for every 100 words	0 20
Consul's letter to captain of port, or authorities, in cases of sinking vessels	0 25
Consul's certificates to masters taking home destitute American seamen	no fee.
Protests of masters and others, other than marine protests, for every 100 words	0 20
Average bonds, when required, for every 100 words	0 20
Powers of attorney, when required, for every 100 words	0 20
Any other document or instrument of writing not herein named or enumerated, prepared in or out of the consulate, and required to be recorded, for every 100 words	0 20

Estates of deceased American Citizens.—For taking into possession the personal estate of any citizen who shall die within the limits of a consulate, inventorying, selling, and finally settling and preparing or transmitting, according to law, the balance due thereon, 5 per cent. on the gross amount of such estate. If part of such estate shall be delivered over before final settlement, 2½ per cent. to be charged on the part so delivered over as is not in money, and 5 per cent. on the gross amount of the residue. If among the effects of the deceased are found certificates of foreign stocks, loans, or other property, 2½ per cent. on the amount thereof. No charge will be made for placing the official seal upon the personal property or effects of such deceased citizen, or for breaking or removing the seals, when required by the person or persons referred to in section 29 of the act of August 18, 1856.

Miscellaneous Services.

For consul's seal and signature to clearance from custom-house authorities	$0 50
For administering oaths, not hereinbefore provided for, each	0 25
For consul's attendance at a shipwreck, or for the purpose of assisting a ship in distress, or of saving wrecked goods or property, over and above traveling expenses, a per diem of $4, whenever the consul's interposition is required by the parties interested	4 00
For attending an appraisement, where the goods or effects are under $1000 in value	3 00
For attending valuation of goods of $1000 and upward in value, for every day's attendance during which the valuation continues	5 00
For attending sale of goods, if the purchase-money be under $1000	3 00
For attending sale of goods, if the purchase-money is $1000 and upward, for every day during which the sale continues	5 00
For attending sale of vessel, when required	2 00

Fees for unofficial Services.—As the unofficial acts of a consular officer may be performed by a notary public, and as the compensation charged therefor is regarded as a perquisite of his office, the rate of such compensation may be determined either by agreement or the custom of the place, subject, however, to future instructions.

Exterritorial and other Privileges of Consuls.—According to an elaborate opinion prepared by Mr. Cushing, Attorney-General of the United States, under date July 14, 1855, the United States may, with consent of the government of another country, superadd to the regular duties therein of consul any of those of a minister. There are two great classes of cases in which this fact exists, and might well be systematized, or at least more explicitly recognized, in consular stipulations with foreign governments.

Consular Privileges in Colonial or other Dependencies of Foreign States.—One is, that of the transmarine possessions of sundry of the states of Europe. Here, many cogent reasons dictate that the concession should be granted to our consuls, by such states, of the right to address the colonial or provincial governor. There is nothing in the law of nations to prevent this; it is convenient for all parties; it is a consular right exercised by treaty in the great pashalics of the Turkish empire. The United States have recently made provision to the same effect in treaty with a Christian power, namely, the Netherlands; and that government having thus wisely relinquished its long-subsisting scruples on this point, we may reasonably expect similar liberality in future commercial negotiations with other countries of Europe.

Consular Duties where there is no Diplomatic Representative of the United States.—The other class of cases of this nature is that of a consul residing near a metropolitan government where there is no minister, either because of temporary cessation, or because inducements have not existed for the interchange of diplomatic representatives between such government and the United States. In this case it becomes the office, perhaps it may be said the right, of the consul to place himself, *with the permission of his own government*, in direct communication with the political authority of such government. Here, as in the other case, the fact occurs, and is of common convenience; it is not inconsistent with public law; and so far as regards the United States, it has example in treaties, for instance, in our last consular convention with France. It is a thing of manifest necessity as between the United States and some of the countries of Germany, with which our relations are entirely amicable, without calling for permanent diplomatic representation. The German Bund, though in some features resembling our own federal republic, yet differs essentially in this, that, in the former, the federal authority, in matters of peace and war, acts on states, not individuals, and of course each state retains the power of foreign representation and negotiation. Hence, if we do not see cause to interchange ministers, we may yet well reciprocally enlarge the consular functions, in our relations with such states as

Bavaria, Saxony, Würtemberg, Hanover, the Hessen, the Mechlenburgs, or any other of the members of the Bund.

Derivation of Privileges by Consuls.—Meanwhile, it would not in either of these classes of cases follow, because a consul of the United States in Bavaria, or one of Bavaria in the United States, may be admitted to address the government, that therefore he becomes a diplomatic personage, with international rights as such, and among them that of exterritoriality. If his commission be that of consul only, if his public recognition be an *exequatur*, the foreign consul is subject to the local law in the United States; and our own consul in the foreign country, if invested in any case with quasi-exterritorial rights, does not derive these from the law of nations, but only from the special concession, by general law or otherwise, of the particular foreign government. If, indeed, the United States see fit, in any case, to confer the function of chargé d'affaires on their consul, either with or without limitation of time, as they may lawfully do, that is, to superimpose the office of minister on that of consul, then he has a double political capacity, and, though invested with full diplomatic privilege, yet becomes so invested as chargé d'affaires, not as consul; and the fact of such casual duplication of function does not change the legal *status* of consuls, whether they be regarded through the eye of the law of nations, or that of the United States.

Pagan and Mohammedan Countries.—It has been observed, that "in Egypt, Tunis, Tripoli, China, the islands of the Pacific, the consuls enjoy all the diplomatic privileges. The motive is not only in the difference of law and religion with ours, but also in the absence of other diplomatic representatives." This remark requires qualification. In the case of China and Turkey, for instance, our consuls have not, *quâ* consuls, any "*diplomatic* privileges," except such as they might have in France during the absence of a minister; such *exterritorial*, not diplomatic, privileges, as they really enjoy, they enjoy, not because they are consuls, nor because of the absence of proper diplomatic representatives in those countries, for we have them, but because they are citizens of the United States. And the true explanation of the diplomatic rights appertaining to consuls in the Mohammedan states, whether independent ones, like Morocco and Muscat, or subject to the suzerainty of the Porte, like Tripoli, Tunis, and Egypt, and so of the Pacific or Indian islands, is, that they are not Christians, and are not admitted to a full community of international law, public or private, with us, the nations of Christendom.

Institution of the consular Office.—It might be demonstrated historically, what in this place it will suffice to affirm, that the institution of consuls, in their present capacity of international agents, originated in the mere fact of differences in law and religion at that period of modern Europe in which it was customary for distinct nationalities, coexisting under the same general political head, and even in the same city, to maintain each a distinct municipal government.

Consuls in the Levant.—Such municipal colonies, organized by the Latin Christians, and especially by those of the Italian republics in the Levant, were administered each by its *consuls*, that is, its proper municipal magistrates of the well-known municipal denomination of ancient Italy. Their commercial relation to the business of their countrymen was a mere incident of their general municipal authority. Such, also, at the outset, was the nature of their political relation to other coexisting nationalities around them in the same country, and to that country's own supreme political or military power.

In Countries not Christian.—The consuls of Christian states, in the countries not Christian, still retain unimpaired, and habitually exercise, their primitive functions of municipal magistrates for their countrymen, their commercial or international capacity in those countries being but a part of their general capacity as the delegated administrative and judicial agents of their nations.

Origin of the Law of Nations.—This condition of things came to be permanent in the Levant, that is, Greek Europe and its dependencies, by reason of the tide of Arabic and Tartar conquest having overflowed so large a part of the Eastern empire, and established the Mohammedan religion there. But the result was different in Latin Europe, because the modern nations, formed in this quarter out of the broken fragments of the Western empire, being Christian, and thus deriving their religion and their civilization from the same fountain-head of Rome, settled into something of approximation to one great political community, under the influences, potential when combined, of the military power of the Frankish or Germanic emperors, and the moral power of the Papal See. Thus it was that the mass of legal ideas, which we now call the law of nations, came to exist and have authority. It is, in its origin at least, the system of public law of Latin or Western Europe.

Approximate Unity of Public Law.—This imperfect political unity of Western Europe was obstructed at first by the antagonism of the Celto-Romanic and the Germanic races, and was threatened with complete dissolution when that original antagonism reappeared in the separation of some of the Germanic populations from the Papal See, under the popularly assumed religious title of Protestants. But after thirty continuous years of reciprocal devastation and slaughter, the states of the old and new faith concluded a truce at least, if not a peace, and agreed, while acquiescing in the fact of religious difference, to maintain approximate unity of public law, and thus, by subordinating the religious idea to the legal one, to live together in some sort, as they have continued to do, with only occasional spasms of fanatical intolerance breaking out into civil or foreign war. At a late period, Russia, though of Greek faith, came into the European system of public law, with the less difficulty, indeed, for the reason that Latin Europe and Greek Europe alike nourished the legal traditions of the Roman empire, though these be derived in the former case from Rome, and in the latter from Constantinople.

Change in the Nature of the consular Office among Christian Nations.—Thus, by the combination of Romanic law and Christian faith it is that we have come to have a common public law, under whose gradual operation claims of private exterritoriality soon fell into desuetude among the governments of Christendom; Italians in England, and Englishmen in Italy, at length submitted to the local law; foreign colonial nationalities finally ceased to exist of right; their consuls proceeded to sink from the condition of municipal functionaries into that of mere commercial or semi-diplomatic ones; and thus, in process of time, by traditional usage, by positive provisions of local law, and by treaty stipulations, the existing legal character, with its limited rights, was fixed on the foreign consuls mutually accredited in the countries of Christian Europe and America.

In Mohammedan States.—In our relations with nations out of the pale of Christendom, we retain for our own citizens and consuls, though we can not concede to theirs, the rights of exterritoriality. Religion is the chief representative sign, and it is an element of the question of public law. But the critical fact is the difference of law. The legislation of Mohammed, for instance, is inseparable from his religion. We can not submit to one without also undergoing the other. The same legal incompatibility exists, for one reason or another, between us and the unchristian states not Mohammedan.

Institutes and Pandects.—Whereas Christendom, on the other hand, in all its subdivisions of race, nationality, and religion, is the common heir of the political ideas, and especially the legislation, of the Roman empire; for the Institutes and Pandects themselves, though comprising the sum of the legal science of Rome, were compiled and promulgated at Constantinople, and constitute the broad foundation of the jurisprudence, public and private, of the whole of Christendom.

Unity in Christendom.—When the countries now Mohammedan shall be resubjected to the doctrines of the Roman law, then can they be admitted to the same reciprocal community of private rights with us, which prevails in Christian Europe and America. Until that event happens, Turkey, and other Moslem states in Africa or Asia, may, like China or Japan, enter into the sphere of our public law in the relation of government to government, but not in the relation of government to men. That full interchange of international rights is admissible only among the nations which have unity of legal thought, in being governed by, or constituted out of, the once dissevered, but since then partially reunited, constituent of the Græco-Roman empire.—*Manual for Consuls, United States*, 1857.

Contraband, in commerce, a commodity prohibited to be exported or imported, bought or sold. Contraband is also a term applied to designate that class of commodities which neutrals are not allowed to carry during war to a belligerent power. It is a recognized general principle of the law of nations, that ships may sail to and trade with all kingdoms, countries, and states in peace with the princes or authorities whose flags they bear; and that they are not to be molested by the ships of any other power at war with the country with which they are trading, unless they engage in the conveyance of *contraband* goods. But great difficulty has arisen in deciding as to the goods comprised under this term. The reason of the limitation suggests, however, the species of articles to which it principally applies. It is indispensable that those who profess to act upon a principle of neutrality, should carefully abstain from doing any thing that may discover a bias in favor of either party. But a nation who should furnish one of the belligerents with supplies of warlike stores, or with supplies of any article, without which that belligerent might not be able to carry on the contest, would obviously forfeit her neutral character; and the other belligerent would be warranted in preventing such succors from being sent, and confiscating them as lawful prize. All the best writers on international law admit this principle; which, besides being enforced during every contest, has been sanctioned by repeated treaties. In order to obviate all disputes as to what commodities should be deemed contraband, they have sometimes been specified in treaties or conventions. (See the references in Lampredi *Del Commercio de Popoli Neutrali*, § 9.) But this classification is not always respected during hostilities; and it is sufficiently evident that an article which might not be contraband at one time, or under certain circumstances, may become contraband at another time, or under different circumstances. It is admitted on all hands, even by M. Hubner, the great advocate for the freedom of neutral commerce (*De la Saisie des Bâtimens Neutres*, tom. i. p. 193), that every thing that may be made *directly available* for hostile purposes is contraband, as arms, ammunition, horses, timber for ship-building, and all sorts of naval stores. The greatest difficulty has occurred in deciding as to provisions, which are sometimes held to be contraband, and sometimes not. Lord Stowell has shown that the *character of the port* to which the provisions are destined, is the principal circumstance to be attended to in deciding whether they are to be looked upon as contraband. A cargo of provisions intended for an enemy's port, in which it was known that a warlike armament was in preparation, would be liable to arrest and confiscation; while, if the same cargo were intended for a port where none but merchantmen were fitted out, the most that could be done would be to detain it, paying the neutral the same price for it he would have got from the enemy.

Contraband of War. "Questions of contraband were much discussed during the continuance of our neutral character, in the furious war between England and France, commencing in 1793, and the United States professed to be governed by the modern usage of nations on this point. The national convention of France, on the 9th of May, 1793, decreed, that neutral vessels laden with provisions, destined to an enemy's port, should be arrested and carried into France, and one of the earliest acts of England, in that war, was to detain all neutral vessels going to France, and laden with corn, meal, or flour. It was insisted, on the part of England, that, by the law of nations, all provisions were to be considered as contraband, in the case where the depriving of an enemy of those supplies was one of the means employed to reduce him to reasonable terms of peace; and that the actual situation of France was such as to lead to that mode of distressing her, inasmuch as she had armed almost the whole laboring class of her people, for the purpose of commencing and supporting hostilities against all the governments of Europe. This claim on the part of England was promptly and perseveringly resisted by the United States; and they contended that corn, flour, and meal, being the produce of the soil and labor of the country, were not contraband of war, unless carried to a place actually invested. The treaty of commerce with England, in 1794, in the list of contraband, stated, that whatever materials served directly to the building and equipment of vessels, with the exception of unwrought iron and fir planks, should be considered contraband, and liable to confiscation; but the treaty left the question of provisions open and unsettled, and neither power was understood to have relinquished the construction of the law of nations which it had assumed. The treaty admitted that provisions were not generally contraband, but might become so according to the existing law of nations, in certain cases, and those cases were not defined.

"It was only stipulated, by way of relaxation of the penalty of the law, that whenever provisions were contraband, the captors or their government should pay to the owner the full value of the articles, together with the freight and a reasonable profit. Our government has repeatedly admitted that, as far as that treaty enumerated contraband articles, it was declaratory of the law of nations, and that the treaty conceded nothing on the subject of contraband.

"The doctrine of the English admiralty on the subject of provisions being considered contraband, was laid down very fully and clearly in the case of the *Jonge Margaretha*. It was there observed, that the catalogue of contraband had varied much, and sometimes in such a manner as to make it difficult to assign the reasons of the variations, owing to particular circumstances, the history of which had not accompanied the history of the decisions. In 1673, certain articles of provisions, as corn, wine, and oil, were deemed contraband, according to the judgment of a person of great knowledge and experience in the practice of the admiralty; and, in much later times, many other sorts of provisions have been condemned as contraband. In 1747 and 1748, butter and salted fish and rice were condemned as contraband; and those cases show that articles of human food have been considered as contraband when it was probable they were intended for naval or military use. The modern established rule is, that provisions are not generally contraband, but may become so under circumstances arising out of the particular situation of the war, or the condition of the parties engaged in it. Among the circumstances which tend to preserve provisions from being liable to be treated as contraband, one is, that they are the growth of the country which exports them. Another circumstance to which some indulgence is shown by the practice of nations, is when the articles are in their native or unmanufactured state. Thus iron is treated with indulgence, though anchors and other instruments fabricated out of it are directly contraband. Hemp is more favorably considered than cordage, and wheat is not considered as so objectionable a commodity, when going to an enemy's country, as any of the final preparations of it for human use. The most important distinction is, whether the articles were intended for the ordinary use of life, or even for mercantile ship's use, or whether they were going with a highly probable destination to military use. The nature and quality of the port to which the articles are going is not an irrational test. If the port be a general commercial one, it is presumed the articles are going for civil use, though occasionally a ship of war may be constructed in that port. But if the great predominant character in that port, like Brest in France, or Portsmouth in England, be that of a port of naval military equipment, it will be presumed that the articles were going for military use, although it is possible that the articles might have been applied to civil consumption. As it is impossible to ascertain positively the final use of an article *ancipitis usus*, it is not an injurious rule which deduces the final use from the immediate destination; and the presumption of a hostile use, founded on its destination to a military port, is very much inflamed, if, at the time when the articles were going, a considerable armament was notoriously preparing, to which a supply of those articles would be eminently useful."

These doctrines of the English prize law were essentially the same with those adopted by the American Congress in 1775, for they declared, that all vessels, to whomsoever belonging, carrying provisions or other necessaries, to the British army or navy within the colonies, should be liable to seizure and confiscation. They were likewise fully adopted by the Supreme Court of the United States, when we came to know and feel the value of belligerent rights, by becoming a party to a maritime war. In the case of the *Commercen*, a neutral vessel, captured by one of our cruisers in the act of carrying provisions for the use of the British armies in Spain, the court held, that provisions, being neutral property, but the growth of the enemy's country, and destined for the supply of the enemy's military or naval force, were contraband. The court observed, that, by the modern law of nations, provisions were not generally contraband, but they might become so on account of the particular situation of the war, or on account of their destination. If destined for the ordinary use of life in the enemy's country they were not contraband, but it was otherwise if destined for the army or navy of the enemy, or for his ports of military or naval equipment. And if the provisions were the growth of the enemy's country, and destined for the enemy's use, they were to be treated as contraband, and liable to forfeiture, even though the army or navy were in a neutral port, for it would be a direct interposition in the war.

"This case followed the decisions of Sir William Scott, and carried the doctrine of contraband, as applied to provisions, to as great an extent. It held the voyage of the Swedish neutral so illegal as to deserve the infliction of the penalty of loss of freight.

"It was the *usus bellici* which determined an article to be contraband; and as articles come into use as implements of war which were before innocent, there is truth in the remark that as the means of war vary and shift from time to time, the law of nations shifts with them; not indeed by the change of principles, but by a change in the application of them to new cases, and in order to meet the varying inventions of war. When goods are at once clearly shown to be contraband, confiscation to the captor is the natural consequence. This is the practice in all cases, as to the article itself, excepting provisions; and as to them when they become contraband, the ancient and strict right of forfeiture is softened down to a right of pre-emption on reasonable terms. But, generally, to stop contraband goods would, as Vattel observes, prove an ineffectual relief, especially at sea. The penalty of confiscation is applied, in order that the fear of loss might operate as a check on the avidity for gain, and deter the neutral merchant from supplying the enemy with contraband articles. The ancient practice was, to seize the contraband goods, and keep them on paying the value. But the modern practice of confiscation is far more agreeable to the mutual duties of nations, and more adapted to the preservation of their rights. It is a general understanding, grounded on true principles, that the powers at war may seize and confiscate all contraband goods, without any complaint on the part of the neutral merchant, and without any imputation of a breach of neutrality in the neutral sovereign himself. It was contended on the part of the French nation in 1796, that neutral governments were bound to restrain their subjects from selling or exporting articles contraband of war to the belligerent powers. But it was successfully shown on the part of the United States, that neutrals may lawfully sell, at home, to a belligerent purchaser, or carry, themselves, to the belligerent powers, contraband articles subject to the right of seizure, *in transitu*. This right has since been explicitly declared by the judicial authorities of this country. The right of the neutral to transport, and of the hostile power to seize, are conflicting rights, and neither party can charge the other with a criminal act."—KENT'S *Commentaries*, Lect. VIII.

Contraband articles are said to be of an *infectious* nature, and they *contaminate* the whole cargo belonging to the same owners. By the ancient laws of Europe, the ship also was liable to condemnation when captured. But the modern view, since Grotius, is milder, and latterly the ship is liable to confiscation, and when fraud is detected, the innocent portions of the cargo are also liable.

By the ancient law of Europe, a ship conveying any contraband article was liable to confiscation as well as the article. But in the modern practice of the courts of admiralty of this and other countries, a milder rule has been adopted, and the carriage of contraband articles is attended only with the loss of freight and expenses, unless when the ship belongs to the owner of the contraband cargo, or when the simple misconduct of conveying such a cargo has been connected with other malignant and aggravating circumstances. Of these a false destination and false papers are justly held to be the worst.—(5 ROBINSON'S *Admiralty Reports*, 275.) The right of visitation and search is a right inherent in all belligerents; for it would be absurd to allege that they had a right to prevent the conveyance of contraband goods to an enemy, and to deny them the use of the only means by which they can give effect to such right.—(VATTEL, book iii. c. 7. § 114.) The object of the search is two-fold: *first*, to ascertain whether the ship is neutral or an enemy, for the circumstance of its hoisting a neutral flag affords no security that it is really such; and, *secondly*, to ascertain whether it has contraband articles, or enemies' property, on board. All neutral ships that would navigate securely during war must, consequently, be provided with passports from their government, and with all the papers or documents necessary to prove the property of the ship and cargo; and they must carefully avoid taking any contraband articles or belligerent property on board; and hence, as Lampredi has observed, a merchant ship which seeks to avoid a search by crowding sail, or by open force, may justly be captured and subjected to confiscation.

It has, indeed, been often contended that *free ships make free goods* (*que le pavillon couvre la marchandise*), and that a belligerent is not warranted in seizing the property of an enemy in a neutral ship, unless it be contraband. The discussion of this important question would lead us into details which do not properly come within the scope of this work. We may, however, shortly observe, that no such privilege could be conceded to neutrals, without taking from belligerents the right, inseparable from a state of war, of seizing an enemy's property if found in places where hostilities may be lawfully carried on, as on the high seas. In fact, were the principle in question admitted, the commerce of a belligerent power with its colonies, or other countries beyond the sea, might be prosecuted in neutral ships, with as much security during war as in peace; so that neutrals would, in this way, be authorized to render a belligerent more important assistance than, perhaps, they could have done had they supplied him with troops and ammunition! But it is surely unnecessary to say, that to act in this way is a proceeding altogether at variance with the idea of neutrality. Neutrals are bound to conduct themselves in the *spirit of impartiality*, and must not afford such aid or assistance to one party as may the better enable him to make head against the other. It is their duty "*non interponere se bello, non hoste imminente hostem eripere.*" And yet it is manifest that the lending of neutral bottoms to carry on a belligerent's trade is in direct contradiction to this rule. The ships or cruisers of a particular power may have swept those of its enemy from the sea, and reduced him to a state of great difficulty, by putting a stop to his commerce with foreigners, or with his own colonies; but of what consequence would this be if neutrals might step in to rescue him from such difficulties, by carrying on that intercourse for him which he can no longer carry on for himself? It is natural enough that such a privilege should be coveted by neutrals; but, however advantageous to them, it is wholly subversive of the universally admitted rights of belligerent powers, as well as of the principles of neutrality; and can not, therefore, be truly said to be bottomed on any sound principle.

In the war of 1756, the rule was laid down by Great Britain, that neutrals are not to be allowed to carry on a trade during war that they were excluded from during peace; so that, supposing a nation at war with Great Britain had, while at peace, prohibited foreigners from engaging in her colonial or coasting trade, neutrals would not have been permitted to engage in it during war. This rule has been much complained of; but the principle on which it is founded seems a sound one, and it may in most cases be safely adopted. The claims of neutrals can not surely be carried farther than that they should be allowed to carry on their trade during war as they had been *accustomed* to carry it on during peace, except with places under blockade; but it is quite a different thing when they claim to be allowed to employ themselves during war in a trade in which they had not previously any right to engage. To grant them this, would not be to preserve to them their former rights, but to give them new ones which may be fairly withheld. Supposing, however, that either of the belligerent powers has *force sufficient to prevent any intercourse between the other and its colonies, or any intercourse between different ports of the other*, she might, in the exercise of the legitimate rights of a belligerent, exclude neutrals from such trade, even though it had formerly been open to them; because otherwise she would be deprived of the advantage of her superior force; and the neutrals would, in fact, when employed in this way, be acting as the most efficient allies of her enemy.

For a full discussion of this important and difficult question, and of the various distinctions to which it gives rise, see the work of Hubner (*De la Saisie des Bâtimens Neutres*, 2 tomes, 12mo, 1757), in which the different arguments in favor of the principle that "the flag covers the cargo," are stated with great perspicuity and talent. The opposite principle has been advocated by Lampredi, in his very able treatise *Del Commercio de' Popoli Neutrali*, § 10; by Lord Liverpool, in his *Discourse on the Conduct of Great Britain in respect to Neutrals*, written in 1757; and, above all, by Lord Stowell, in his justly celebrated decisions in the Admiralty Court; and KENT'S *Commentaries*, Lect. III. Martens inclines to Hubner's opinion.—See *Précis du Droit des Gens*, liv. viii. c. 7.

Contracts. An executory contract is an agreement of two or more persons, upon sufficient consideration, to do or not to do a particular thing. The agreement is either under seal or not under seal. If under seal, it is denominated a speciality, and if not under a seal, an agreement by parol; and the latter includes equally verbal and written contracts not under seal. The agreement conveys an interest either in possession or in action. If, for instance, one person sells and delivers goods to another for a price paid, the agreement is executed, and becomes complete and absolute; but if the vendor agrees to sell and deliver at a future time, and for a stipulated price, and the other party to accept and pay, the contract is executory, and rests in action merely. There are also express and implied contracts. The former exists when the parties contract in express words, or by writing; and the latter are those contracts which the law raises or presumes, by reason of some value or service rendered, and because common justice requires it.

Every contract, valid in law, is made between *parties* having sufficient understanding and age and freedom of will, and of the exercise of it, for the *given case*. If the contract be entered into by means of violence offered to the will, or under the influence of undue constraint, the party may avoid it by the plea of duress; and it is requisite to the validity of every agreement, that it be the result of free and *bona fide* exercise of the will. Nor will a contract be valid if obtained by misrepresentation or concealment, or if it be founded in mistake as to the subject matter of the contract. A contract, valid by the law of the place where it is made, is generally speaking valid every where, *jure gentium*, and by tacit consent.

The *lex loci contractus* controls the nature, construction, and validity of the contract; and on this broad foundation the law of contracts, founded on necessity and commercial convenience, is said to have been originally established. If the rule were otherwise, the citizens of one country could not safely contract, or carry on commerce in the territories of another. The necessary intercourse of mankind requires that the acts of parties, valid where made, should be recognized in other countries, provided they be not contrary to good morals, nor repugnant to the policy and positive institutions of the state. Parties are presumed to contract in reference to the laws of the country in which the contract is made, and where it is to be paid, unless otherwise expressed. But if a contract be made under one government, and is to be performed under another, and the parties had in view the laws of such other country in reference to the execution of the contract, the general rule is, that the contract, in respect to its construction and force, is to be governed by the law of the country or state in which it is to be executed; the foreign law is in such cases adopted and effect given to it. Thus, the days of grace allowed upon bills of exchange are to be completed according to the usage of the place in which they are to be paid, and not of the place in which they are drawn, for that is presumed to have been the intention of the parties.

It is essential to the validity of a contract that it be founded on a sufficient consideration. It was an early principle of the common law, that a mere voluntary act of courtesy would not uphold an assumpsit, but a courtesy shown by a previous request would support it. There must be something given in exchange, something that is mutual, or something which is the inducement to the contract, and it must be a thing which is lawful and competent in value to sustain the assumption. The rule, that a consideration is necessary to the validity of a contract, applies to all contracts and agreements not under seal, with the exception of bills of exchange and negotiable notes after they have been negotiated and passed into the hands of an innocent indorsee. The immediate parties to a bill or note are affected by the want of consideration, and it is only as to third persons, who come to the possession of the paper in the usual course of trade, without notice of the original defect, that the want of consideration can not be alleged.

Of the Contract of Sale.—A sale is a contract for the transfer of property from one person to another, for a valuable consideration; and three things are requisite to its validity, viz.: the thing sold, which is the object of the contract, the price, and the consent of the contracting parties. The thing sold must have an actual or potential existence, and be specific or identified, and capable of delivery, otherwise it is not strictly a contract of sale, but a special or executory agreement. If the subject matter be in existence, and only constructively in the possession of the seller, as by being in the possession of his agent or carrier abroad, it is nevertheless a sale, though a conditional or imperfect one depending on the future actual delivery. But if the article intended to be sold has no existence, there can be no contract of sale. Thus if A sells his horse to B, and it turns out that the horse was dead at the time, though the fact was unknown to the parties, the contract is necessarily void.

The price is an essential ingredient in the contract of sale; and it must be real and not merely nominal, and fixed, or be susceptible of being ascertained in the mode prescribed by the contract, without further negotiation between the parties. Mutual consent is requisite to the creation of the contract; and it becomes binding when a proposition is made on one side and accepted on the other; and on the other hand, it is no contract if there be an error or mistake of a fact, or in circumstances going to the essence of it. In creating the contract the negotiation may be carried on by mail; and the contract is complete when the answer is sent with all due diligence after the receipt of proposal, and is out of the control of the party accepting.

In every sale of a chattel, if the possession be at the time in another, and there be no warranty of title, the party buys at his peril. But if the seller has possession, and he sells as his own and not as agent for another, and for a fair price, he is understood to warrant the title. With regard to the quality, the seller is not bound to answer unless he expressly warrants, or unless he has made a false representation or concealment. The common law requires the purchaser to attend to the qualities of the article he buys, which are supposed to be within the reach of his observation and judgment, and which it is equally his interest and duty to exert.

When the goods are discovered to be unsound the purchaser ought immediately to give notice or return them, and thereby rescind the contract. In the case of breach of warranty, he may sue upon it without returning the goods; but he must return them and rescind the contract before he can maintain an action to recover the price. He can not deal with the goods after discovery of fraud in a sale, without losing his right of action.

If there be intentional concealment or suppression of material facts in the making of a contract, in cases where both parties have not equal access for information, it will be deemed unfair dealing, and will vitiate the contract.

When the bargain is completed, by the terms of sale being agreed upon, the contract becomes binding between the parties and without actual delivery of goods, and the property is at the risk of the buyer; and he is entitled to the goods on payment of price when no conditions have been made. Special conditions may be made as to risk, time of delivery, credit, &c. In the first instance to make the contract valid, there must be a delivery or tender of payment, or earnest given, or a memorandum in writing signed by the purchaser. When goods are to be delivered, delivery to an agent, carrier, or master of a vessel is equivalent to delivery to purchaser. The delivery to agent or carrier must be such as to create responsibility in that agent or carrier, and if insurance is the usage it ought to be done, and also the buyer informed, with diligence, of consignment and delivery. Symbolical delivery will, in many cases, be sufficient, such as transfer of key of warehouse from seller to buyer, or putting private mark by buyer upon the goods. Unless time and place are specified, the common rule is cash payment and place where they are at time of sale.—Kent's *Commentaries*, Lect. XXXIX.

Convoy, in navigation, the term applied to designate a ship or ships of war, appointed by government, or by the commander-in-chief on a particular station, to escort or protect the merchant ships proceeding to certain ports. Convoys are mostly appointed during war; but they are sometimes also appointed during peace, for the security of ships navigating seas infested with pirates.

Individuals have not always been left to themselves to judge as to the expediency of sailing with or without convoy. The governments of most maritime states have thought proper, when they were engaged in hostilities, to oblige their subjects to place themselves under an escort of this sort, that the enemy might not be enriched by their capture. Acts to this effect were passed in Great Britain during the American war and the last French war. The last of these acts (43 Geo. III. c. 57) enacted, that it should not be lawful for any ship belonging to any of his majesty's subjects (except as therein provided) to depart from any port or place whatever, unless under such convoy as should be appointed for that purpose. The master was required to use his utmost endeavors to continue with the convoy during the whole voyage, or such part thereof as it should be directed to accompany his ship; and not to separate therefrom without leave of the commander, under very heavy pecuniary penalties. And in case of any ship departing without convoy contrary to the act, or willfully separating therefrom, all insurances on the ship, cargo, or freight, belonging to the master, or to any other person directing or privy to such departure or separation, were rendered null and void. The customs officers were directed not to allow any ship that ought to sail with convoy to clear out from any place in the United Kingdom for foreign parts, without requiring from the master bond with one surety, with condition that the ship should not depart without convoy, nor afterward desert or willfully separate from it. The regulations of this act did not extend to ships not requiring to be registered, nor to those licensed to sail without convoy, nor to those engaged in the coasting trade, nor to those belonging to the East India Company, etc.

It is very common, during periods of war, to make *sailing or departing with convoy* a condition in policies of insurance. This, like other warranties in a policy, must be *strictly* performed. And if a ship warranted to sail with convoy, sail without it, the policy becomes void, whether this be imputable to any negligence on the part of the insured, or the refusal of government to appoint a convoy.

There are five things essential to sailing with convoy, viz.: *first*, it must be with a regular convoy under an officer appointed by government; *secondly*, it must be from the place of rendezvous appointed by government; *thirdly*, it must be a convoy for the voyage; *fourthly*, the master of the ship must have sailing instructions from the commanding officer of the convoy; and *fifthly*, the ship must depart and continue with the convoy till the end of the voyage, unless separated by necessity.

With respect to the third of these conditions we may observe, that a warranty to sail with convoy generally means a convoy *for the voyage;* and it is not necessary to add the words "for the voyage" to make it so. Neither will the adding of these words in some instances make the omission of them in any case the ground of a different construction. A warranty to sail with convoy does not, however, uniformly mean a convoy that is to accompany the ship insured the entire way from the port of departure to her port of destination; but such convoy as government may think fit to appoint as a sufficient protection for ships going the voyage insured, whether it be for the whole or only a part of the voyage.

Sailing instructions, referred to in the fourth condition, are written or printed directions delivered by the commanding officer of the convoy to the several masters of the ships under his care, that they may understand and answer signals, and know the place of rendezvous appointed for the fleet in case of dispersion by storm, or by an enemy, etc. These sailing instructions are so very indispensable, that no vessel can have the full protection and benefit of the convoy without them; hence, when, through the negligence of the master, they are not obtained, the ship is not said to have sailed with convoy; and a warranty in a policy of insurance to that effect is held not to be complied with. If, however, the master do all in his power to obtain sailing instructions, but is prevented from obtaining them by any insuperable obstacle, as the badness of the weather, or if they be refused by the commander of the convoy, the warranty in the policy is held to be complied with.

For further information as to convoy, see ABBOT *on the Law of Shipping*, part iii. c. 3; MARSHALL *on Insurance*, book i. c. 9 § 5.

Cook, Captain James. This celebrated navigator was born at Marton, near Stockton-on-Tees, October 27, 1728, and was originally apprenticed to a merchant in Yorkshire; but having a strong predilection for a sailor's life, he succeeded in obtaining his discharge, and immediately entered into new indentures with some coal shippers in the same county. In their employ he became a good seaman, and was promoted to mate, but subsequently entered the British navy as volunteer. In 1755 he was appointed to the mastership of a sloop, and joined the fleet operating against the French, in the St. Lawrence. His judgment, bravery, and great skill in conducting hydrographic surveys, gained for him a lasting reputation and increasing honors; and in 1764 he was appointed marine surveyor of Newfoundland and Labrador. In 1767, on the recommendation of the Royal Society, he was sent to the South Pacific to observe the approaching transit of Venus, and was accompanied by Messrs. Green, Solander, and Mr. [afterward Sir Joseph] Banks. All the phenomena were successfully observed at Otaheite, June 3, 1769. Cook then sailed in quest of the supposed southern continent, circumnavigating New Zealand, and after other scientific observations he crossed to Batavia, and thence returned to England in the summer of 1771, and was promoted shortly after. In July, 1772, he commenced his second voyage, which lasted three years, when he was raised to a post-captaincy, with a lucrative appointment in Greenwich Hospital. In 1776 he volunteered to lead the scientific expedition to determine the problem of a northwest passage between the Atlantic and Pacific oceans, and running from the Cape to New Zealand, and thence through the Pacific, he discovered the Sandwich Islands, which he left for further observations, returning, however, to winter at Owyhee. An unfortunate misunderstanding between some of his people and the natives terminated in a fray, in which Cook was killed, after a desperate resistance, February 14, 1779.

Cooperage. This art must be coeval with the dawn of history, and seems to have been early known in every country. The coopers of London were incorporated in 1501.

Copal, a resin which exudes spontaneously from two trees, the *Rhus copallinum*, and the *Elæocarpus copalifer*, the first of which grows in America, and the second in the East Indies. A third species of copal-tree grows on the coasts of Guinea, especially on the banks of some rivers, among whose sands the resin is found. It occurs in lumps of various sizes and of various shades of color, from the palest greenish yellow to darkish brown. Its specific gravity is found to vary in different specimens from 1·059 to 1·071, being intermediate in density between its two kindred resins, animé and amber. Some rate its specific gravity so high as 1·139, which is probably one of the errors with which chemical compilations teem. Copal is too hard to be scratched by the nail, whence the excellence of its varnish. It has a conchoidal fracture, and is without smell or taste. When exposed to heat in a glass retort over a spirit lamp, it readily melts into a liquid, which being further heated boils with explosive jets. A viscid, oily-looking matter then distills over. After continuing the process for some time, no succinic acid is found in the receiver, but the copal blackens in the retort. Anhydrous alcohol boiled upon it causes it to swell, and transforms it by degrees into an elastic, viscid substance. It is not soluble in alcohol of 0·825 at the boiling point, according to experiment. Copal dissolves in ether, and this ethereous solution may be mixed with alcohol without decomposition. Caoutchoucine acts very slightly upon it by an experiment, even at the boiling temperature of this very volatile fluid; but a mixture of it with alcohol of 0·825, in equal parts, dissolves it very rapidly in the cold into a perfectly liquid varnish. Alcohol holding camphor in solution also dissolves it, but not nearly so well as the last solvent. According to Unverdorben, copal may be completely dissolved by digesting one part of it for 24 hours with one part and a half of alcohol (probably anhydrous), because that portion of copal which is insoluble in alcohol dissolves in a very concentrated solution of the soluble portion. Oil of petroleum and turpentine dissolve only one or two per cent. of raw copal. By particular management, indeed, oil of turpentine may be combined with copal.

Fused copal possesses different properties from the substance in its solid state; for it then may be made to combine both with alcohol and oil of turpentine.

Unverdorben has extracted from the copal of Africa five different kinds of resin, none of which has, however, been applied to any use in the arts.

The ultimate constituents of copal by an analysis are, carbon 79·87, hydrogen 9·00, oxygen 11·1; being of hydrogen 7·6 in excess above the quantity necessary to form water with the oxygen.

Much information has been received from various sources concerning this somewhat ill-understood product of late years. It is now known that there are three different kinds of copal in commerce, but nothing is known of their distinguishing characteristics. We have East Indian and West Indian copal, and, under the latter name, two very different substances. The East Indian, called also African, is more colorless, soft, and transparent than the others; it forms a fine surface, and when heated emits an agreeable odor. It furnishes the finest varnish. Fresh essence of turpentine dissolves it completely, but not old. Essence digested upon sulphur will dissolve double its own weight, without letting any fall. Fresh rectified oil of rosemary will dissolve it in any proportion, but if the oil is thickened by age it serves only to swell this copal.

When cautiously melted, it may be then dissolved in good essence of turpentine in any proportion, producing a fine varnish, of little color.

A good varnish may be made by dissolving one part of copal, one of essence of rosemary, with from two to three of pure alcohol. This varnish should be applied hot, and when cold becomes very hard and durable.

The West India species, or American, comes, not in lumps of a globular form, but in small flat fragments, which are hard, rough, and without taste or smell. It is usually yellow, and never colorless like the other. Insects are very rarely found in it. It is also found in the Antilles, Mexico, and North America. It will not dissolve in essence of rosemary.

The third kind of copal, known also as West Indian, was formerly sold as a product of the East Indies. It is found in fragments of a concavo-convex form, the outer covering of which appears to have been removed. It contains many insects. When rubbed it emits an aromatic odor. It gives out much ethereous and empyreumatic oil when melted. It forms a soft varnish, which dries slowly.

Fusel oil, or amyle spirit, has been lately used as a solvent of the hard copal; but it does not dry into a very solid varnish.

Copal varnish was first discovered in France, and was long known by the name of *vernis martin*. It is applied to snuff-boxes, tea-boards, and other utensils. It preserves and gives lustre to paintings; and contributes to restore the decayed colors of old pictures, by filling up cracks, and rendering the surface capable of reflecting light more uniformly. Copal is liable to be confounded with *gum animé*, when the latter is very clear and good. But it is of importance to distinguish between them, as the animé, though valuable as a varnish, is much less so than the finest copal; the varnish with the former being darker colored, and not so hard. Besides the external appearance of each, which is pretty distinct to a practiced eye, the solubility in alcohol furnishes a useful test, the animé being readily soluble in this fluid, while the copal is hardly affected by it; copal is also brittle between the teeth, whereas animé softens in the mouth.—REES' *Cyclopedia;* URE'S *Dictionary, etc.*

Copeck (kopeika), a Russian copper coin, so called from the impression of St. George bearing a lance. A hundred of them make one ruble. The value of the copper coin, compared with the assignation-ruble, varies in the different governments.

Copenhagen, the capital of Denmark, on the east coast of the island of Zealand, in the channel of the Baltic called the Sound; lat. 55° 41′ 4″ N., long. 12° 35′ 46″ E. Population, in 1845, 126,787. It is a well-built, handsome city. In going into Copenhagen, the course is between the buoy on the Stubben Bank to the left, and the buoy on the Middle-grounds, and those in advance of the three Crown batteries on the right, west-southwest by compass. From the three Crowns to the roads the course is south-southwest. The water in the channel is from six to four fathoms deep; but it is narrow, and the navigation rather difficult. There is no obligation to take a pilot on board; but if a vessel wish for one, she may heave to abreast of the battery, when he will come to her. Vessels not intending to come into harbor bring up in the roads, at from a quarter to half a mile from shore, in about four fathoms, the town bearing south-southwest. In the harbor, within the boom, the water is from 17 to 18 feet deep. Vessels in harbor load and unload alongside the quay. The anchorage in the roads is good and safe.

Money.—Accounts are kept in rix dollars of 6 marcs, or 96 skillings; the rix dollar being formerly worth about 4*s.* 1*d.* sterling. But in 1813, a new monetary system was adopted, according to which the new or *Rigsbank* dollar is worth 2*s.* 3¼*d.*, being half the value of the old specie dollar, and ⅝ of the old current dollar. But the money generally used in commercial transactions is bank money, which is commonly at a heavy discount. The *par* of exchange, estimated by the Rigsbank dollar, would be 8 dollars 7·6 skillings per pound sterling.

Weights and Measures.—The commercial weights are, 16 pounds = 1 lispound; 20 lispound = 1 shippound; 100 lbs. = 110¼ lbs. avoirdupois = 134 lbs. Troy = 101 lbs. of Amsterdam = 103 lbs. of Hamburg.

The liquid measures are, 4 ankers = 1 ahm or ohm; 1½ ahm = 1 hogshead; 2 hogsheads = 1 pipe; 2 pipes = 1 quarter. The anker = 10 (very nearly) English wine gallons. A *fuder* of wine = 930 pots; and 100 pots = 25½ wine gallons.

The dry measures are, 4 viertels = 1 scheffel; 8 scheffels = 1 toende or ton; 12 tons = 1 last = 47⅓ Winchester bushels. The last of oil, butter, herrings, and other oily substances should weigh 224 lbs. net.

The measure of length is the Rhineland foot = 12⅓ inches very nearly. The Danish ell = 2 feet; 100 ells = 68⅔ English yards.

Trade of Copenhagen.—The trade of Copenhagen has latterly increased considerably, particularly the grain trade with England. At the commencement of 1852, 297 merchant vessels of about 35,000 tons burden belonged to the port. The harbor is large and commodious, capable of containing 500 merchant vessels besides the navy; and by the aid of canals, large vessels can come almost to the centre of the town. The entrance is commanded by the powerful batteries of Trekroner and Sextus. The principal imports are timber, pitch, and tar, chiefly from Norway and Sweden; flax, hemp, masts, sailcloth, and cordage, from Russia; tobacco from America; wines and brandy from France; coal, earthenware, iron, steel, and salt from England; and West India produce. The principal exports are corn, rape-seed, butter, cheese, beef, pork, horses, cattle, wool, hides, skins, bones, grain-spirits.

The manufactures of Copenhagen are not important, but are making considerable advances. There are extensive cloth and calico factories, founderies, and iron-works; also breweries, distilleries, tanneries, sugar-refineries, etc. Piano-fortes, clocks, watches, surgical and mathematical instruments, tobacco, chocolate, porcelain are among its other productions. The royal China factory is celebrated for its models of Thorwaldsen's works in biscuit China. The population of Copenhagen was in 1769, 92,571; in 1801, 100,975; in 1834, 119,292; in 1840, 120,819; in 1845, 126,787; and in 1855, 143,591; of which last about 67,000 were males, and over 76,000 females, including a Jewish population of 2500. The climate is damp, changeable, and unhealthy; which, added to the almost total want of sanatory regulations, renders the mortality greater here, it is said, than in any other town of Europe with the exception of Vienna.

The Port Charges at Copenhagen vary according as the vessel has come from this or the farther side of Cape Finisterre, or from the Indian seas; as she is wholly, or only part loaded; and as she clears out with goods that have been *in transitu*, and are for the most part free of duty, or has on board a cargo of native produce subject to duty. On a ship of 300 tons belonging to a privileged nation from this side Cape Finisterre, unloading and loading mixed cargoes in Copenhagen, the different public charges, including Sound dues, brokerage, &c., would exceed £60; and from the farther side of Cape Finisterre, the charges would be nearly £100. When a ship is not fully loaded, lastage money and light dues are only charged in proportion to the cargo on board. Lastage money is not charged on ships outward bound, laden with transit goods, as tar, pitch, iron, &c. But notwithstanding these deductions, it is obvious that port charges are very heavy, and there can be no doubt that they are a material obstacle to the extension of trade.

Citizenship.—To enable a foreigner to trade as a merchant in Denmark, he must become a burgher, which costs about £100, and it will require about £60 more to free him from the obligation of serving in the militia. The obstacles in the way of a foreigner establishing himself in Denmark as a manufacturer are much greater, on account of the exclusive privileges enjoyed by the guilds or corporations into which the principal crafts or trades are divided.

Credit.—Goods imported into Copenhagen are commonly sold on credit; three months is the term generally allowed on most sorts of goods, and in a few instances six months. The discount for ready money is 4 per cent. Bankruptcy is of rare occurrence.

Insurance.—Marine insurance is effected, on liberal terms, by a company established in 1746. Many Copenhagen risks are, however, insured at Amsterdam and Hamburg. Copenhagen has good building yards, and is in all respects an eligible place for the repair of ships, and for supplying them with provisions.

General Remarks.—On the whole, the commerce of Denmark used to be in a stationary state; a consequence partly of the peculiar circumstances under which the country is placed, and partly of the policy of government. The latter long exerted itself to bolster up a manufacturing interest, by laying oppressive duties on most species of manufactured articles. Even under the most favorable circumstances, such conduct, though it may benefit a few individuals, is sure to be productive of great national loss. But in the case of Denmark, the circumstances were such as to render the restrictive system peculiarly injurious. All, or nearly all, the branches of industry carried on in the kingdom were subject to the government of guilds or corporations; no person could engage in any line of business until he was authorized by its peculiar guild; and as the sanction of this body was rarely obtained without a considerable sacrifice, the real effect of the system was to fetter competition and improvement, and to perpetuate monopoly and routine. Even the Danish writers acknowledge that such was the influence of the late regulations. "*Nos ouvriers*," say they, "*sont chers, travaillent lentement, et souvent mal et sans goût; leur education est negligée. On ne les forme point à penser, et l'apprentif suit machinalement ce qu'il voit faire au maître.*" — CATTEAU, *Tableau des Etats Danois*, tome ii. p. 260. But within the last few years this system has been quite changed. Industry has been emancipated from many troublesome regulations, and moderate duties have been substituted for prohibitions. But, however favorably situated in other respects, it would be idle to expect that a country without waterfalls, and without coal, should be able to manufacture cottons, woolens, etc., at so cheap a rate as they may be imported from others enjoying greater natural facilities for their production. The staple business of Denmark, her agricultural and rural economy, has been most materially improved of late years; and, as already seen, her exports of raw produce are now of great value and importance. The trade of the country suffers from the too great magnitude of the port dues and of the transit duties; and the Sound duties, being charged on native as well as foreign ships, operate as an inland duty on trade. Considerable improvements have, however, been effected in the commercial legislation of the country during the last dozen years, by the opening of the trade to the East and West Indies, and the abolition and reduction of other regulations and duties; and it may be fairly presumed that the benefits resulting from these measures will pave the way for the introduction of others of a similar character.—*See* DENMARK.

Copper (Germ. *Kupfer;* Du. *Koper;* Da. *Kobber;* Sw. *Kopper;* Fr. *Cuivre;* It. *Rame;* Sp. *Cobre;* Port. *Cobre;* Russ. *Mjed, Krasnoi mjed;* Pol. *Miedz;* Lat. *Cuprum;* Arab. *Nehass;* Sans. *Tamra*), a well-known metal, so called from its having been first discovered, or at least, wrought to any extent, in the island of Cyprus. It is of a fine red color, and has a great deal of brilliancy. Its taste is styptic and nauseous; and the hands, when rubbed for some time on it, acquire a peculiar and disagreeable odor. It is harder than silver: its specific gravity varies according to its state, being, when quite pure, near 9·000. Its malleability is great; it may be hammered out into leaves so thin as to be blown about by the slightest breeze. Its ductility is also considerable. Its tenacity is so great, that a copper wire 0·078 of an inch in diameter is capable of supporting 302·26 lbs. avoirdupois without breaking. Its liability to oxydation from exposure to air or damp is its greatest defect. The rust with which it is then covered is known by the name of verdigris, and is one of the most active poisons.—THOMSON'S *Chemistry.*

It is one of the six primitive metals; its discovery is said to have preceded that of iron. We read in the Scriptures of two vessels of fine copper, precious as gold. — *Ezra* viii. 27. The great divisibility of this metal almost exceeds belief; a grain of it dissolved in alkali, as pearl ashes, soda, etc., will give a sensible color to more than 500,000 times its weight in water; and when copper is in a state of fusion, if the least drop of water touch the melted ore, it will fly about like shot from a gun.—BOYLE. The mine of Fahlun, in Sweden, is the most surprising artificial excavation in the world. In England, copper mines were discovered in 1561, and copper now forms an immense branch in the British trade.—HAYDN.

If we except gold and silver, copper seems to have been more early known than any other metal. In the first ages of the world, before the method of working iron was discovered, copper was the principal ingredient in all domestic utensils and instruments of war. Even now it is applied to so many purposes, as to rank next, in point of utility, to iron.

Alloys of Copper are numerous and of great value. Those of tin are of most importance. Tin added to copper makes it more fusible, less liable to rust, or to be corroded by the air and other common substances, harder, denser, and more sonorous. In these respects the alloy has a real advantage over unmixed copper; but this is in many cases more than counterbalanced by the great brittleness which even a moderate portion of tin imparts; and which is a singular circumstance, considering that both metals are separately very malleable.

In a pure state, copper is a very brilliant metal, and susceptible of a high polish. It is of a fine red color, differing in this respect from every other metal except titanium. Its specific gravity varies, according to its density, from 8·584 to 8·9.

Copper alloyed with from 1 to 5 per cent. of tin is rendered harder than before; its color is yellow, with a cast of red, and its fracture granular; it has considerable malleability. This appears to have been the usual composition of many of the ancient edged tools and weapons, before the method of working iron was brought to perfection. The χαλκος of the Greeks, and perhaps the *æs* of the Romans, was nothing else. Even their copper coins contain a mixture of tin. The ancients did not, in fact, possess (as has been often contended) any peculiar process for hardening copper, except by adding a small quantity of tin. An alloy in which the tin is from 0·1 to one-eighth of the whole is hard, brittle, but still a little malleable, close grained, and yellowish white. When the tin is as much as one-sixth of the mass, it is entirely brittle; and continues so in every higher proportion. The yellowness of the alloy is not entirely lost till the tin amounts to 0·3 of the whole.

Copper (or sometimes copper with a little zinc), alloyed with as much tin as will make from about 0·1 to one-sixth of the whole, forms an alloy which is principally employed for bells, brass cannon, bronze statues, and various other purposes. Hence it is called *bronze or bell metal;* and is excellently fitted for the uses to which it is applied, by its hardness, density, sonorousness and fusibility. For cannon, a lower proportion of tin is commonly used. According to Dr. Watson, the metal employed at Woolwich consists of 100 parts of copper and from 8 to 12 of tin; hence it retains some little malleability, and, therefore, is tougher than it would be with a larger portion of tin. This alloy being more sonorous than iron, brass guns give a loud-er report than iron guns. A common alloy for bell metal is 80 parts of copper and 20 of tin; some artists add to these ingredients zinc, antimony, and silver, in small proportions; all of which add to the sonorousness of the compound.—*See* BELL-METAL.

When in an alloy of copper and tin the latter metal amounts to about one-third of the mass, the result is a beautiful compound, very hard, of the color of steel, and susceptible of a very fine polish. It is well adapted for the reflection of light for optical purposes; and is therefore called *speculum metal.* Besides the above ingredients, it usually contains a little arsenic, zinc, or silver. The application of an alloy similar to the above to the construction of mirrors is of great antiquity, being mentioned by Pliny; who says, that formerly the best mirrors were reckoned those of Brundusium, of tin and copper mixed (*stanno et ære mistis*).—*Hist. Nat.* lib. xxxiii. § 9. *See* THOMSON's *Chemistry; Rees' Cyclopedia;* Dr. WATSON's *Chemical Essays*, vol. iv., etc.

British Copper Trade.—Great Britain has various copper mines in Cornwall, Devonshire, Wales, etc., but particularly in the first. Though known long before, the Cornish copper mines were not wrought with much spirit till last century. From 1726 to 1735, they produced at an average about 700 tons a year of pure copper. During the ten years from 1766 to 1775, they produced at an average 2650 tons. In 1798, the produce exceeded 5000 tons; and it now amounts to from 11,000 to 12,500 tons, worth, at £100 a ton, from £1,100,000 to £1,250,000 sterling. In 1768, the famous mines in the Parys Mountains, near Amlwch, in Anglesea, were discovered. The supplies of ore furnished by them were for a long time abundant beyond all precedent; but for many years past the productiveness of the mine has been declining, and it is now almost exhausted. At present the mines of Anglesea, and other parts of Wales, do not furnish 200 tons of copper. Those of Devonshire yield nearly 2000 tons; the quantity produced in the other parts of England being quite inconsiderable. The Irish mines produce about 960 tons. Those of Scotland never were productive, and have been almost entirely abandoned. The entire produce of the copper mines of the empire may, therefore, be estimated at present at from 15,000 to 16,000 tons. In consequence of the greatly increased supplies of copper that were thus obtained, England, instead of being, as formerly, dependent on foreigners for the greater part of her supplies of this valuable metal, became, previously to 1793, one of the principal markets for the supply of others; and notwithstanding the vastly increased demand for copper during the war for the sheathing of ships and other purposes, the exports continued to increase and the imports to diminish; the greater productiveness of the Cornish mines having sufficed not only to balance the increased demand, but also to make up for the falling off in the supplies from Anglesea. Owing to the want of coal in Cornwall, the ores are not smelted on the spot, but are all sent to Swansea; it being found cheaper to carry the ores to the coal than the contrary. The East Indies and China, France, the United States, and Italy, are the great markets for British copper. Thus, in 1851, of the total quantity exported from Great Britain, amounting to 17,555 tons, 3603 went to the East Indies and China, 3183 to France; 3083 to the United States; 1396 to Italy; and 2113 to the Hanse towns and Holland.—*Parl. Paper*, No. 462; Session, 1852.

Foreign Copper.—Copper ores are abundant in Sweden, Russia, Japan, Australia, Cuba, Chili, Columbia, etc. Near Fahlun, in the province of Dalecaria, in Sweden, is the celebrated copper mine of the same name, supposed to have been wrought nearly one thousand years. For a long time it was extremely productive, yielding, toward the beginning of the seventeenth century, an annual produce of about 8,000,000 pounds of pure metal; but it has since greatly declined; and it is most probable that at no distant period it will be wholly abandoned.—THOMSON's *Travels in Sweden*, p. 221. There are copper mines in other parts of Sweden; but the entire produce of copper in that country does not at present exceed from 750 to 800 tons, of a quality inferior to that of England. The produce of the copper mines of Russia has been estimated at 290,000 poods or 4661 tons (English) a year.—TEGOBORSKI, *Forces Productives de la Russie*, i. 300. The copper mines of Japan are said to be among the richest in the world. The Dutch and Chinese export considerable quantities of their produce, which is spread all over the East, and is regularly quoted in the prices current of Canton, Calcutta, and Singapore. It is uniformly met with in the shape of bars or ingots; and when the copper of South America is worth in the Canton market from $15 to $16 per picul, that of Japan is worth from $18 to $20 per picul. Copper, the produce of the Persian mines, is imported into Bombay and Calcutta from Bushire and Bussorah. But, in a commercial point of view, the copper mines of the United States, Cuba, Chili, and Australia are, after those of England, by far the most important. The working of the mines of Cuba, which had been abandoned for a lengthened period, was resumed a few years ago, principally by an English company, which has been eminently successful. Large quantities of Cuba ore are taken to Swansea to be smelted; and large quantities of Chili ore are also taken there for the same purpose. Of the total imports of copper ore in 1851, amounting (including *regulus*) to 42,131 tons, Cuba furnished 20,875 tons; Chili, 8051 tons; and Australia, 7219 tons; the rest being supplied by Spain, Peru, etc. There was a very extraordinary increase in the supplies of copper from Australia during the four or five years preceding the discovery of the gold fields. The produce of the Burra Burra Mine, for example, which in 1846 was 6359½ tons of ore, had swelled in 1850 to 18,692 tons. But since then some of the mines have been abandoned, and the progress of the others checked. Foreign copper imported into Great Britain, and the copper obtained from the smelting of foreign ore, were, previously to 1842, wholly, or almost wholly, re-exported; the duty in Great Britain on the copper ore when it was taken or smelted for home use being so very heavy as to make it be altogether exported in an unwrought state. But in 1842 that duty on copper ores and unwrought copper was very materially reduced; and it was repealed in the course of the year 1853. The presumption, therefore, is, that the imports into Great Britain of ore for smelting will increase, and that considerable quantities of copper derived from foreign ores will be brought into use.

EXPORTS OF BRITISH COPPER IN THE UNDERMENTIONED YEARS.

Years.	Unwrought.	Coin.	Sheets, Nails, etc.	Wire.	Wrought Copper of other Sorts.	Total of British Copper exported
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
1820	41,155	10	58,121	8	22,663	121,958
1825	10	2134	51,437	40	25,002	78,624
1830	56,722	640	66,331	16	56,443	180,154
1835	39,409	....	100,807	49	20,219	161,524
1840	20,355	391	119,266	39	10,427	150,478
1845	195,727	618	154,859	83	9,493	360,781
1850	154,678	148	263,007	357	7,962	426,153
1851	112,245	1510	221,013	715	15,628	351,111
1852	118,266	957	201,887	2424	15,187	338,721

Copper is in extensive demand all over India, being largely used in the dock-yards, in the manufacture of cooking utensils, in alloying spelter and tin, etc. The funeral of every Hindoo brings an accession to the demand, according to his station; the relatives of the deceased giving a brass cup to every Brahmin present at the ceremony: so that five, ten, fifty, one hundred, one thousand, and sometimes more than ten times this last number, are dispensed upon such occasions.—BELL's *Commerce of Bengal.*

A modern, and now a very extensive use of sheet-copper, is for the sheathing of ships. That part of the hull of a ship that is in the water is covered with sheet-copper. This covering preserves the wood from the attacks of the *teredo,* and thereby gives the ship the advantage of passing more rapidly through the water, as the copper bottom remains always smooth; for sea-weed and shells will not take root and attach themselves to copper, as they do to bare planks, owing to the galvanic effect produced by the action of sea-water. As this action, however, produces a rapid decay of copper, it was proposed by Sir Humphry Davy to neutralize it by applying metallic protectors—an object which he accomplished; but as this also deprived the copper of the effect it was intended to produce, and allowed the molluscous tribes to attach themselves, the protecting process was abandoned.

Copper bolts are used for fastening the planks and timbers of ships. This is a great improvement in ship-building. A copper-fastened ship or boat is preferable to one with iron fastenings, because the copper bolts remain unaltered by rust, and endure longer than the wood which they hold together, particularly when used in the state of alloy, which preserves it from waste by neutralizing the galvanic action. For the frames of delicate dipping needles and magnetic compasses, copper is employed, as it has been found that the brass generally used in philosophical instruments sometimes contains iron, which of course might affect the magnetic needle. Copper is drawn into wire, used for communication with the bells in houses, and for other purposes. Small pipes for conveying coal-gas from the level of the street to the aperture by which the gas issues were formerly made of copper or of brass, till superseded by tin. These pipes were fitted on an iron cylindrical mandril, and a cylindrical ring drawn over the outside. By this means copper and brass tubes are drawn out. The brass tubes for telescopes are drawn out in the same manner.

Copper may be plated; that is, its surface may be covered with a layer of silver, by rubbing the surface with a mixture of nitrate of silver, muriate of soda, and acidulous tartrate of potass (cream of tartar). But the method practiced at Birmingham is the most permanent and effectual. A plate of copper, with a plate of silver applied to it, and borax placed in the interstice, is heated to a particular degree, which it requires the skill of a workman to know—a degree of heat, in short, near that at which copper and silver melt. The two metals thus heated, and in contact, are then taken out of the furnace and passed through rollers. There is a fusion and combination of the adjacent surfaces; and their adhesion is perfected by the pressure of the rollers. Copper thus plated is manufactured at Birmingham into candlesticks, teapots, buttons, buckles, and a variety of other articles.

Standard silver coins contain a small proportion of copper, for the purpose of giving them hardness. This proportion is regulated by government in the several countries of Europe, and varies in different states. The combination of gold and copper in various proportions is used for making rings and other trinkets. Copper is gilded by applying on its surface an amalgam of gold with mercury. Bronze ornaments are gilded in the same way. Copper united with zinc forms brass; when alloyed with tin it forms bronze. This combination is hard and brittle if the proportion of tin be great; but when the proportion of tin is small, the bronze is soft, and possesses tenacity so as not to be easily broken. The ancients employed hard bronze, containing much tin, in making sword blades, spear heads, hatchets, and cutting instruments. Bronze cramps are found in ancient buildings in Egypt. Statues and bas-reliefs, culinary vessels, and a variety of other articles of soft bronze, are to be seen in different collections of antiquities. In modern times soft bronze is used for casting cannon and statues.

Copper melted with a large proportion of tin constitutes bell-metal, which is hard and brittle. The metal of which the Chinese gongs are made is composed of the same ingredients; and it has the property of being in some degree malleable at a certain stage of its cooling, for their gongs are covered with marks of the hammer. The most common ore of copper, from which the chief supplies of that metal are derived, is the yellow copper ore, or copper pyrites, essentially a combination of copper with sulphur and iron. There are, however, numerous other ores of copper in which the metal is in combination with oxygen, carbonic acid, various other metals, etc. Copper in its varied artificial combinations, as in that of verdegris (acetate of copper), blue vitriol (sulphate of copper), Scheele's green (arsenite of copper), verditer (carbonate of copper), etc., is largely used in the arts of dyeing, painting, enameling, glass and porcelain coloring, etc. The salts of copper are poisonous; and from the facility with which copper utensils become oxydated, their use should be as restricted as possible. One or two of the salts of copper are occasionally used in medicine; and the sulphate of copper has been found to be one of the most efficacious emetics in croup, checking the disease and preventing the effusion of the fibrinous matter into the trachea. This salt is also used as a lotion in the treatment of ulcers, etc.

American Copper.—Although the copper-mining interest in this country is, as yet, in its infancy, it has already produced results that give promise of its soon standing among the foremost of our mineral products, and of adding greatly to the already diversified resources of wealth and power of our people. Previous to 1840 we were, in common with the rest of the world, entirely dependent upon England for our supply of this useful material.

We are this year, 1856, producing about 5000 tons of it, equal to one-seventeenth of the whole amount required to meet the demand of the world. The copper mines of Cornwall, England, have been worked for centuries, while those of our Lake Superior region have only been opened a few years, and not successfully and systematically worked until within the last five years. The opening of the Sault St. Marie canal, by connecting the navigation of Lake Superior with that of the chain of lower lakes, has given an impetus to the business that will soon make it the great source of supply of copper to our own and foreign countries, on account of its great purity and the inexhaustible beds of its ore. Eighteen new stamping mills have been erected the past year, and at least fifty more will be put into operation this year. The total shipments of the Lake Superior copper mines are thus stated:

	Tons.
Ontonagon District	2176
Portage Lake District	345
Keweenan Point District	2234
Total	4755

The value of the copper on the wharves on Lake Superior equals $440 a ton; total product, $2,092,200. The increase of the year 1855 over 1854 was about 2000 tons, and it is estimated that in 1856–'57, the increase will be 1500 tons over 1855. The government of France has had Mons. Rivot, of the School of Mines in France, examining the Lake Superior copper, in consequence of the supply from Russia being cut off; and the American copper has been tested and found equal, if not superior to the Russian, and far superior to the English. The superior tenacity of the American copper is a strong recommendation.

Copper Busts and Statues.—These consist wholly of copper, in a thin sheet; and the whole of the metal has been reduced or precipitated from a liquid solution. We believe that the first example of this striking production was a bust of the late Dr. Dalton, made by Mr. Cheverton about ten years ago; and the practicability being thus demonstrated, the art may be now followed to any extent. The processes are curious. The bust is first modeled in some kind of clay, which may afterward easily be broken away piecemeal; and on this a thick copper film is deposited by the electro process. The clay core or model being broken away, the copper remains as a hollow shell, the inside of which has taken the exact impress (though reversed) of the outside of the bust. This copper shell, on being properly prepared on the inner surface, is made the groundwork on which a second deposition takes place; it is used, in fact, as a mould, from which one or more busts may be procured.

Architects and sculptors are gradually availing themselves of this art in the furtherance of their professional labors. The late Bavarian sculptor, Stiglmayer, who was employed by King Ludwig on so many important works at Munich, devised a mode of coating collossal plaster statues with copper, by the electro process, in a remarkably expeditious way. But one of the most important applications of the art is that which is exhibited in the new and splendid cathedral of St. Isaacs, at St. Petersburg, on which the emperor has expended large sums. Certain parts have been ornamented in a remarkable way. The cathedral has seven very large doors, or rather door-ways, three of which are 44 feet wide by 30 high; they are formed of bronze, but all the adornments are produced by the electro process. These adornments are of a most elaborate nature; they comprise no less than 51 bas-reliefs, 63 statues, and 84 alto-relievo busts. It is not simply as a matter of economy that the electro process has been adopted, for the czar is not a man to entertain scruples on such a point; but there are certain advantages of an artistic character. By the electro process the sculptor is sure to have his model faithfully copied; and the lightness of the material enables him to impart bolder relief to his designs than if they were cast in bronze; while this lightness of weight also justifies him in suspending pendants or bosses from vaulting, of a larger size than would be safe if made otherwise.

Copperas, a term employed by the older chemists, and popularly as synonymous with vitriol. There are three sorts of copperas: the *green*, or sulphate of iron; the *blue*, or sulphate of copper; and the *white*, or sulphate of zinc. Of these, the first is the most important. Sulphate of iron is distinguished in common by a variety of names, as Martial vitriol, English vitriol, etc. When pure it is considerably transparent, of a fine bright, though not very deep, grass green color; and of a nauseous, astringent taste, accompanied with a kind of sweetness. Its specific gravity is 1·834. It uniformly reddens the vegetable blues. This salt was well known to the ancients, and is mentioned by Pliny (*Hist. Nat.* lib. xxxiv. § 12) under the names of *misy*, *sory*, and *calchantum*. It is not made in the direct way, because it can be obtained at less charge from the decomposition of pyrites on a large scale in the neighborhood of collieries. It exists in two states, one containing oxyd of iron, with 0·22 of oxygen, which is of a pale green, not altered by gallic acid, and giving a white precipitate with prussiate of potass. The other, in which the iron is combined with 0·30 of oxygen, is red, not crystallizable, and gives a black precipitate with gallic acid, and a blue with prussiate of potass. In the common sulphate, these two are often mixed in various proportions.

Sulphate of iron is of great importance in the arts. It is a principal ingredient in dyeing; in the manufacture of ink, and of prussian blue; it is also used in tanning, painting, medicine, etc. Sulphuric acid, or oil of vitriol, was formerly manufactured from sulphate of iron.—*See* ACIDS.

Sulphate of copper, or *blue* vitriol, commonly called Roman or Cyprian vitriol, is of an elegant sapphire blue color, hard, compact, and semi-transparent; when perfectly crystallized, of a flattish, rhomboidal, decahedral figure; its taste is extremely nauseous, styptic, and acrid; its specific gravity is 2·1943. It is used for various purposes in the arts, and also in medicine.

Sulphate of zinc, or *white* vitriol, is found native in the mines of Goslar and other places. Sometimes it is met with in transparent pieces, but more commonly in white efflorescences. These are dissolved in water, and crystallized into large irregular masses, somewhat resembling fine sugar, having a sweetish, nauseous, styptic taste. Its specific gravity, when crystallized, is 1·912; when in the state in which it commonly occurs in commerce, it is 1·3275. Sulphate of zinc is prepared in the large way from some varieties of the native sulphuret. The ore is roasted, wetted with water, and exposed to the air. The sulphur attracts oxygen, and is converted into sulphuric acid: and the metal, being at the same time oxydized, combines with the acid. After some time the sulphate is extracted by solution in water, and the solution being evaporated to dryness, the mass is run into moulds. Thus, the white vitriol of the shops generally contains a small portion of iron, and often of copper and lead.—LEWIS's *Mat. Medica;* URE's *Dictionary;* REES' *Cyclopedia.*

Copper Money. The Romans, prior to the reign of Servius Tullius, used rude pieces of copper for money. In England, copper money is of extensive coinage. That proposed by Sir Robert Cotton was brought into use in 1609. Copper was extensively coined in 1665. It was again coined by the crown, 23 Car. II. 1672. Private traders had made them previously to this act. In Ireland, copper was coined as early as 1339; in Scotland in 1406; in France in 1580. Wood's coinage in Ireland commenced in 1723. Penny and two-penny pieces were extensively issued in 1797. The half-farthing was coined in 1843.—*See* CENT.

Copyright. *See* BOOKS.

Coracle, a small kind of boat, constructed of wicker, and covered with leather, or with cloth made waterproof with oil or tar. From its extreme lightness it may be transported on the shoulders from place to place. Coracles are common in Wales. A similar kind of boat has been used in the East from remote antiquity.

Coral (Germ. *Korallen;* Du. *Koraalen;* Fr. *Corail;* It. *Corale;* Sp. and Port. *Coral;* Russ. *Korallū;* Lat. *Corallium;* Arab. *Besed;* Pers. *Merjan;* Hind. *Moonga*), a marine production, of which there are several varieties. It was well known to the ancients, but it was reserved for the moderns to discover its real nature. It is, in fact, the nidus or nest of a certain species of vermes, which has the same relation to coral that a snail has to its shell. As an ornament, black coral is most esteemed; but the red is also very highly prized. Coral is found in very great abundance in the Red Sea, the Persian Gulf, in various places in the Mediterranean, on the coast of Sumatra, etc. It grows on rocks, and on any solid submarine body; and it is necessary to its production that it should remain fixed to its place. It has generally a shrub-like appearance. In the Straits of Messina, where a great deal is fished up, it usually grows to nearly a foot in length, and its thickness is about that of the little finger. It requires eight or ten years to arrive at its greatest size. The depth at which it is obtained is various—from 10 to 100 fathoms or more: but it seems to be necessary to its production that the rays of the sun should readily penetrate to the place of its habitation. Its value depends upon its size, solidity, and the depth and brilliancy of its color, and is so very various, that while some of the Sicilian coral sells for eight or ten guineas an ounce, other descriptions of it will not fetch 1*s.* a pound. It is highly prized by opulent natives in India, as well as by the fair sex throughout Europe. The inferior or worm-eaten coral is used in some parts of the Madras coast, in the celebration of funeral rites. It is also used medicinally. Besides the fishery in the Straits of Messina already alluded to, there are valuable fisheries on the shores of Majorca and Minorca, and on the coast of Provence. A good deal of Mediterranean coral is exported to India, which, however, draws the largest portion of its supplies from the Persian Gulf. The produce of the fishery at Messina is stated by Spallanzani (*Travels in the Two Sicilies*, vol. iv.) to amount to 12 quintals of 250 lbs. each.

The manner of fishing coral is nearly the same everywhere. That which is most commonly practiced in the Mediterranean is as follows: seven or eight men go in a boat, commanded by the proprietor; the caster throws his net, if we may so call the machine which he uses to tear up the coral from the bottom of the sea; and the rest work the boat, and help to draw in the net. This is composed of two beams of wood tied crosswise, with leads fixed to them to sink them; to these beams is fastened a quantity of hemp, twisted loosely round, and intermingled with some loose netting. In this condition the machine is let down into the sea; and when the coral is pretty strongly entwined in the hemp and nets, they draw it up with a rope, which they unwind according to the depth, and which it sometimes requires half a dozen boats to draw. If this rope happens to break, the fishermen run the hazard of being lost. Before the fishers go to sea, they agree for the price of the coral; and the produce of the fishery is divided, at the end of the season, into thirteen parts; of which the proprietor has four, the caster two, and the other six men one each; the thirteenth belongs to the company for payment of boat-hire, etc. *See* AINSLIE's *Materia Indica;* REES' *Cyclopedia; Encyclopedia Metropolitana;* BELL's *Commerce of Bengal, etc.*

Cordage (Germ. *Tauwerk;* Du. *Touwwerk;* Fr. *Manœuvres, Cordage;* It. *Caolame;* Sp. *Jarcia, Cordaje*), a term used in general for all sorts of cord, whether small, middling, or great, made use of in the rigging of ships. The following table shows how many fathoms, feet, and inches, of a rope of any size, not exceeding 14 inches, make 1 cwt. At the top of the table, marked inches, fathoms, feet, inches, the first column is the circumference of a rope in inches and quarters; the second, the fathoms, feet, and inches that make up 1 cwt. of such a rope. One example will make it plain.

Suppose it is required how much of a 7-inch rope will make 1 cwt.; find 7 in the third column, under inches, or circumference of the rope, and immediately opposite to it you will find 9, 5, 6; which shows that in a rope of 7 inches there will be 9 fathoms 5 feet 6 inches required to make 1 cwt.

Inches.	Fathoms.	Feet.	Inches.	Inches.	Fathoms.	Feet.	Inches.	Inches	Fathoms.	Feet	Inches.
1	486	0	0	5½	16	1	0	10	4	5	0
1¼	313	3	0	5¾	14	4	6	10¼	4	4	1
1½	216	3	0	6	13	3	0	10½	4	2	2
1¾	159	3	0	6¼	12	2	9	10¾	4	1	8
2	124	3	0	6½	11	3	0	11	4	0	3
2¼	96	2	0	6¾	10	4	0	11¼	3	5	7
2½	77	3	0	7	9	5	6	11½	3	4	1
2¾	65	4	0	7¼	9	1	6	11¾	3	3	3
3	54	0	0	7½	8	4	0	12	3	2	3
3¼	45	5	2	7¾	8	3	6	12¼	3	2	1
3½	39	3	0	8	7	3	6	12½	3	2	0
3¾	34	3	9	8¼	7	0	8	12¾	2	7	8
4	30	1	6	8½	6	4	8	13	2	5	3
4¼	26	5	3	8¾	6	2	1	13¼	2	4	9
4½	24	0	0	9	6	0	0	13½	2	4	0
4¾	21	3	0	9¼	5	4	0	13¾	2	3	6
5	19	3	0	9½	5	2	0	14	2	2	1
5¼	17	4	0	9¾	5	0	6				

—*See* CABLE.

Cordwainers or **Cordiners,** the term by which *shoemakers* are designated in the statutes. The word is formed from the French *cordonnier*, which Ménage derives from *cordouan*, a kind of leather brought from Cordova, and used for the upper leather of shoes. Others derive it from *corde*, rope, because shoes were anciently made of cords; as, indeed, they still are in some parts of Spain, under the name of *alpargates.* But the former etymology is evidently more proper.

Corea, a large peninsula of Asia, formed on one side by the Yellow Sea, and on the other by the Sea of Japan. It is situated immediately to the east of China; and its length may be estimated at 400 miles, by 150 in average breadth. A great part of what was formerly supposed to be its western coast was found by Captains Hall and Maxwell to consist of an immense archipelago of small islands, which have since been subdivided into several groups, and are known as Amherst's Islands, the Corean, and Hall's Archipelago. The largest of these is the island of Quelpaert, called by the natives Musa, in the centre of which there is a mountain peak about 6000 feet above the level of the sea. Though rocky and bare, these groups are for the most part inhabited. The peninsula itself is divided from the Japanese Island of Kiusin by the Straits of Corea, and by a high mountain range called the Shanalin or Champeshan, from the country of the Mantchoos. It embraces an area of about 95,000 miles, with a population of about eight millions. The interior of the country is rugged and mountainous, being intersected by a lofty branch of the northern range, which in turn sends off numerous offshoots to the sea. The principal valleys lie toward the western and southern coasts, and these districts alone enjoy a temperate climate. The eastern coast is bleak and precipitous, while the northern frontier is cold and desolate, and thus subserves the purposes of despotism by cutting off all friendly communication with the main land. The principal products of the country comprise wheat, millet, rice, ginseng, tobacco, silk, cotton, and hemp. The three last are exported both in the raw and manufactured state. Timber and cattle are plentifully supplied from the forests and pasture-grounds, as well as furs from the northern jungles. Its mineral wealth is said to include gold, silver, iron, rock-salt, and coal; and from the tribute sent to the Emperor of China—consisting both of bullion and manufactured articles—the precious metals seem to be wrought to a considerable extent. The Coreans resemble the Japanese and Chinese in dress, habits, and religion, but are said to be as inferior to either of these in mental vigor as they are superior in strength and stature. Their mode of writing is alphabetic, and they are said to possess an extensive literature; but as all ingress into the country is denied to Europeans, and all egress to natives, little is known of these particulars. They keep up considerable commercial intercourse with China and Japan, whence they import pepper, aromatic woods, alum, and goods of Dutch manufacture; but most of the trade is managed by a circuitous overland route, and, being discouraged by the government, is carried on with secrecy and at considerable risk. The kingdom of Corea, although tributary to China, is governed at will by its own king—the Chinese emperor doing little more than formally ratifying his decrees. It is divided into eight provinces, and contains, according to Chinese accounts, 161 towns. The capital, King-ti-tao, stands on the river Kiang, a small stream which flows into the Yellow Sea. It is the residence of the king, and contains, among other things, an extensive library. In modern times a few French missionaries have penetrated into the country, but with little success.

Cork (Germ. *Kork;* Du. *Kork, Kurk, Vlothout;* Fr. *Liège;* It. *Sughero, Surero;* Sp. *Corcho;* Port. *Cortica (de Sorreiro)*; Russ. *Korkowoe derewo;* Lat. *Suber*), the thick and spongy bark of a species of oak (*Quercus Su-*

ber, Linnæus) abundant in dry mountainous districts in the south of France, and in Spain, Portugal, Italy, and Barbary. The tree grows to the height of thirty feet or more, has a striking resemblance to the *Quercus Ilex*, or evergreen oak, and attains to a great age. After arriving at a certain state of maturity, it periodically sheds its bark; but this valuable product is found to be of a much better quality when it is artificially removed from the tree, which may be effected without any injury to the latter. After a tree has attained to the age of from twenty-six to thirty years, it may be barked; and the operation may be subsequently repeated once every eight or ten years, the quality of the cork improving with the increasing age of the tree. The bark is taken off in July and August; and trees that are regularly stripped are said to live for one hundred and fifty years or more.—POIRET, *Hist. Philosophique des Plantes*, tome vii. 419. Cork is light, porous, readily compressible, and wonderfully elastic. It may be cut into any sort of figure, and notwithstanding its porosity, is nearly impervious to any common liquor. These qualities make it superior to all other substances for stoppers for bottles, in the manufacture of which it is principally made use of. It is also employed as buoys to float nets, in the construction of life-boats, the making of water-proof shoes, and in various other ways. Before being manufactured into stoppers, the cork is charred on each side; this makes it contract, lessens its porosity, and consequently fits it the better for cutting off all communication between the external air and the liquid in the bottle. Spanish black is made of calcined cork. The cork tree, and the uses to which the bark may be applied, were known to the Greeks and Romans. Pliny mentions that the Romans employed it to stop all kinds of vessels; but the use of it for this purpose does not appear to have been common till glass bottles came into general use, which, according to Beckmann, was not till the fifteenth century. Other vegetable productions have been sometimes employed instead of cork; as, for instance, the *spondias lutea*, a tree which grows in South America, particularly in moist places, and which is there called *monbin* or *monbain*. The roots of liquorice are applied to the same use, and on this account the plant is cultivated in Sclavonia, and exported. A tree called *nyssa*, which grows in North America, has been found also to afford a substitute for cork.

Considering it in a politic as well as in an economical sense, seasonable measures should be taken to form in the United States plantations of this tree, sufficient for the future supply of cork, particularly for the increasing demands for that material which are likely to arise from the culture of the vine. As a further argument in showing the importance of fostering this branch of rural economy, it may be stated, that the amount of cork which is yearly imported into the United States, is valued at more than $284,000.

Cork Jacket, an apparatus to buoy up the body in swimming. It consists of pieces of cork inclosed between two pieces of strong canvas, and is shaped so as to be worn like a jacket, but without arms. It is now almost quite superseded by the air belt made of waterproof cloth. The cork jacket appears to be a very old invention; for Plutarch, in his life of Camillus, mentions that the messenger sent by that general to his fellow-citizens when besieged in the capitol, made use of a cork jacket in swimming across the Tiber, the Gauls being in possession of the bridge.

Cork, a city, parliamentary borough, and river port of Ireland, capital of the county of Cork, and a county of itself, on the Lee, eleven miles above the entrance of Cork Harbor, and 137 miles southwest of Dublin. Area of city, 48,006 acres; of the municipality, 2683 acres. Population of county and city, or barony, 106,055; of municipal borough (1851), 84,114. The city proper is built on an island formed by the Lee. Principal manufactures are of leather, iron, and other metallic goods, glass, gloves, and paper, and there are some extensive breweries and distilleries; the woolen and cotton manufactures, formerly extensive, are now all but extinct. The trade is extensive, the exports consist of corn, flour, butter, and other Irish produce; imports consist chiefly of manufactured goods from England; wines, fruits, and salt from Portugal and the Mediterranean; timber from the Baltic and North America. Cork communicates by steam-packets with London, Dublin, Bristol, Liverpool, and Glasgow. *Cork Harbor* is a fine land-locked basin, formed by the estuary of the Lee, which is navigable to 1½ miles above Cork city. It is large and deep enough to contain the whole British navy, and has an entrance one mile across, within which its breadth varies to eight miles. It contains Spike and Haulbowline Islands, on which are artillery barracks and various ordnance works. Lat. 51° 50′ 4″ N., long. 8° 19″ W. On its shores are the towns of Cove and Passage, with quays four miles in length, and which were erected at a cost of £100,000.

Corn (Saxon *Corn*), the grain or seeds of plants separated from the spica or ear, and used for making bread. According to the European interpretation there are several species of corn, such as wheat, rye, and barley, millet and rice, oats, maize, and lentils, peas, and a number of other kinds, each of which has its peculiar qualities and usefulness. Egypt was anciently the most fertile of all countries in corn. This appears both from sacred and profane history. It supplied a considerable part of the people subject to the Roman empire, and was called the *dry nurse of Rome and Italy*. Ceres has the credit of being the first who taught them the use of corn, on which account she was ranked by them as a deity. Some, however, attributed the honor to Triptolemus; while others award the honor to both alike, making Ceres the first discoverer, and Triptolemus the first planter and cultivator of corn. Diodorus Siculus ascribes the whole to Isis; in which, as Polydore Virgil observes, he does not differ from other authors—Isis and Ceres being in reality the same person. The Athenians pretended that it was among them the art of sowing corn took its rise; and the Cretans or Candiots, Sicilians, and Egyptians, also lay claim to the distinction. Some think the title of the Sicilians best supported, Sicily being the country of Ceres; and it is alleged that she did not teach the secret to the Athenians till she had first instructed her own compatriots. Others say that Ceres passed first into Attica, thence into Crete, and last of all into Sicily. Many scholars, however, maintain that it was in Egypt the art of cultivating corn first began; and it is certain that there was corn in Egypt and the East long before the time of Ceres.—E. B.

Maize, or Indian Corn.—Among the objects of culture in the United States, maize, or Indian corn, takes precedence in the scale of crops, as it is best adapted to the soil and climate, and furnishes the largest amount of nutritive food. Where due regard is paid to the selection of varieties, and cultivated in a proper soil, it may be accounted as a sure crop in almost every portion of the habitable globe between the 44th degree of north latitude and a corresponding parallel south. Besides its production in this country, its principal culture is limited to Mexico, the West Indies, most of the states of South America, France, Spain, Portugal, Lombardy, and southern and central Europe generally. It is also cultivated with success in northern, southern, and western Africa, India, China, Japan, Australia, and the Sandwich Islands, the groups of the Azores, the Madeiras, the Canaries, and numerous other ocean isles.

Although there has been much written on the Eastern origin of this grain, it did not grow in that part of Asia watered by the Indus at the time of Alexander the Great's expedition, as it is not among the productions of that country mentioned by Nearchus, the commander of the fleet. Neither is it noticed by Arrian, Diodorus, Columella, nor any other ancient author. And even as late as 1491, the year before Columbus discovered America, Joan. di Cuba, in his "Ortus Sanitatis," makes no mention of it. It has never been found in any ancient tumulus, sarcophagus, or pyramid; nor has it ever been represented in any ancient painting, sculpture, or work of art, except in America. But in this country, according to Garcilaso de la Vega, one of the earliest Peruvian historians, the palace gardens of the Incas were ornamented with maize in gold and silver, with all the grains, spikes, stalks, and leaves; and in one instance, in the "Garden of Gold and Silver," there was an entire corn-field of considerable size, representing the maize in its exact and natural shape, a proof no less of the wealth of the Incas, than of their veneration for this important grain.

In further proof of the American origin of this plant, it may be stated that it is still found growing in a wild state, from the Rocky Mountains, in North America, to the humid forest of Paraguay, where, instead of having each grain naked, as is always the case after long cultivation, it is completely covered with glumes or husks. It is, moreover, a well-authenticated fact, that maize was found in a state of cultivation by the aborigines on the island of Cuba at the time of its discovery by Columbus, as well as in most other places in America first explored by Europeans.

The first successful attempt of the English in North America to cultivate this grain was made on James River, in Virginia, in 1608. The colonists sent over by the "London Company" adopted the mode then practiced by the Indians, which, with some modifications, has been pursued ever since. The yield at that time is represented to have been from two hundred to more than a thousand fold. The same increase was noticed by the early settlers in Illinois. The present yield, east of the Rocky Mountains, when judiciously cultivated, varies from twenty to one hundred and thirty-five bushels to an acre.

The varieties of Indian corn are very numerous, exhibiting many grades of size, color, and conformation. Among these are, the shrubby reed that grows on the shores of Lake Superior; the gigantic stalks of the Ohio Valley; the tiny ears, with flat, close-clinging grains, of Canada; the brilliant, rounded little pearl; the bright-red grains and white cob of the eight-rowed hematite; the swelling ear of the big white; and the yellow gourd-seed of the South.

From the flexibility of this plant, it may be acclimatized, by gradual cultivation, from Texas to Maine, or from Canada to Brazil; but, in either case, its character is somewhat changed, and often new varieties are the results. The blades of the plant are of great value as food for stock, and form an article but rarely estimated sufficiently, when considering the agricultural products of the southern and south-western states especially.

The increase of production from 1840 to 1850 was 214,000,000 bushels, equal to 56 per cent. The production of New England has advanced from 6,993,000 to 10,377,000 bushels, showing an increase of 3,384,000 bushels—nearly 50 per cent. New York, New Jersey, Pennsylvania, Delaware, and Maryland increased 20,812,000 bushels—more than 50 per cent. In the production of this crop no state has retrograded. Ohio, which in 1840 occupied the fourth place as a corn-producing state, now ranks as the first; Kentucky, second; Illinois, third; Tennessee, fourth. The crop of Illinois has increased from 22,000,000 to 57,500,000 bushels, or at the rate of 60 per cent. in ten years.

Of the numerous varieties, some are best adapted to the southern states, while others are better suited for the northern and eastern. Those generally cultivated in the former are the Southern big and small yellow, the Southern big and small white-flint, the yellow Peruvian, and the Virginia white gourd-seed. In the more northerly and easterly states, they cultivate the golden Sioux, or Northern yellow-flint, the King Philip, or eight-rowed yellow, the Canada early white, the Tuscarora, the white flour, and the Rhode Island white-flint flour.

The extended cultivation of this grain is chiefly confined to the eastern, middle, and western states, though much more successfully grown in the latter. The amount exported from South Carolina in 1748 was 39,308 bushels; from North Carolina, in 1753, 61,580 bushels; from Virginia, for several years preceding the Revolution, annually, 600,000 bushels; from Philadelphia, in 1752, 90,740 bushels; in 1767–'68, 60,205 bushels; in 1771, 259,441 bushels.

The total amount exported from this country in 1770 was 578,349 bushels; in 1791, 2,064,936 bushels, 351,695 of which were Indian meal; in 1800, 2,032,435 bushels, 338,108 of which were in meal; in 1810, 1,140,960 bushels, 86,744 of which were in meal. In 1820–'21, there were exported 607,277 bushels of corn and 131,669 barrels of Indian meal; in 1830–'31, 571,312 bushels of corn and 207,604 barrels of meal; in 1840–'41, 535,727 bushels of corn and 232,284 barrels of meal; in 1845–'46, 1,286,068 bushels of corn and 298,790 barrels of meal; in 1846–'47, 16,326,050 bushels of corn and 948,060 barrels of meal; in 1850–'51, 3,426,811 bushels of corn and 203,622 barrels of meal. More than 11,000,000 bushels of Indian corn were consumed in 1850 in the manufacture of malt and spirituous liquors.

According to the census of 1840, the corn crop of the United States was 377,531,875 bushels; of 1850, 592,326,612 bushels.

States and Territories.	Indian Corn.	
	18 0.	1850.
	Bushels.	Bushels.
Alabama	20,947.004	28,754,048
Arkansas	4,846,632	8,893,939
California	....	12,236
Columbia, District of	39.485	65,230
Connecticut	1,500,441	1,935,043
Delaware	2,099,359	3,145.542
Florida	898,974	1,996,809
Georgia	20,905,122	30,080,099
Illinois	22,634,211	57,646,984
Indiana	28,155,887	52,964,363
Iowa	1,406,241	8,656,799
Kentucky	39,847,120	58,672,591
Louisiana	5,952,912	10,266,373
Maine	950,528	1,750,056
Maryland	8,233,086	10,749,858
Massachusetts	1,809,192	2,345.490
Michigan	2,277,039	5,641,420
Mississippi	13,161,237	22,446,552
Missouri	17,332,524	36.214,537
New Hampshire	1,162,572	1,573,670
New Jersey	4.361,975	8,759,704
New York	10,972,286	17,857,400
North Carolina	23,893,763	27,941,051
Ohio	33.668,144	59.078,695
Pennsylvania	14.240,022	19,835,214
Rhode Island	450.498	539.201
South Carolina	14,722,805	16,271,454
Tennessee	44,986,188	52,276,223
Texas	....	6,028,876
Vermont	1,119,678	2,032,396
Virginia	34,577,591	35,254,319
Wisconsin	379,359	1,988,979
Minnesota Territory	....	16,725
New Mexico Territory	....	365,411
Oregon Territory	....	2,918
Utah Territory	....	9,899
Total	377.531,875	592,326,612

Corn Laws. An adequate supply of breadstuffs is evidently of the very first importance to every country, and should be as regular as is possible, since sudden fluctuations in an article of such universal necessity are injurious, and scarcity, with the consequent high prices, brings distress upon the poorer classes, and is a fruitful cause of discontent and convulsions. The best means of securing a sufficient and steady supply of this article is a subject of some diversity of opinion, and the practice of governments has varied much at different times. One theory, urged by Adam Smith, but questioned by Mr. Malthus and most others, is, that the government should do absolutely nothing in the matter, on the ground that the farmers and corn merchants, if unchecked, will always form correct views of their own interest, and that their interest will coincide with that of the rest of the community. But broad, sweeping theories of this sort are rarely adopted in the practical administration of affairs; and a government, in making regulations on this subject, as on every other, looks at its internal condition, the character and pursuits of its population, and its foreign commercial relations; and though it may not judge correctly of the best means of securing a steady and sufficient supply, this does not prove that a total neglect of the subject would be the wisest and the safest policy in all countries and at all times. It is certain, however, that very unwise measures have often been resorted to, and sometimes such as tended rather to aggravate the evil than to provide a remedy. One way to guard against a scarcity is that adopted by the king of Egypt in the time of Joseph—the purchasing of corn by the government in time of plenty at home, or importing it from abroad, and storing it in public magazines, to be distributed as the public wants may demand. But this system is attended with great expense, and affords but an uncertain and inadequate provision. Most governments, accordingly, instead of making direct purchases, attempt to provide a remedy by the passage of laws. This subject of grain legislation is by no means entirely modern. The Athenians had laws prohibiting the exportation of corn, and requiring merchants who loaded their vessels with it in foreign ports to bring their cargoes to Athens. The public provision and distribution of corn was an important branch of administration at Rome, and very intimately connected with the public tranquillity. The regulation in the supply of corn, and the trade in the article, has been a fruitful subject of legislation in modern Europe. But it is to be observed, that the public solicitude and current of legislation take this direction only in populous countries, or at least those in which the population presses hard upon the means of domestic production of breadstuffs; for a country of which, like this, the staple exports are breadstuffs needs to take no measures for securing a supply; and, as flour and Indian meal are great articles of exportation in the United States, this country has had no occasion for laws to guard against a famine, since the ordinary course of industry and trade gives the greatest possible security, by producing a surplus in provisions, which a high price at home, in anticipation of any scarcity, will be sure to retain for the supply of domestic wants. In agricultural countries the object of solicitude is to supply the want of arts and manufactures, as in populous and highly improved countries it is to supply the want of food. But the laws directed to this object have been very various, and some of them contradictory; for as in Athens, so in England at one period, the laws prohibited the exportation of corn; whereas, at another period, and for a very long one in the latter country, a bounty was given on the exportation; and both these laws had the same object, viz., the adequate and steady supply of the article. For this purpose the bounty is the measure undoubtedly calculated to produce the effect intended, and the permanent prohibition of exportation must aggravate the scarcity which it is intended to prevent. Such a bounty tends to stimulate a surplus production, and so to give a country, by this factitious encouragement, the same security in respect to a supply as results from the spontaneous intercourse of industry and trade in Poland, the southern part of Russia, and the United States. But the objection to the bounty is its great expense, requiring, as it does, the imposition of a tax, and, at the same time, raising the price of the article to the domestic consumer. To secure the advantages and avoid some of the burdens of this law, Mr. Burke, in 1773, proposed the system of corn laws so long adhered to in Great Britain, according to which no bounty is paid, but the exportation of corn is permitted when it is sold under a certain price in the home market. This price is determined by the average sales in certain specified places for a given time; and when it rises above a certain other fixed price, the importation is permitted. By Mr. Burke's bill, wheat might be exported when the price was under 44*s*. the quarter, and imported when it was over 48*s*. The home grower is, therefore, sure to be free from a foreign competition at any price under 48*s*., and this gives him confidence in pursuing this species of cultivation. The rates or prices at which exportation and importation have since been allowed, have varied from time to time very materially; but the principles of the laws and their effect are the same.—E. A.

Reform of the Corn Laws of England.—In 1843, a measure was adopted which made a wide breach in the corn laws. In 1842 the Legislature of Canada passed a law imposing a duty of 3*s*. a quarter on all wheat imported into the province, unless from the United Kingdom, stating, in the preamble to this act, that it was passed in the expectation and belief that a corresponding reduction would be made in the duties on wheat and wheat flour imported into the United Kingdom from Canada. And conformably to this anticipation, the act 6 & 7 Vict. c. 29, passed in 1843, reduced the duty on wheat imported from Canada to 1*s*. a quarter, and proportionately on wheat flour. This act met with much opposition from a part of the agricultural interest in England, who contended that it would lead to the introduction of unlimited supplies of corn from the United States, at a duty of only 4*s*. a quarter, or, allowing for smuggling, at perhaps only half that amount. But experience showed that these anticipations were not likely to be realized: for, though the imports from Canada were materially increased, the obstacles in the way of the importation of corn from the United States into Canada, and the danger and expense of the voyage from Montreal or Quebec to England, must necessarily have prevented the importation through this channel from ever becoming of much importance. Still, however, the measure was in so far an abandonment of the corn laws; and if Great Britain was justified in admitting the produce of the United States to her markets in this indirect way, it was not easy to discover satisfactory grounds on which to exclude the produce of other countries.

The success of the measures adopted in 1842 encouraged Sir Robert Peel to attempt still more considerable changes in 1845, when he abolished the customs' duties on about 420 articles, some of which were of very considerable importance. The measures then adopted were equivalent, in fact, to the virtual abandonment of the protective system; and, under such circumstances, it could not be expected that the corn laws, on which so serious an inroad had been made by the Canada act, would be able to maintain their place on the statute-book for any very lengthened period.

They might, however, have been continued for some time longer, had not the unsatisfactory corn harvest, and the failure of the potato crop of 1845, made it necessary to adopt measures for averting the anticipated deficiency in the supplies of food. Under the critical circumstances in which the population was then believed to be placed, the temporary suspension of the corn laws could hardly have been avoided; but, if once suspended, their re-enactment would have been all but impossible, and it was better, perhaps, by at once providing for their repeal, to make an end of the system, and of the dissatisfaction and agitation to which it had given birth, than to endeavor to continue it in any modified shape. Such was the view of the matter taken by Sir Robert Peel; and he fortunately succeeded, despite difficulties that none else could have overcome, in carrying the act 9 & 10 Vict. c. 22, for the immediate modification of the corn laws, and for their total repeal at the end of three years, or on the 1st February, 1849. From that date wheat and other corn were subjected, on importation into Great Britain, to a fixed duty of 1*s*. a quarter; and flour and meal, of all sorts, to a fixed duty of 4½*d*. a cwt.—E. B.

Cornucopia (Lat. *cornu*, a horn; and *copia*, plenty). In the fine arts, an ornament representing a horn, from which issue flowers, fruits, leaves, and the like. The origin of the cornucopia has been variously given. Some authors have traced it to the infant days of Jupiter, whose nurse, Amalthea, when one of her goats had broken off a horn against a tree, presented it to the god wreathed with flowers and filled with fruit. Hence it became the emblem of Plenty among the ancients, in which light it is regarded also by many modern nations. The cornucopia is found in the types of ancient coins, particularly upon those of Sicily.

Corporation is the term generally applied to a body of men by special law endowed with the power and means of acting collectively, with the distinctness and individuality of one man pursuing the dictates of his own will, while their existence is kept up by a perpetual succession, so that the collective body acts like an individual man with a perpetuated vitality. Though the corporation might be deemed, from the admiration bestowed on it by professional writers, to be the peculiar creation of English genius, there is little doubt that the system was derived from the *municipia*, *universitates*, and *collegia* of the Romans; and there is even reason to believe that there are corporations which date their history back to the institutions of the Western Empire. The adage, indeed, expressed by a Roman jurisprudent, that it required three to make a college —*tres facere collegium* (50 *Dieg.* 16, 85)—shows a practical consciousness of the most effective means of strengthening the action of a small corporation, in an adjustment by which equal numbers with the chances of balanced divisions are to be avoided, and that number is selected which always affords a majority of two to one.—E. B. Corporations are stated by Livy to have been of very high antiquity among the Romans. They were introduced into other countries from Italy. These political bodies were first planned by Numa, in order to break the force of the two rival factions of Sabines and Romans, by instituting separate societies of every manual trade and profession.—PLUTARCH.

Corsair (It. *corsaro*). A term used in the south of Europe and some other parts for a pirate or his ship. The corsairs of Barbary were commissioned by their princes to attack the merchant ships of hostile countries.

Corvette, a sloop of war; according to some authorities, an advice-boat with fewer than twenty guns.

Cosmetic (*κοσμέω*, to adorn), any preparation to render the skin soft and white, or to beautify and improve the complexion. The word *cosmetæ* among the Romans was used to denote a class of slaves whose business it was to dress and adorn their mistresses.—E. B. Preparations for improving beauty were known to the ancients, and some authorities refer them even to mythology, and others to the Grecian stage. The Roman ladies painted; and those of Italy excelled in heightening their charms artificially, by juices and colors, and by perfumes. Rouge has always been in disrepute among the virtuous and well-ordered women of England, though some simple *cosmetics* are regarded as innocent, and are in general use.—ASHE. The females of France and Germany paint more highly than most other nations.—RICHARDSON. In Great Britain a stamp was laid on cosmetics, perfumery, and such medicines as really or supposititiously beautify the skin or perfume the person, and the vendors were obliged to take out licenses, 26 Geo. III. 1786.—HAYDN.

Costa Rica, a republic of Central America, bounded on the north by Nicaragua, from which it is separated on the northeast by the river San Juan, on the east and north by the Caribbean Sea, on the east by New Granada, from which it is separated by the river Chirigue entering the Caribbean Sea, and the Chiriqui entering the Pacific, and on the south and west by the Pacific; between lat. 8° and 11° N., and long. 81° 45′ and 84° 40′ W. Area, about 16,300 square miles. It is divided into six districts, viz.: San José, Cartago, Heredia, Alajucla, Guanaceute, and Punta Arenas, and estimated to contain 215,000 inhabitants, of whom 2500 are Indians. It is intersected diagonally by the primary range of the isthmus, which throws off numerous spurs on either side, giving to the surface a continued alternation of abrupt heights and sudden depressions. The principal range has several lofty eminences, and also several volcanoes, both active and dormant, including those of Orosi, Votos, and Cartago; from the summit of the last of which both the Pacific and the Atlantic waters are distinctly visible. Costa Rica contains some exceedingly rich gold mines; hence the origin of its name. The mines, however, are now very little wrought. Silver and copper also exist. With the exception of the sea-coasts, the climate is mild and temperate, never subject to excessive heats or colds, and rarely experiencing any other vicissitudes than those from the dry to the rainy season. It is therefore extremely well adapted to agricultural purposes, and capable of bringing to maturity most of the plants peculiar to the tropics, and many exotics. The soil is remarkably fertile, especially the valleys and the table-lands. The productions are coffee, cacao, Indian corn, tobacco, sugar, and some wheat. The horses of Costa Rica are of an inferior description, but the mules are much esteemed; and cattle, sheep, goats, and hogs are reared in great numbers, and of excellent quality.

Among the principal rivers of Costa Rica are the Tempisque and Grande, falling into the Bay of Nicoya; the Ucus or Macho, which afterward takes the name of Reventason, and falls into the Caribbean Sea; the Matina, formed by the rivers Chirripo and Barbilla; the Escudo de Veragua, dividing Central from South America; the Banana, Tiribee, and Culabra, all falling into the Caribbean Sea; the Chrico Mola or Chrickam Aula, falling into the Bay of Cheriqui; the Costa Rica or San Carlos, and the Sarapiqui, into the San Juan. The Baya is a canal, believed by some to be natural, and by others to have been cut by the aborigines, commencing at the port of Moin or Salt Creek, and running parallel to the coast as far as Pearl Kay Lagoon, a distance of 180 miles.

Costa Rica produces, in large quantities, mahogany, cedar, Brazil, and various other kinds of timber. On the sea-coast of Nicoya some pearls and large quantities of mother-of-pearl shells are found. Coffee, however, forms the most important product of the republic. Its cultivation, though only introduced about the year 1830, has increased so rapidly, that 3000 to 4000 tons are now exported annually. Tobacco, which is of excellent quality, is a government monopoly, and is exported in small quantities. The other exports are gold, sugar, Brazil wood, mother-of-pearl, ox and cow hides, horns, etc. The imports consist chiefly of manufactured goods. Total revenue in 1852, $454,113; expenditure in the same year, $415,207.

The commercial relations between the United States and Costa Rica are regulated by the treaty of July 10, 1851, and by the local legislation of the country. The treaty guarantees reciprocal freedom of commerce, and places the two countries, with respect to each other, on the footing of the most favored nations.

The local commercial legislation of Costa Rica was completely remodeled and materially modified in the year 1854. The decree by which this was effected bears date August 31, 1854.

The 1st article grants liberty of commerce to the vessels of all nations—specifying certain descriptions of merchandise monopolized by the government, and others prohibited; which are detailed in the tariff of Costa Rica.

The 2d article provides that, at the minor ports, the export of productions of the country only can be permitted, under proper regulations.

Art. 3. At the inland or frontier ports, custom-houses shall be established, under such regulations as the government may deem fit to adopt.

Art. 4. At such ports, inland and export commerce only shall be allowed, except in respect of such merchandise as shall be monopolized by the government or prohibited.

The second chapter of the law contains a specification of free goods, together with a list of prohibited articles; among the former being the personal effects of, or merchandise exported for the use of, diplomatic agents or their suite, but not those of consuls; and in the latter are included rum, fire-arms, and munitions of war, which can be imported only under special authority. The monopolized articles are tobacco (in leaf or manufactured), powder, and saltpetre; which can be admitted only on government account.

This law extends to sixteen chapters; and such parts as apply to navigation and commerce would be translated and inserted at length, were it not understood to have been materially modified by a recent decree, of which a summary is given, with the tariff of Costa Rica.

The United States consul at San José (Costa Rica) communicates the following changes, under date October 3, 1855:

"I have the honor to inclose herewith copies of three decrees issued by this government, numbered, respectively, 1, 2, and 3. No. 1, dated November 24, 1854, is merely proroguing the time fixed for the new tariff (a copy of which has been transmitted), to take effect from the 1st of December, 1854, to the 1st of July, 1855. No. 2, of the same date, requires, article 1st, previous to the landing of merchandise, in addition to the manifest heretofore presented by the master of any vessel arriving at the port of Punta Arenas, that permission to disembark be obtained from the collector of customs, and that in the document soliciting this permission must be expressed the quality and origin of the goods intended to be landed, and also their market value in the port. Article 2 requires, previous to the clearance of a vessel from any port of the republic, the presentation by the consignees of a manifest of the merchandise to be exported, and its value in the port of shipment. Article 3, of the same, requires, in cases where a part only of a cargo has been landed, that the consignees, previous to a clearance, present another 'corrected manifest,' specifying the quality and value of the goods that have been landed. No. 3, dated July 24, 1855, orders that all *distilled* spirits landed in the port of Punta Arenas be deposited in the public stores, and exacts the payment of four cents per pound, gross weight, upon their removal from bond. No further changes have been made in the commercial system of this republic within the time specified."

For the last fifteen years the country has been rapidly progressing, owing to the peaceable and industrious character of the people, and the moderate course pursued by the government. Many internal improvements, principally in common roads, have been completed; and the productions of the country have increased so that the exports now amount to $1,000,000 yearly, while fifteen years ago they amounted only to about $100,000. In the same time the population has been doubled, and may now (1856) be estimated at 180,000 inhabitants. Some few emigrants, principally Germans, have gone into the country; but the difficulties met with on the route to Costa Rica will prevent much immigration. The two principal ports of Costa Rica are Punta Arenas, on the Gulf of Nicoya, and Mattina, on the Caribbean Sea.

Moneys.—The money of account is the peso, or dollar, valued at the same as the United States dollar; but some are coined of base metal, which are worth only 75 cents. At Venezuela and Ecuador, the dollars are similar to those of New Granada. 1 dollar = 8 reals (100 cents); 1 real = 16 quartos = 32 maravedi, also 12 grani.—*Cor. P. J. of T.*

The values of imports and exports between the United States and Costa Rica can not be distinguished from those given for Central America generally. The following statement, exhibiting the general foreign navigation and trade of the principal port of the republic (Punta Arenas), furnishes a fair average annual statement. It may be observed, that the values are given from ships' registers, or invoices, and are, consequently, considerably below the market values.

STATEMENT EXHIBITING THE GENERAL FOREIGN NAVIGATION AND TRADE OF THE PORT OF PUNTA ARENAS, DURING THE YEAR ENDING DECEMBER 31, 1855.

Nationality.	Arrived.			Departed.		
	Number of Vessels.	Number of Tons.	Invoice Value of Cargoes.	Number of Vessels.	Number of Tons.	Invoice Value of Cargoes.
United States	12	2,204	$101,808	12	2,204	$86,650
British	5	1,445	265,650	5	1,445	330,950
French	2	648	17,500	2	648	37,953
Spanish	2	560	8,000	2	560	....
Hamburg	3	626	25,170	3	626	82,211
Hanoverian	1	160	67,659	1	160	....
Sardinian	10	1,391	40,906	10	1,391	66.510
Chilian	7	889	38,406	7	889	100.378
Peruvian	7	1,124	15.756	7	1,124	8,832
New Granadian	15	679	49,026	15	679	18,709
Central American	4	52	4,719	4	52	1,910
Costa Rican	15	1,249	64,711	15	1,249	22,633
Total	83	11,027	$699,311	83	11,027	$765,736

Costume. Accounts of magnificent attire refer to very remote antiquity. The costume of the Grecian and Roman ladies was comely and graceful. The women of Cos, whose country was famous for the silkworm, wore a manufacture of cotton and silk of so beautiful and delicate a texture, and their garments, which were always white, were so clear and thin that their bodies could be seen through them.—OVID. As relates to costume worn on the stage, Æschylus the Athenian was, it is said, the first who erected a regular stage for his actors, and ordered their dresses to be suited to their characters, about 436 B. C.—*Parian Marbles.* Excess in dress was restrained by a law in England, in the reign of Edward IV., 1465. And again in the reign of Elizabeth, 1574.—STOWE. Sir Walter Raleigh, we are told, wore a white satin-pinked vest, close-sleeved to the wrist, and over the body a brown doublet finely flowered, and embroidered with pearls. In the feather of his hat, a large ruby and pearl drop at the bottom of the sprig, in place of a button. His breeches, with his stockings and ribbon garters, fringed at the end, all white; and buff shoes, which on great court days, were so gorgeously covered with precious stones as to have exceeded the value of £6600; and he had a suit of armor of solid silver, with sword and belt blazing with diamonds, rubies, and pearls. King James's favorite, the duke of Buckingham, could afford to have his diamonds tacked so loosely on, that when he chose to shake a few off on the ground, he obtained all the fame he desired from the pickers-up, who were generally *les dames de la Cour.*—HAYDN.

Cott, or **Cot**, a particular sort of bed-frame, suspended from the beams of a ship, between decks, for the officers to sleep in. It consists of a large piece of canvas sewed into the form of a chest, about six feet long, one foot deep, and three feet wide, and is extended by a square wooden frame with a canvas bottom, and used principally in the ward-room of a man-of-war.

Cotton. This article will be considered under the general heads of I. Species and Places of Production. II. Cotton Climate: 1. Of the World; 2. Of the United States; 3. Nile; 4. Algeria; 5. Africa; 6. The Mediterranean; 7. British India. III. Cotton Trade of the United States: 1. History; 2. Statistics. IV. Cotton Trade of the United States with 1. Great Britain; 2. France; 3. Spain; 4. Hanse Towns; 5. Belgium; 6. Sardinia; 7. Switzerland; 8. Russia; 9. Sweden; 10. Portugal; 11. Brazil; 12. Egypt; 13. Mexico. V. Capacity of the Cotton Bale.

COTTON MANUFACTURES will be treated under its proper head.

I. SPECIES AND PLACES OF PRODUCTION OF COTTON.—Cotton (*Gossypium*) is a vegetable down of exquisite softness, with beautifully fine fibres, and is an indigenous product of all intertropical regions. Linnæus subdivided the cotton plant into five species: 1. *Gossypium herbaceum;* 2. *G. arboreum;* 3. *G. hirsutum;* 4. *G. religiosum;* 5. *G. Barbadense.*

Other authorities have enumerated as many as ten species, but for all practical purposes the division into three classes will be sufficiently minute. The varieties are exceedingly numerous; yet of those most widely diffused, *herbaceous* cotton, *shrub* cotton, and *tree* cotton need only be especially referred to. The most useful cotton is the herbaceous, which is an annual plant, chiefly cultivated in the United States and in the East Indies. It grows from two to five feet in height, is rich in foliage, and its fibrous fruit is preceded by flowers, of white or pale yellow color, like those of the convolvulus. As the flowers fade, a pod, or capsule is formed of the size of a small walnut, containing the fibres of cotton, and as the pod ripens it expands, and the snow-white fibres burst forth ready to be gathered.

1. *The Herbaceous Cotton.*—This plant grows to the height of eighteen to twenty-four inches, with leaves of dark green, blue-veined, and five-lobed. The flower is a pale yellow, one pistil, five petals or leaves, purple-spotted at the bottom. On the falling of the flower a pod of triangular shape and triple shell is developed. The pod, in course of ripening, bursts, discloses a snow-white or yellowish ball of down, in three locks, inclosing and tightly-adhering to the seeds, which resemble those of the grape, though of several times the size. The seed is planted in spring, and the cotton gathered at fall. The rows in the fields are five or six feet apart; the distance of the holes, in which several seeds are deposited, is about eighteen inches. Much care in weeding, thinning, and pruning, is required during the process of culture. This is the course pursued in the United States, which has the advantage over that pursued in India, by producing a cotton vastly more valuable. A field of cotton at the gathering, says Mr. Baines, when the globes of snowy wool are seen among the glossy dark leaves, is singularly beautiful; and in the hottest countries, where the yellow blossom or flower and the ripened fruit are seen at the same time, the beauty of the plantation is, of course, still more remarkable. The herbaceous cotton is grown to the greatest extent, and said to be cultivated in nearly every country congenial to the gossypium, existing even at Aleppo, in Upper Egypt, Arabia, and Senegal.

2. *The Hirsutum, or Shrub Cotton.*—It is said to grow wherever the herbaceous is found, and to vary according to climate, being biennial or triennial in the West Indies, lasting from six to ten years in India and Egypt, perennial in the hottest climates, and in the mildest cotton regions an annual. The shrub cotton is likened to a currant bush, and is of several varieties. The *hirsutum*, a low shrub already mentioned, the *Indicum*, attaining ten or twelve feet; the *vitifolium*, of the south of France and South America; the *religiosum*, of Surinam and India; the *latifolium* of the West Indies; the *Barbadense* of Barbadoes; and the *Peruvian.* The pod of the shrub cotton differs from that of the herb in being egg-shaped. The Guiana and Brazil cotton is of this kind, and is said to yield, in the hottest countries, two crops a year.

3. *The Arborescent, or Tree Cotton.*—This remarkable plant is of Indian, Chinese, Egyptian, and American growth. The height of the tree varies from fifteen to twenty feet. Marco Polo describes the tree at Guzerat six yards high, and bearing fruit for twenty years. There is a tree described in South America, Indian Isles, West Indies, and on the Guinea coast, of a hundred feet high, bearing a silky cotton, only useful for making quilting and beds. The justly-celebrated *American sea-island cotton* is derived from the *arboreum.* Its fibre is long, strong, silky, and of a yellowish tinge. The seed is black and of Persian origin, though originally introduced into this country from the Bahama Islands, where it had been introduced by the Board of Trade from Anguilla, an island of the Caribbean Sea. This cotton was raised first in Georgia in 1786, and the first bag exported by Alexander Bissel, of St. Simon's Island, two years after. The section of country capable of producing this staple is very limited, being confined to the low sandy islands along the coast of South Carolina and Georgia, from Charleston to Savannah. The quantity grown in 1805 and in 1832 was precisely the same.

In the United States the seed of the herbaceous cotton is sown generally in the months of March and April, and its marketable fruit is usually gathered in the period commencing with August and terminating with the year. Boweds and Orleans cottons constitute the great productions of the United States, and are recognized in the English and European markets as "American cotton." These cottons are chiefly cultivated in the great valley of the Mississippi, the fields of its growth now extending to Texas. The cultivation of cotton in the United States is most scientifically and industriously pursued, and is attended with highly profitable results, the value of the crop being little less than $150,000,000. It is expected that in 1856 the entire crop will amount to 3½ millions of bags, of more than 400 lbs. each. But the skill of the American planter has been most conspicuous in the production of fine sea-island cotton. The seed of this cotton, which is also an annual and herbaceous plant, was obtained in 1786, in the Bahama Islands, where it had been introduced from the West Indies, and was first cultivated in Georgia. The small islands which extend along the American coast from Charleston to Savannah were found, from their sandy soil and contiguity to the sea, to be admirably adapted to the production of exquisitely fine, long, and strong-stapled cotton. This cotton soon acquired great and deserved celebrity. A great demand arose for it; but from the limited extent of the islands upon which it can be grown, and the expense attending its cultivation, it can only be supplied at a comparatively high price. Hence the production of this cotton was not susceptible of indefinite extension like the shorter-stapled cottons of the United States; and from the beginning to the middle of the present century the total yearly amount of the crop has not greatly varied, the annual yield averaging about ten millions of pounds weight. From the circumstance of the seed of this cotton having been first introduced into Georgia, it was consequently called Georgia cotton, though its cultivation had only been successful upon the sea-coast of that state. Its celebrity, however, caused it to be planted upon the high lands of Georgia, where it was found to degenerate; but still the quality, though shortened in staple, was found to be of a desirable class, and it acquired the name of uplands, or bowed Georgia cotton, while the same seed yielded the famed sea-island cotton. Here it may be observed that a humid atmosphere and a sandy soil seem most conducive to the production of good useful cotton; but for the growth of very fine and long stapled cotton an impregnation of salt, both in the soil and in the air, appears to be indispensable.

Without the energy of the American planter, it is difficult to conceive the possibility of the cotton trade of England and of the world attaining the extent and importance which it now possesses. As the colonies of Great Britain—the West Indies in particular—possessed all the natural advantages of soil and climate for producing cotton to an extent much beyond the probable consumption of the United Kingdom, it might reasonably have been inferred that the colonial interests alone would have stimulated the cultivation and production of cotton to supply the certain and increasing home demands of the constantly-enlarging manufactories. Whether the fatality of protection to the English colonies, maladministration of colonial affairs, or supineness on the part of the colonists themselves, produced the indifference which caused an article of increasing importance like cotton to be neglected when remunerative markets were opening for indefinite supplies of it, may be wisely inquired into, not to remedy the past, but for the purpose of ascertaining how far a new and profitable direction may be given for the future to colonial labors and efforts; for the stigma will remain, that while arts and inventions were being developed at home, which became the sources of great national wealth, the cultivation of the material on which to exercise the skill and labor of her working-classes had to be sought and obtained from a foreign source.

In the British East Indies the cultivation and manufacture of cotton have certainly existed longer than in any other country. For five centuries before the Christian era, cotton was largely used in the domestic manufactures of India, and the clothing of the Hindoos then consisted chiefly of garments made from that vegetable product. Earliest in possession of the herbaceous cotton plant, the natives of India were enabled to manipulate its fibres, and to establish a cotton-manufacturing industry which has remained almost unchanged to the present time. More than two thousand years before Europe or England conceived the idea of applying modern industry to the manufacture of cotton, India had matured a system of hand-spinning, weaving, and dyeing, which, during that vast period of time, received no recorded improvement. With a plant indigenous to the soil, and a people remarkable for intelligence when Europe was in a state of barbarism, it is wonderful that no approximation was made to the mechanical manufacturing operations of modern times, and still more strange that the agricultural production of cotton should not within that period have been improved and considerably enlarged. The cotton of India, during its known existence, can only be regarded as a material for manufacture greatly inferior to the like productions of other countries. India unquestionably possesses soil, climate, and all the requisite elements from nature for the cultivation of cotton to an almost boundless extent, and of a quality which might be most useful and acceptable in the manufactures of Europe, and even of America. During a series of years the weight of cotton grown in the East Indies and consumed in Great Britain may have been one-tenth of the whole, while the value can not be estimated at more than one-twentieth of the total cost of home-consumed raw cotton. The British West Indies supply only small portions of the cotton required by the manufacturers of the United Kingdom, though the quality of the cotton there produced is excellent; and would be very largely bought and consumed if it were largely supplied. For a considerable time the British colonies have not supplied more than one-twentieth part of the British consumption of cotton, and yet in the possession of Great Britain there exists a greater extent of land suited to the growth of cotton than in any other dominion. At Port Natal cotton of excellent quality might be grown to any reasonable extent; and in Australia, cotton equal to the finest of the fine might be produced to an almost indefinite amount.

The most remarkable fact is, that although cotton was cultivated in gardens from remote antiquity in China, yet this ingenious people never turned it into any account until the end of the thirteenth century, at which time its manufacture among them began.

The following passages from the narratives of those who have visited India, are replete with interesting information on the subject before us. Marco Polo found cotton in Guzerat in large quantities, taken from a tree about six yards high, and bearing for twenty years. The cotton from a tree of this age is adapted only to quilting, but that taken from trees of twelve years is suitable for muslins and other manufactures of extraordinary fineness. Sir John Mandeville, in the fifteenth century, later by fifty years than Polo, says, that in many places the seed of the cotton in India which we call tree wool, is sown every year, and there spring up from it copses of low shrubs on which the wool grows.

A luxuriant field, says another, exhibiting at the same time the expanding blossom, the bursting capsule, and the snowy flakes of ripe cotton, is one of the most beautiful objects in the agriculture of Hindostan. Malte Brun is equally instructive on the point: "The cotton tree grows on all the Indian mountains, but its produce is coarse in quality; the herbaceous cotton prospers chiefly in Bengal and on the Coromandel Coast, and there the best cotton goods are manufactured. Next to these two provinces, Madure, Marawar, Pescaria, and the coast of Malabar produce the finest cotton. The plant is cultivated in every part of India; the finest grows in the light, rocky soil of Guzerat, Bengal, Oude, and Agra. The cultivation of this plant is very lucrative, an acre producing about nine quintals of cotton annually."

Brazil is an extensive cotton-growing country, and sends steady supplies of it to the European markets. The quality of its cotton is every where highly esteemed. Persia, Spain, Italy, Malta, and the adjacent countries, are all capable of producing excellent cotton; but in Africa there are probably greater undeveloped resources for the cultivation of cotton than can be found in any other portion of the globe. The example of Egypt is a great lesson for the governors of those countries whose agricultural resources remain undeveloped. In 1821, Mehemet Ali conceived the possibility of effectually cultivating cotton, and succeeded. From that year to the present time large supplies of that useful and now indispensable raw material have been obtained from Egypt, to the great convenience of the British manufacturer, who has found the quality second only to the sea-island cotton of the United States.

The herbaceous cotton plant unquestionably exhibits all the desirable qualities of cotton applicable to manufactures, as proved by the productions of the United States and of the East Indies. The cottons produced in the West Indies, in Brazil, and in Egypt, are from the shrub: and it is observed that the older the plant the coarser become the fibres. Tree cotton, as a marketable product, is almost unknown; but in Borneo, and in many other tropical regions, the plant on which it grows is found flourishing in a wild state. To insure economy of culture, and of gathering the cotton as it opens and ripens, it is evident that the plant and the shrub are most accessible, and that the tree can not always be either safely or conveniently climbed to obtain its downy fruit.

In Central Africa, cotton has also been a staple growth since the date of our earliest records. It is mentioned by travelers as abundant on the banks of the Senegal, the Gambia, and the Niger, at Timbuctoo, Sierra Leone, the Cape de Verd Islands, on the coast of Guinea, and in Abyssinia. In hot climates, also, says an authority, the cotton plant grows so abundantly, that this is the cheapest material of which cloth can be made. With such recommendations, it can not fail to continue the staple and universal manufacture of Africa.

In modern times, no material on which the industry of mankind is exerted can be compared with the vast importance of that beneficent gift of Providence, cotton. Millions of our fellow-creatures depend upon its cultivation and manipulation for support. Capitalists embark in its production and manufacture, as also in its trading and mercantile distribution. National resources are enlarged and benefited by it; and to Great Britain and the United States it has proved a fountain of wealth, from which streams of prosperity have flowed from the time of its first introduction as an agent of labor and traffic to the present moment.

The upland cotton is a different species from the sea-island, and is separated with such difficulty from the seed, that the expense of cleaning the wool must have put a stop to its further cultivation, had not a machine, by which the operation of cleaning is easily and successfully accomplished, been invented. This machine was invented in 1795 by Mr. Eli Whitney of Massachusetts. There are two qualities of the cotton — the one termed Upland Georgia, grown in the states of Georgia and South Carolina; and the other, of superior quality, raised upon the banks of the Mississippi, and distinguished in the market by the name of New Orleans cotton. A strong prejudice existed for some time against the upland wool, which was thought to be of inferior quality, and not to take a good color in dyeing; but being found suitable to different coarse fabrics, its cultivation was so rapidly extended, that in 1807, 55,018,448 lbs. of upland cotton were exported from the United States.

The cotton of the finest quality ever brought to the English market, or probably ever grown, was that formerly mentioned as having been raised in the island of Tobago, between the years 1789 and 1792, upon the estate of Mr. Robley. That gentleman carried the cultivation of this article to some extent; but the price of cotton falling very low, and the cultivation of sugar becoming extremely profitable in consequence of the destruction of the sugar plantations in the French islands, he was induced to convert his cotton grounds into a sugar plantation. The production of cotton of this very fine description has hardly ever been attempted by any other person, although it is believed that the price it would yield would amply repay its expense.

Until about the year 1815, it was thought that the cotton wool of India, from the shortness of its staple, could not be spun with advantage upon machinery; and, in consequence, the greater part of the Indian cotton was spun upon the common jenny, and used as weft for the coarsest calicoes. It was discovered, however, that by mixing it with the longer stapled wools of other countries, it might be brought into a state fit for the mule and spinning frames.

The United States consul at Naples, in answer to the cotton circular issued by the Commissioner of Patents, says: "The cotton cultivated in the plains near Castelamari, Angri, Scafata, and Nocura, is similar to that of the United States. The plant is small and annual, and is cultivated with so much advantage that various projects by companies have been started to give extension to its cultivation; but without being carried into execution. It has been cultivated for more than ten years. Before the French occupation there was a very limited quantity, but during the Berlin and Milan decrees of Napoleon, the cultivation increased very rapidly, and the price reached a dollar a pound, though it had to be sent by land to Lombardy, Switzerland, and France. The quantity has since decreased. I have not been able to learn whether the French introduced seed, or sowed such as they found here; but the cotton fibre has not deteriorated either as to length, strength, or uniformity. On the contrary, the quality has improved.

"About two millions of pounds are produced here. In Sicily, to the south of the island, the cultivation is greater than in Naples. In past times, small quantities of cotton were shipped to Marseilles, but since manufactures have increased here, it is all consumed in the country. The most extensive manufacturers (Vonwiller & Co.) import annually from the United States two cargoes of cotton, of moderate size, besides quantities indirectly. Much twist is imported from England. Manufactures are improving, but are still far from reaching such perfection as to offer any inducement to export them.

"The price of ginned cotton is about 14 to 15 cents per pound. The cultivation is protected by a duty of $8 per cantar of 196 lbs. English if introduced direct from the United States, and $16 if indirect. It is ginned by the ordinary roller and by hand, as well as by the saw-gin; and 100 lbs of unginned will yield about one-third clear cotton. It is packed with hands and feet, and is not exported, nor is there any fixed number of pounds to the bale. The cost of producing one pound of cotton fibre, well ginned, is from 10 to 12 cents.

"An acre of ground will produce about 600 lbs. of unginned cotton. The value of an acre of cotton land is $450, and the rest is $20 to $25 per annum; but you must take into consideration the annual land tax of from one-fifth to one-fourth of the rent, which must be paid by the owner of the land every two months in equal rates.

"If any causes operate injuriously to the cotton crop, they are to be ascribed more to the social condition of the inhabitants than to any thing else. The relations generally between the landowner and the cultivator are not of the best kind, the bad faith of the latter being characteristic, while the owner barely leaves him enough to miserably subsist on. In some seasons, too, worms do injury to the plants, as well as fogs and mists in July and August."

II. Cotton Climates. 1. *The Cotton Districts of the Globe considered with reference to their Climates.*— On inquiring into the climate best suited to the cultivation of cotton, we must remember that we have to pay attention, not only to the air, but also to the vapor. These may be considered in some respects as forming two distinct atmospheres; the one uniform in quantity, and in the proportion of its ingredients, but ever-varying in temperature; while the vapor varies not only in this respect, but in the quantity in which it is present, and also in its point of deposition, when alone it becomes perceptible as moisture.

Cotton is cultivated in so many countries, that we can not but expect it to be capable of flourishing in considerable diversities of climate. Thus, the rich alluvial lands of the Mississippi differ not only in soil, but also in temperature and dryness, from the sandy fields of Georgia. In dryness, both must differ from the uniformity of moisture which prevails in the islands where sea-island cotton is produced. Some grows naturally in the warmer parts of Mexico, as well as in the countries situated along the east of the Andes; and much is cultivated in the moist parts of Guiana and Brazil. Humboldt has seen it at 900 feet of elevation in the equatorial Andes, and at 5500 feet in Mexico. But here different species may, perhaps, be included, as we know that which yields Pernambuco cotton is cultivated in many parts of South America. In the Old World, we find cotton growing in the interior, both of Africa and of India, where there must be considerable dryness of climate. It is cultivated with some success in Egypt, and also, of late, in Algeria, and near Port Natal, in South Africa; but, in the two former, only by the aid of artificial irrigation. It is produced in various islands of the Indian Ocean, in many parts of China, and in almost every part of continental India. Thence it may be said to extend into Persia, Asia Minor, and to the southern parts of Europe, including the islands of the Mediterranean, whence the English manufacturers received their earliest supplies of cotton.

Within these limits, extending from the equator to forty degrees of latitude, we know that there are considerable diversities of climate; but the heat of summer in many of these localities, does not differ so much as might be expected from their latitudes. The temperature of tropical regions is known to be modified by the amount of moisture, while that of the interior of continents, even in high latitudes, is increased by the greater clearness of sky, which is dependent on the comparative absence of moisture. This cause tends to increase even the cold of winter, from the more free radiation which takes place at night in a cloudless atmosphere. Humboldt has remarked that *Gossypium Barbadense*, *hirsutum*, and *religiosum*, have each their favorite climate, from 0° to 34° of latitude, where the mean annual temperature is from 82° to 68° Fahrenheit, but that *G. herbaceum* is successfully cultivated in the temperate zone, where, with a mean summer heat of 73° to 75°, the mean of winter is not less than 46° or 48°.

But, in taking a general survey of the localities where cotton is chiefly cultivated, we should observe that many of them are in islands, and others in the vicinity of the sea. This is certainly the case with the districts where the finest cottons are produced, and the largest returns to the acre obtained. It has frequently been stated that the beneficial effects of such localities are chiefly due to the presence of salt in the soil, or to its being carried up in the spray, which is transported by winds into the interior. Koster, in his "Travels in Brazil," states, on the contrary, that "the districts which are universally allowed to be the best adapted for the growth of cotton, are far removed from the sea-coast, arid, and oftentimes very scantily supplied with water; also, that the opinion is very general, that the cotton plant will not thrive in the neighborhood of the coast, and also that plantations were yearly receding farther into the interior, the soil preferred being a deep-red earth, which becomes extremely hard after a long interval without rain." Something, no doubt, must be owing to the species which is cultivated, and to the climate of the plantation being more or less moist. Thus, Spix and Martius, in their "Travels," state that "the cotton tree cultivated at Rio de Janiero (*G. Barbadense*—sometimes, but more rarely, the *G. herbaceum*) thrives very well, but is stated not to furnish such durable materials as that in the higher and dryer districts of Minas Novas."

Proximity to the sea has, however, other peculiarities besides the facility of affording saline ingredients to the soil or to the atmosphere. It participates, to a certain degree, in the peculiarities of an insular climate; that is, in greater uniformity of temperature than is found in places farther in the interior, and in the freer circulation of air from the usually alternating land and sea breezes. There is also greater equability of moisture; for air, passing over the surface of the sea, necessarily takes up a larger proportion of water. This it does not immediately deposit on the coast, unless it is backed by hills, because it usually becomes a little warmed by the heated land, and is then capable of taking up more moisture. But, as it reaches the coast in a comparatively moist state, it necessarily rather checks than favors excessive evaporation, and thus does not force the foliage, exposed to its influence, to give up an undue quantity of moisture. This, however, is necessarily the case whenever a dry current of air passes over the surface of the leaves. To the influence of moisture, therefore, we must ascribe the more luxuriant vegetation of some sea-coasts, and of many tropical islands.

Baron Humboldt and Professor Dove have pointed out that, while Europe has a true insular or sea climate, both in winter and summer, North America inclines to a continental one in winter, and, in many parts, to a sea climate in summer; that is, it has a cold winter, with a cool summer, with the exception of certain districts, which are excessively hot. But Northern and Central Asia have a true continental climate, both in winter and summer, or a cold winter and a hot summer. Notwithstanding this, we must also recollect that, though each locality may participate in the characteristic climate of its continent, all places near the coast will have more or less of an insular climate, while those in the interior have such as are of a continental nature, though in varying degrees.

The different varieties of cotton cultivated in the United States are believed to belong to one species; that is, that the "Georgian," or "short-staple," is the sea-island, carried into the interior; and that the "sea-island" itself was originally introduced from the Bahamas, or, more remotely, from Anguilla, one of the West India Islands. The "New Orleans" does not differ specifically from the sea-island cotton, and is admitted by the planters of the South to be identical with the plant of Mexico, whence they procure their finest seeds. It is conjectured that it was from the neighboring coast of Mexico that the indigenous cotton of that country was introduced into the West Indies, and thence taken to the island of Bourbon. Hence we may account for *Gossypium Barbadense* being identical in species with the New Orleans and sea-island, as well as with the Bourbon cotton.

The Mexican plant is not a native of the temperate regions of that country, but of the *tierras calientes*, or hot districts. It is produced, for instance, in the neighborhood of Vera Cruz, and is represented as growing spontaneously near Valladolid, a town situated on the great plain of the Peninsula of Yucatan, described by Humboldt as one of the warmest regions in equatorial America. Mr. Stephens states that the spontaneous growth of cotton around that town had led to the erection of a cotton-factory in the place. Mr. Norman, in his "Rambles in Yucatan," says, "The cotton plantations, or, rather, the districts where the material is raised that is consumed in the manufactory in this city, are to the north, and known as the Tizemen district. The same spot is seldom cultivated for two successive seasons. After the crop is gathered, the ground is suffered to be overrun with weeds and brushwood, which, when years have elapsed, are cut down and burned, and the field is replanted." This rude method of culture is adduced only to show how little attention is paid to the plant in its native country. But, as it is desirable to know something precise respecting the climate of one at least of its native districts, we take from Professor Dove the subjoined notice of the means of observations made at Vera Cruz for thirteen years. This town, situated on the coast, in latitude 19° 12′ north, and in longitude 96° 9′ west, has a mean temperature of 77°.02 Fahrenheit, with a difference of only 12°.42 between the hottest and coldest months, thus:

January	69·98	July	81·50
February	71·60	August	82·40
March	73·40	September	80·96
April	72·17	October	78·44
May	80·48	November	75·38
June	81·86	December	71·06

The Mexican cotton has been introduced into Texas, as well as into Louisiana and Alabama. In the southern parts of Texas, where the climate is very congenial, the plant does not require to be renewed more frequently than once in three or four years, to yield a crop superior in quality and quantity to the annual planting of Louisiana. Cotton planting, in that part of Texas, commences in February, and picking begins at an earlier and continues for a longer period than in the other states; the average return, also, to the acre, is considerably greater in Texas than in the other states, and the expense of cultivation considerably less, in consequence, not only of the greater richness of the soil, but also of the peculiar mildness of the climate. The cotton, moreover, is of a superior quality, and planters of acknowledged veracity state that it is not uncommon to pick 4000 pounds of seed-cotton from an acre.

Mr. Featherstonhaugh, after crossing into Northern Texas, in about latitude 33° 40′, observed that he had never seen the cotton plant growing in greater perfection before; for, in the cotton districts he had passed through, the plant was a low dwarfy bush, not exceeding two feet in height; but here the plants were five feet high, often bearing 300 bolls, and yielding from 1500 to 2500 pounds of seed-cotton to the acre, which gives from 25 to 30 per cent. in weight of raw, marketable fibre.

The most successful cultivation of cotton in the United States, it is well known, is in the lower parts of Georgia, Alabama, Mississippi, Louisiana, and Texas. In these regions there is comparatively little frost, and the winter is always mild, with considerable heat in summer; but this is tempered, to a great extent, by the pleasant and salutary effects of the sea breeze, which sets in from the Gulf or the Atlantic for a great part of the day. There are heavy dews at night, and frequent showers occur, in the spring as well as in the summer. In the interior and more northern portions of these states (which are in some parts elevated from 500 to 1000 feet above the level of the sea), frost is expected in October, and often continues until April; sometimes it occurs even in May, so as to injure, but does not then usually destroy, the plant. The heat of summer, though frequently high, still is tempered by the influence of the ocean or the Gulf of Mexico, and of the numerous great rivers, as well as by the dews and occasional showers. The cultivation of cotton is generally commenced about the beginning of April, when the land is still saturated with the winter rains, and difficulty is sometimes experienced in getting the land sufficiently dry; otherwise, a good shower is essential when cotton is first sown, and it is desirable also to have occasional showers during the planting, plowing, and hoeing seasons. The bolls begin to open about the middle of July, and continue to do so until the appearance of frost, from the middle to the end of October, and the first delivery of the new crop on the sea-board is from the first to the twentieth of August.

In order to have a more precise idea of the climates of the most favorable cotton districts, and for the advantage of comparing them with those of other countries, the subjoined Table is selected from Professor Dove, as published by the British Association:

MEAN TEMPERATURE.

Localities.	Lat. N.	Long. W.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
Galveston, Texas	29° 18′	95° 10′	60·30	62·50	75·00	73·20	83·50	86·50	88·20	88·50	87·10	64·20	60·10	59·40	74·03
New Orleans, La.	29 58	90 70	56·75	58·39	66·58	72·41	77·26	81·18	82·22	82·12	79·42	69·71	58·71	52·26	69·80
Mobile, Ala.	30 12	87 50	56·40	57·37	65·64	70·00	76·36	82·17	82·41	82·73	78·94	69·97	61·50	55·50	69·92
Baton Rouge, La.	30 26	91 81	52·37	51·86	61·55	68·99	76·58	82·90	80·10	82·04	76·58	66·84	62·47	55·89	68·15
Jackson, La.	30 51	91 10	47·60	49·40	56·60	65·40	70·80	78·70	81·70	79·90	75·10	67·40	50·00	48·40	64·23
Houston, Texas .	31 54	95 56	65·20	60·50	68·70	72·70	85·50	80·10	84·20	81·40	83·50	72·30	62·30	60·00	73·00
Natchez, Miss. ..	31 34	91 25	50·13	59·80	62·20	69·93	72·72	80·62	81·78	80·13	74·99	64·58	55·23	49·09	66·10
Vicksburg, Miss.	32 24	91 60	51·40	53·72	63·99	74·01	76·84	80·65	82·48	80·11	76·40	64·92	55·26	50·91	67·56

To compare with these, we shall further adduce, from the same Tables, the mean temperatures of places on the Atlantic coast, as in Florida, Georgia, and Carolina, as well as in the interior of the last two:

Localities.	Lat. N.	Lon. W.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov	Dec.	Year
St. Augustine, Fla..	29° 50′	81° 27′	60·73	64·97	67·55	70·06	76·80	81·41	82·81	82·67	80·16	75·83	63·5	60·92	72·13
Savannah, Ga......	32 5	81 10	52·15	53·74	61·19	67·36	73·14	77·89	82·23	82·00	75·96	66·92	57·2	50·50	66·70
Charleston, S. C. ..	32 47	79 57	49 61	52·80	58·34	63·20	75·19	78·85	80·70	80·15	74·30	66·70	58·60	51·80	65·91
Fort Johnston, S. C.	34 0	78 5	51·42	52·19	60·52	65·28	73·70	78·98	81·57	80·39	76·32	69·11	60·13	53·83	66·96
Columbia, S. C.....	34 0	80 58	37·70	42·90	47·30	62·20	67·30	72·40	76·10	76·50	66·30	53·20	43·70	39·50	57·09
Augusta, Ga.	33 28	81 54	45·69	47·63	53·66	62·34	69·38	77·72	79·47	75·95	72·96	60·35	54·23	43·45	61·90

2. *Climate of the Cotton Regions of the United States.* —The climate of Georgia is somewhat warmer than that of Carolina, but the low, flat country of both, in summer and autumn, is moist, and somewhat unhealthy. The spring is commonly rainy, and the heat of summer is considerable, but is tempered by the gentle breezes which blow almost daily from the sea. The winds change from southeast to southwest about the end of July, but are variable, from storms of thunder, and the heavy rains of July and August. The cold weather seldom commences before the beginning of December, and terminates in March, but the winter is usually mild, and snow seldom falls near the sea, and soon melts away. The hilly parts, 200 miles from the sea, are agreeable and favorable to health. The winter is colder; snow falls to a depth of five or six inches. Though the preceding tables are sufficient to give a general idea of the climates, it would be desirable, for agricultural purposes, to have also the maxima and minima for the spring, summer, and autumnal months, for a series of years, as a night of frost may destroy the plants, and great heat, with drought, will be equally injurious, from drying them up. Cotton, as before observed, is sown in April; picking commences in July or August, and continues until November, and, on the coast, sometimes even as late as December. The sea-island plant yields about 125 or 130 pounds of clean ginned cotton per acre. Of the short staple, in the hill country, from the Mississippi to the Carolinas, not more than 500 pounds of seed cotton, or 150 pounds of clean cotton, can be obtained to the acre. The short staple cotton is more or less cultivated all the way from the southern borders of Virginia, to the southwestern streams of the Mississippi. The mean quantity over all is estimated at 125 pounds of ginned cotton, of both sea-island and of the short staple, to an acre, but the amount of labor is much greater for the former than for the latter.

In comparing the climates of the cotton regions above described with those of other countries, it is necessary to remember the peculiarity of that of America, with which this subject was commenced, and also how much the best cotton districts are influenced by the Atlantic, or the Mexican Gulf. The climate, to the west of the Alleghany Mountains, is considered more mild than that under the same parallels in the Atlantic states, and, by some, even to the extent of three degrees of latitude. This has been explained as caused by the warm air of the Gulf of Mexico being driven up the basin of the Mississippi and that of the Ohio. The direction of the valley, north and south, no doubt favors the course of the southern winds, while the regions of the Atlantic slopes, being transverse, oppose any such transmission, and also the migration of plants. The majority of the places of which the mean temperatures have been adduced are on the sea-coast, and necessarily participate, to some extent, in the peculiarities of an insular climate; that is, of seasons moderately contrasted. Still, the difference between the hottest and the coldest month of the year is much greater than at Vera Cruz; that is, than 12°; being, at Mobile, Galveston, and New Orleans, 27°·23, 29°·10, and 29°·96, respectively. But in the interior, at Natchez and Vicksburg, the differences are greater, being

32°·69 and 31°·57. In the Atlantic districts the differences are nearly as great as those on the south coast, being 31°·73 at Savannah, and 31°·09 at Charleston, while, in the interior, the differences are much greater, being 36°·02 at Augusta, and 38°·10 at Columbia. In addition to the foregoing, it is desirable to notice some of the general features of the climate, both of the Gulf and of the Atlantic states, as it will then be readily seen how much it is modified by the vicinity of the sea, and by the configuration of the coast:

Mississippi.—Near the Gulf of Mexico, the climate resembles that of the lower parts of Louisiana; the winter is mild, the summer warm, but tempered by the constant prevalence of the breeze from the Gulf, together with the elevation of the surface. At Natchez, however, the thermometer in winter sometimes stands as low as 10° Fahrenheit. In sickly seasons, the inhabitants frequently remove to the high banks of the bay of St. Louis.

Alabama.—In the low and southern parts of this state the heat is very great. The climate of the inland and upper parts resembles that of Georgia, and may be considered remarkably mild. Frost commences generally in October, and continues sometimes as late as the 20th of May, so as to injure, but not destroy, the cotton, in the more elevated parts. During summer, there is usually a prevalence of westerly winds. Those from the southeast are regarded as the sure harbingers of rain. At Mobile, from nine in the morning till evening, the pleasant and salutary effects of the sea breeze are felt. The rich verdure of the earth, with the copious dews that fall during the night, and the elevation of the soil, which, in the upland parts, is from 600 to 1000 feet above the sea, produce a beneficial effect on the climate.

Louisiana.—The climate of most parts of this state is somewhat variable. From the sea to Point Coupée, it seldom snows or freezes, except in the months of December and January, and then when the wind is from the north or northwest. There is less heat and more moisture than in similar latitudes on the Eastern Continent, and the climate is generally very mild. In winter, the thermometer seldom falls more than two degrees below the freezing point. In December, 1800, the thermometer sank to 12° near New Orleans, and snow fell for the first time in twenty years. In January, 1811, the mercury fell from 78° to 10°, and the Mississippi was completely frozen over. At the present time (February, 1856), it is reported as low as 20°, and the Mississippi as frozen quite over with the ice several inches in thickness, and the ground covered with ice and sleet to a depth of six or eight inches.

Georgia.—All the flat country of this state is described as moist and unhealthy during the warmer months, especially the "rice swamps;" the climate is somewhat warmer than that of South Carolina. The winter is the most pleasant season of the year, when the thermometer usually ranges from 40° to 66°, though sometimes a considerable degree of cold has prevailed; snow is uncommon, but frosts have been experienced even as late as April. A strong northeast wind will occasionally blight a promising field of cotton, as insects will sometimes destroy it. The spring is usually rainy, the summer inconstant, with a temperature of from 76° to 90° from June to September. The atmosphere feels springy and enlivening, being refreshed by gentle breezes, which blow almost daily from the seashore. About the 20th of July the summer rains set in, often accompanied with storms of thunder, and severe winds, which, though not tropical in their violence, are often so heavy as to deluge the fields. About the end of July, or beginning of August, the wind usually changes its direction from southeast to southwest. The month of August is the period of most solicitude to the cotton-grower, as heavy rains at that time occasionally cause the plant to part with its young bolls, and even its leaves. The autumn is usually fine and clear; and about the 20th of October frosts are expected, but do not often come before the end of the month. The inhabitants of the hilly tracts, two hundred miles from the coast, enjoy an agreeable climate, which is favorable to health. The winter is colder, snow sometimes falling to a depth of five or six inches. The summer is not so hot, and the winds of autumn are less violent; and the cotton, being less exposed, is allowed to hang longer, so as to become perfectly mature.

South Carolina.—The winter of the lower parts of this state is mild; and the difference between the mildest and severest winter is about seventeen degrees, often with heavy frosts, and sometimes snow, but with a hot sun during the day; though snow seldom falls near the sea. The winter may be considered as terminating in March, when snow and heavy rains usually occur; but April and May are commonly dry months. In the low country the heat of summer is intense; but the climate is liable to sudden changes of temperature, when it is damp with fogs and heavy dews. June, July, and August are generally the wettest months, and the rains consist of heavy bursts and frequent showers, which are liable to occur in spring, summer, and autumn. November is usually fine, even after the coming of frosts, which sometimes do not occur until December. The average quantity of rain, for ten years, was 49·3 inches; the largest quantity, 83·4 inches, and the least, 36·6 inches, in any one year. In the upper country, frost appears earlier and continues later; but the weather is not so variable. In winter the cold is considerable, but does not last very long. The climate of the Santee Hills, which are situated eighty or ninety miles from the coast, is similar in character.

Texas.—The climate of Texas is decidedly more healthy than that of Louisiana, or any other of the Gulf states; still, on the low alluvial coast, intermittents are prevalent during the summer and autumnal months; but the yellow fever is rarely known. Comparatively little rain falls from March to October, though gusts of wind, with thunder, frequently occur, with sufficient rain to make excellent crops. During the rest of the year, hot weather generally prevails. The winters are warm and mild on the coast, and, for some distance inland, snow is seldom seen, except on the higher table-lands or mountains. From April to September, the thermometer, near the coast, usually ranges from 63° to 100°. The greatest heats, however, are tempered by strong and constant breezes, which begin to blow soon after the rising of the sun, and continue until past noon. The nights throughout the middle regions are cool and refreshing during the year.—*Report of the Department of State of the United States.*

In connection with the climate of the United States, it is desirable to take some notice of that in which another species, the "Brazil" or "kidney" cotton, is cultivated. From the observations of the late Dr. Loudon, at Pernambuco, it is found, that the quantity of rain which falls at that place is considerable, and that the air must always be in a moist state. As Koster states that cotton succeeds better from 50 to 150 leagues interior, the climate may still be more moist than that on the coast.

3. *Climate of the Cotton Region of the Nile.*—The soil and climate of Egypt are adapted to the growth of cotton, but the yield depends greatly on the rise of the Nile. When the river is low the crop suffers, as little or no rain falls before December. Almost all the land in Lower Egypt is particularly well adapted to the growth of this product, yet it is not all equally good.

It rains frequently in the vicinity of Alexandria, and but seldom on the Delta.

The culture of cotton in Egypt, on a large scale, is comparatively recent. It was first undertaken by M. Jumel, a Frenchman, who, in 1821, laid before the Viceroy all the advantages and results arising from its production. Previous to that period, the cotton produced in that country was of inferior quality. A few plants only had been introduced from India, and were to be found in the garden at Cairo, where they served as ornaments. From these the culture was extended on a grand scale, and became one of the principal branches of the agriculture of the Viceroy. Although the soil along the Nile appears to be generally well adapted to the growth of the "Jumel" or "Mako" cotton, it is planted in preference in rich, heavy lands, which retain considerable moisture, and where the plant can acquire sufficient strength to produce well-filled bolls. The grounds where the cotton is cultivated are kept free from the overflowing of the river, as the standing water would rot the plants and cause them to perish. The agricultural labor of the country is performed exclusively by the Fellahs (peasantry), a peculiar race, who labor under a system similar to that of the serfage of Russia. The black slaves (chiefly Nubians and Abyssinians) in the country are occupied exclusively in domestic duties, and live better and labor less than the Fellahs. The latter are not permitted to leave the premises to which they belong, and the reward of their labor is left to the will of the proprietor, and generally is the minimum of subsistence. They live in mud hovels, and are allowed to partake of animal food but once a year, and then as a religious duty. Like the Emperor of Russia, the present Viceroy has made some experiments in making the Fellahs nominal proprietors of small farms; but the exactions of the Turkish officials never leave much margin in their profits. Therefore, having but little interest in the soil they cultivate beyond the merest subsistence, their labor is slovenly, their fields poorly tilled, and, consequently, improvements can not well be introduced. The Fellahs take great care to protect the fields by dikes of earth, where they are subject to inundation at the time of the rise of the Nile. Nevertheless the cotton-plants are watered periodically by means of *Sakyiehs*, *Shadoufs*, or water-wheels. In winter, they water them every fifteen days; in the spring, if there is much dew, every twelve days; and in summer, every eight days. It may here be remarked that, in summer and autumn, the dews are very copious. The system of irrigation is admirable. The planters of some of our Southern States might profit by its adoption. In every other respect the culture by the Fellahs is slovenly to the last degree. They begin to prepare the land for culture by flooding it in December, and allowing the water to remain upon it from ten to twenty days. No manure is employed, as the ordure of the animals of burden is used for fuel. The only fertilizer is the deposit of the sediment of the Nile when the land is overflowed. They plant in March and April in Lower Egypt, before which they usually give only one tillage to the ground, if it be rich; but if the soil be indifferent, it is worked two or three times. In the vicinity of the Said, they every where plow to a depth of about fifteen inches. They then run furrows at the distance of about 3½ feet. After plowing they level the ground by breaking the clods, and it requires no further preparation. They then make holes from three to four inches in depth, and 3½ feet apart, in which they deposit from two to four seeds that have been previously steeped in water for twenty-four hours to hasten their germination. In some cases the Fellahs cultivate vegetables, etc., in the intervals between the plants. At the time of the inundation they eradicate the weeds. The first year, they cut the cotton plants with a kind of pruning-knife, and remove all the branches, which they use for fuel. This operation gives more strength to the plants, and protects them from cold, which would otherwise cause the branches to perish. The second year, they only work the ground when making a new weeding, and the plants, which had before acquired a growth of from 3½ to 5 feet in height the first year, now grow only in a less degree.

The cotton begins to flower early in July, and continues to bloom till December, and even into February or March. The period of harvesting varies in different districts. The first year, it commences in July and ends in January, when the season is not too cold. The product of each plant is 1¼ pounds in the rough; the second and third years, from 1¼ to 2 pounds; but, in the subsequent years, the plants lose their fecundity, and it has been found necessary to renew them every three, and in some instances every two years. They would produce bolls, however, for a long period—say fifty years. At the expiration of three years the plant increases in its shrubby character, producing a very thick foliage with but few bolls.

The yield of cotton varies according to the circumstances under which it is cultivated. That which is sown in winter, called *Baaly*, and which is watered only during the inundation of the Nile, gives, on an average, above 200 pounds to the acre. That watered by means of wheels, and called *Miskawi*, gives about 300 pounds to the acre. The maximum yield has been as high as 700 pounds; but such instances are rare.

4. *Climate of the Cotton Regions of Algeria.*—The soil of Algeria is generally well adapted to the cultivation of cotton; but the climate is quite the reverse, from the deficiency of rain, the very light dews, the extreme heat of summer, and the almost incessant rains in autumn. Nor is the whole of Algeria suited to the growth of cotton; it is necessary to select those parts which are the most propitious. On the chain of the Atlas, as well as on the plains which crown its heights, the heat, although in summer excessive, does not continue long enough in autumn to permit the complete maturity of the bolls. In the region of Tell, it becomes necessary to abandon its culture at an elevation of 2000, or even 1600 feet above the level of the sea. But, beyond this central and mountainous country, there extend two zones which are declared suitable for the growth of cotton, and it is said that proof has been given to that effect; one is the region of the coast from La Calle to Nemours; the other, that of the Saharian oasis. Another obstacle to its culture is, that cotton, in general, can not be planted before the middle of April without running the risk of the seeds perishing from the excessive moisture of the land. Consequently, it can not arrive at maturity before the prolonged rains of autumn commence, which nearly stop its growth. The province of Oran is reputed to be better adapted to the growth of cotton than the other two, Algiers and Constantine.

Algeria, situated as it is between the 34th and 37th degrees of north latitude, bounded on one side by the Mediterranean, and on the other by the Desert of Sahara, from which it is separated by mountains, possesses a climate, in most parts, similar to the zones bordering on the tropics. It is not, however, strictly a tropical, neither can it be said to be a temperate region. It is particularly remarkable for the uniformity of its temperature throughout the year.

The *Moniteur* contains a report from Marshal Vaillant, addressed to the Emperor, on the subject of the growth of cotton in Algeria. In the document the Minister of War recognized the good effects of the decrees of the 16th of October, 1853, by which an annual prize of 20,000 francs was allotted for five years to the best cotton-grower in the Franco-African colony; and for three years, commencing with 1854, the whole cotton produce of Algeria was ordered to be purchased by the state at a price fixed beforehand, at an advantageous rate to the producer. In consequence of this encouragement the growth of cotton has increased, and it is said the quality is equal to that of American growth.

In the cultivation of cotton in Algeria, stable-dung is sometimes used, though but few farmers pay any attention to their fields. As their cattle are never housed, their means of making manure become very limited. They plant from the 15th of April till the 10th of May, in rows about two feet apart. The crop is hoed four times, and irrigated as often as water can be spared from other plants; and, when abundant, it is applied every four days. The bolls begin to form in July, and the plants continue in flower from September until the latter part of February. The harvesting also commences in September, and lasts until the following spring.

5. *Climate of the Cotton Districts of other Parts of Africa.*—Cotton of a very good quality has been cultivated for some years at Natal, nearly at the southern extremity of Africa. The coast is low along that region, and, in some parts, even swampy; but the land within ten miles of the sea is considered most favorable to the cultivation of cotton, probably from the constant moisture of the atmosphere and the warmth of the climate; though, no doubt, it may be successfully grown farther in the interior. The country beyond is described as being better adapted to the purposes of grazing. Various attempts have been made to obtain cotton from the west coast of Africa, and the seed of the best varieties have been introduced from the United States. In Liberia, Dahomey, and other places, fine samples have been produced, principally from the green-seeded and kidney-seeded sorts. The climate is represented as favorable, but a different population is required for an extended and profitable production.

6. *Climate of the Cotton Regions and Islands of the Mediterranean.*—Considerable quantities of cotton are cultivated in other countries bordering on the Mediterranean. It is generally the product of the India species, though seeds have been introduced from Egypt and the United States. These are cultivated in Asia Minor, in parts of Greece, and the islands generally known as the Levant. The Italian cottons are produced in Sicily, in Calabria, near Naples, and in Malta. Those of Sicily, Calabria, and Castellamare are the best, and are usually produced from American seed. A Nankin cotton is cultivated in Malta, but is all manufactured for domestic use.

At Naples, the soil and climate are well suited to the growth of cotton, with the aid of artificial irrigation in times of drought. In some seasons, however, the plants receive injury from insects, as well as from fogs and mists, in July and August.

The manure, when employed, is the dung of animals, but no other fertilizer is used. The seed is planted in April, in rows, with sufficient space between them for the passage of water, for the purposes of irrigation. The plants are in flower in June and July; the cotton harvested from September to November; and the yield per acre, unginned, besides other crops between the rows, 600 pounds.

The soil and climate of Sicily are better adapted to the growth of cotton than those of Naples, particularly on the southeast side of the island, and within twenty miles of the sea. Farther inland, the heat is not sufficient to mature the crop. The maximum temperature of the cotton regions, from May till October, is 77° Fahrenheit; minimum, 61¼°; the mean 68°. The quantity of rain which falls during the cotton-growing months is generally fully sufficient for the perfection of the plant. The principal injury to the crop is occasioned by long-continued north winds, which, however, but seldom occur.

7. *Climate of the Cotton Districts of British India.*—The British East India possessions embrace an almost boundless extent of territory, extending from the Himalaya range of mountains on the north, to the ocean, including nearly the whole of the peninsula of Hindostan, the island of Ceylon, and that portion of Burmah lying between the 20° of N. lat. and the bay of Bengal. In the peninsula of India, the climate is greatly influenced by the two monsoons—one from the northeast, which blows chiefly on the eastern coast, and the other from the southwest, which is mostly felt in Malabar and the western parts of the country. In some parts, the advantages of both monsoons are enjoyed; but in others, the change from the moisture of the rains to the heat and dryness which succeed them, is nearly as marked in its character as at Saharunpore, and the cotton-plants suffer as much from the transition. Such being the extremes of temperature and of dryness, as well as the shortness of the several seasons in which the plant may be made to grow—that is, during the hot and dry weather, from March to June, or during the steaming moisture of the rainy season, followed, at first, by a hot and moist summer, and then by a cold and dry autumn, succeeded by a bracing winter—a plant must be hardy to sustain uninjured such extreme and sudden vicissitudes. But all India is not identical in climate. In some parts the accession of the rains is earlier, their termination more gradual, and the cold of winter less, or the country enjoys the advantages of a double monsoon; so that there is a longer period of growth.

Temperature, as we have seen, is only one of the elements of climate, and, though a very important one, is yet unable of itself to do any thing toward the growth of a plant, unless water be within the reach of its roots to dissolve and carry into the vegetable cells and vessels the elements of nutrition. It must be decomposed, in contact with air, not too dry, nor yet too damp, but containing its due proportion of oxygen and carbonic acid gas, and illuminated by the light of the sun. There is no doubt that cotton-plants may exist through a long range of temperature, and of moisture and dryness of the atmosphere; but it is equally certain that they will never attain healthy vigor of growth unless there is a due supply of moisture in a moderately warm, or rather hot atmosphere. Though the degree of heat may be measured with a thermometer, moisture is not always indicated by the rain-gauge, for rain may fall and run off the surface, or percolate the soil, and the earth and the atmosphere both be left in a parched state, even during the season of growth. The moisture can only be determined by the hygrometer, or the wet and dry-bulbed thermometer; and, imperfect as the majority of such instruments are, the information obtained from many situations would be invaluable, as we might then be more sure of drawing correct inferences, because, though we might not be able to calculate correctly the exact quantity of moisture contained in the atmosphere, we could see whether this was in a state of saturation, or was capable of taking up a still larger quantity, and thus in the one case checking, and in the other favoring, evaporation from the soil, and from the surface of plants. To the comparative moisture of the air on the sea-coast, and in places within the reach of the moist sea air, must chiefly be ascribed the preference of the cotton-plant for such situations, or, at least, for its successful culture in so many islands and along so many coasts. But to this it may be objected, that a long-stapled cotton is successfully grown in the dry climate of Egypt. In that country, however, copious irrigation produces the same beneficial effects in a warm, dry atmosphere. Excess of moisture in a warm climate, however, may prove as injurious as its deficiency; for then the parts of vegetation may be altogether stimulated, or may be in a state of continual growth, when plenty of branches and leaves are produced, but few flowers and very little cotton.

The seasons of India, over a great part of the country, are divided into the cold, the hot, and the rainy; names which sufficiently indicate the particular characteristics of each. If we take an equatorial climate, like that of Singapore, as a standard of comparison, we shall observe a very great difference between it and that of a northwestern situation in the plains, such as Saharunpore, in 30° of north latitude, the first being remarkable for uniformity, and the latter for a great range, both of the dry and wet-bulbed thermometer. Plants which live throughout the year in the open air at Singapore, will, in most cases, suffer both from the cold and the heat of Saharunpore, though they may flourish in the rainy season almost as well in the one as the other.

Mean Temperature in the Shade, by Fahrenheit's Scale, of several Localities in India, where Cotton has been cultivated.

Localities.	N. Lat.	E. Long.	Height above Sea.	January.	February.	March.	April.	May.	June.	July.	August.	Septemb.	October.	Novemb.	December.	Year.
Singapore	1° 23′	103° 52′	sea level.	86·00	88·00	89·00	85·00	85·00	87·00	88·00	86·00	87·00	87·00	86·00	85·00	86·58
Madras	13 4	80 14	sea level.	75·50	77·70	80·80	83·70	86·80	87·70	85·30	84·60	83·70	82·02	78·90	76·30	81·91
Calcutta	22 23	88 28	sea level.	66·20	69·80	80·00	85·40	85·70	83·70	81·80	82·00	82·00	79·20	74·20	66·60	78·05
Benares	25 18	82 56	300 ft.	62·56	72·49	79·07	89·91	94·35	90·28	85·71	85·72	85·99	81·49	72·13	63·45	80·26
Cawnpore	26 29	80 22	500 ft.	63·08	69·05	72·15	88·55	96·05	91·23	86·65	87·04	85·03	78·95	75·25	67·05	80·01
Suronli	28 41	77 13	8[illegible]0 ft.	51·43	59·29	67·22	75·03	82·53	87·75	88·61	88·90	77·83	72·32	60·26	49·35	71·71
Saharunpore	29 57	77 32	1000 ft.	52·05	63·25	68·00	79·00	86·05	89·00	86·75	85·25	78·00	74·00	64·75	56·05	73·51
Deyrah Doon	30 15	78 5	2350 ft.	52·68	59·05	67·00	73·00	81·00	86·00	83·00	81·00	78·05	73·05	57·00	56·05	70·52

Average Quantity of Rain, in Inches and Parts, on the Sites of Experiments in the culture of Cotton, on the Low Lands of the Coast, and on the Table-land of the Deccan, in India.

Sites.	N. Lat.	E. Long.	Height above sea.	January.	February.	March.	April.	May.	June.	July.	August.	Septemb.	October.	Novemb.	December.	Year. hes.
Madras	13° 4′	80° 14′	sea level.	1·33	0·23	0·36	0·63	1·03	2·03	3·20	5·24	4·76	10·09	12·43	3·25	37·20
Bombay	18 56	72 53	sea level.	Konkun, sea coast												68·73
Butnagherry	....	....	150 ft.	" "												114·55
Tanna	19 00	73 00	sea level.	" inland												106·16
Dapoolee	....	....	900 ft.	" "												134·96
Kundaillah	....	....	1740 ft.	Western Ghâts												141·59
Mahabuleshwur	17 56	73 30	4500 ft.	" "												254·84
Paunchgunnee	....	....	4000 ft.	" " east branch												50·69
Sattarah	17 10	73 12	2320 ft.	Deccan, table-land												39·20
Colapoor	16 20	73 10	......	" "												30·74
Poonah	18 00	73 00	1842 ft.	" "												19·02
Nassuck	19 56	73 56	......	" "												26·72
Belgaum	16 00	75 00	2000 ft.	" "												40·90
Dharwar	15 28	75 8	......	" "												38·81
Ahmednugger	19 10	73 15	1900 ft.	" "												21·83
Shorapore	....	....	......	" "												32·16

—*U. S. Patent Office Report*, 1855.

III. Cotton Trade of the United States. 1. *History.*—Cotton, which administers so bountifully to the wants of civilized as well as to savage man, and to the wealth and economy of the countries producing it, stands pre-eminent in the United States, both as regards its superior staple and the degree of perfection to which its cultivation has been brought. One or more of its species is found growing wild throughout the torrid zone, whence it has been disseminated, and become an important object of culture in several countries thereto adjacent from time immemorial. It is mentioned by Herodotus as growing in India, where the natives manufactured it into cloth; by Theophrastus as a product of Ethiopia; and by Pliny as growing in Egypt, toward Arabia, and near the borders of the Persian Gulf. Nieuhoff, who visited China in 1655, says that it was then cultivated in great abundance in that country, where the seed had been introduced about 500 years before. Columbus found it in use by the American Indians of Cuba, in 1492; Cortez, by those of Mexico, in 1519; Pizarro and Almagro, by the Incas of Peru, in 1532; and Cabeça de Vaca, by the natives of Texas and California, in 1536.

Of the precise period of the first introduction of the cultivation of this plant into the North American colonies, history is silent. In a pamphlet entitled "Nova Britannia offering most excellent fruits by planting in Virginia," published in London in 1609, it is stated that cotton would grow as well in that province as in Italy. It is also stated, on the authority of Beverley, in his History of Virginia, that Sir Edmund Andros, while governor of the colony, in 1692, "gave particular marks of his favor toward the propagating of cotton, which, since his time, has been much neglected." It further appears that it was cultivated for a long time in the eastern parts of Maryland, Virginia, Carolina, and Georgia, in the garden, though not at all as a planter's crop, for domestic consumption. In another pamphlet, entitled "A State of the Province of Georgia, attested upon oath, in the Court of Savannah," in 1740, it was averred that "large quantities have been raised, and it is much planted; but the cotton, which in some parts is perennial, dies here in the winter; which, nevertheless, the annual is not inferior to in goodness, but requires more trouble in cleansing from the seed." About the year 1742, M. Dubreuil invented a cotton gin, which created an epoch in the cultivation of this product in Louisiana. During the Revolution, the inhabitants of St. Mary's and Talbot counties, in Maryland, as well as those of Cape May county, New Jersey, raised a sufficient quantity of cotton to meet their wants for the time. It was formerly produced in small quantities, for family use, in the county of Sussex, in Delaware, near the head-waters of the Choptank.

The seed of the sea-island cotton was originally obtained from the Bahama Islands, in about the year 1785, being the kind then known in the West Indies as the "Anguilla cotton." It was first cultivated by Josiah Tattnall and Nicholas Turnbull, on Skidaway Island, near Savannah; and subsequently by James Spaulding and Alexander Bisset, on St. Simon's Island, at the mouth of the Altamaha, and on Jekyl Island, by Richard Leake. For many years after its introduction it was confined to the more elevated parts of these islands, bathed by the saline atmosphere, and surrounded by the sea. Gradually, however, the cotton culture was extended to the lower grounds, and beyond the limits of the islands to the adjacent shores of the continent, into soils containing a mixture of clay; and lastly, into coarse clays deposited along the great rivers, where they meet the ocean tides.

Previous to 1794—the year after the invention of Whitney's saw gin—the annual amount of cotton produced in North America was comparatively inconsiderable; but since that period, there is probably nothing recorded in the history of industry, including its manufacture in this country and Europe, that would compare with its subsequent increase.

In the Eastern hemisphere, the growth of cotton is principally restricted to the maritime countries lying between the 40th degree of north latitude and a corresponding parallel south. On the easterly side of the Western Continent, this plant will perfect its growth in most of the districts adjacent to the tidal waters, including the regions bordering on the Mississippi, the Amazon, and the Parana, between latitude 39° north and 40° south; and on the west coast of America, between the 40th parallel north and a corresponding degree south.

The growth of this staple is chiefly confined to India, China, Japan, Australia, Persia, Turkey, southern Europe, Arabia, Egypt, Algeria, southern and western Africa, the southern section of the United States, British Guiana, New Granada, Venezuela, Peru, Brazil, Uruguay, the West Indies, and numerous other ocean isles.

According to Dr. Royle, who has recently investigated the subject, the different localities of the four varieties or species of cotton (see page 434) may be stated in the following manner:

1. *Gossypium Indicum*, or *herbaceum*—the cotton plant of India, China, Arabia, Persia, Asia Minor, and some parts of Africa.

2. *Gossypium arboreum*—a tree cotton, indigenous to India.

3. *Gossypium Barbadense*—the Mexican or West Indian cotton, of which the sea-island, New Orleans, and upland Georgia, are varieties. It was long since introduced into the island of Bourbon, and thence into India; hence it acquired the name of "Bourbon cotton."

4. *Gossypium Peruvianum*, or *acuminatum*—which yields the Pernambuco, Peruvian, Maranham, and Brazilian cotton, especially distinguished by its black seeds, which adhere firmly together. This variety has long since been introduced into India.

The chief varieties cultivated in the United States are the black seed, or sea-island (*G. arboreum*), known also by the name of "long-staple," from its fine, white, silky appearance and long fibres; the green seed (*G. herbaceum*), called "short-staple," from its shorter, white staple, with green seeds, and commercially known by the name of "upland cotton;" and two kinds of Nankin or yellow (*G. Barbadense*), the Mexican and Petit Gulf. The average yield is about 500 pounds per acre.

The earliest record of sending cotton from this country to Europe is in the table of exports from Charleston, in 1747–'48, when seven bags were shipped; another parcel, consisting of 2000 pounds, was shipped in 1770; and a third shipment of 71 bags was made in 1784, which England seized, on the ground that America could not produce a quantity so great. The amount exported from the United States in 1791 was 189,316 pounds; in 1793, 487,600 pounds; in 1794, 1,601,760 pounds; in 1795, 6,276,300 pounds; in 1800, 17,789,803 pounds; in 1810, 93,261,462 pounds; in 1820–'21, 124,893,405 pounds; in 1830–'31, 276,979,784 pounds; in 1840–'41, 530,204,100 pounds; in 1850–'51, 927,237,089 pounds.

According to the Census returns of 1840, the amount cultivated was 790,479,275 pounds; of 1850, 987,449,600 pounds; showing an increase of 196,970,325 pounds.

It appears that the culture of cotton is rapidly diminishing in Virginia and North Carolina. In those states it is doubtless giving place to other productions of the soil. There has been a very heavy falling off also in Louisiana, and no appreciable increase in Mississippi; but the diminution in the former state, and the failure of any advance in the latter, are accounted for by the terrible inundations of the Mississippi and its tributaries. But for that calamity, it is probable that their increased yield would have equaled that of Alabama, which now occupies the first place as a cotton-planting state, and has almost doubled its production since 1840. Immense as the extent and value of this crop has become, it is not extravagant to anticipate a rate of increase for the current decennial period which will bring up the aggregate for the year 1860 to 4,000,000 bales.

The average annual yield for the five years ending with 1835 was estimated at 1,055,000 bales; for the same period ending in 1840, 1,440,000 bales; for a like period terminating with 1850, 2,270,000 bales. Had no disturbing cause interrupted the progressive advance, the amount of 1850 would have exceeded 3,000,000 bales.

The export of cotton from the United States to the countries of northern Europe commenced some sixty years ago. In the year 1800, Holland, including the territory now known as the kingdom of Belgium, received 79,694 pounds; in 1855 the aggregate quantity exported to the two countries was 17,160,967 pounds. In 1803 Norway and Denmark first imported American cotton, amounting that year to 184,193 pounds; in 1855 the aggregate quantity exported to these two countries, including Sweden, was some 7,000,000 pounds. Prussia and Sweden began importing cotton from the United States in 1804. Russia, in 1809, received cotton from the United States for the first time, and to the amount of half a million of pounds; while in 1853, the year prior to the commencement of the late war, the exportation to that country amounted to more than 21 millions. The Hanse-towns received cotton from the United States prior to the year 1800, and the progress of the trade with those cities, which is exhibited in the subjoined statement, strikingly exemplifies, in connection with the remarks which have preceded, and the general statement which follows it, the rapid and powerful advancement of the king-staple, not of the United States only, but of the commercial world.

At the opening of the present century, the imports of cotton wool into Great Britain were about 75,000 bales per annum; now the consumption of that country is 2,500,000 bales annually, while the rest of Europe, and the United States, that then had no manufactories, use about 1,900,000 more, to say nothing of the consumption of Asia. Of this 4,000,000 bales, five-sixths are the product of this country. The result of the past three years proves, that neither the existence of a war involving the chief nations of Europe, nor the fluctuations in trade consequent on its cessation, have had any effect on the demand for our great southern staple; thus establishing the fact that, the next to the leading articles of human food, it has become a great and fixed necessity.

A document compiled from the very best data, by one peculiarly fitted for the task, was lately read before the Manchester Chamber of Commerce, exhibiting very important facts. The value of the cotton manufacturing industry of the world was estimated at £120,000,000 sterling, or $600,000,000. Of this amount the entire population of Great Britain consumed, in value, about $3·85 per head per annum. England exports to the United States manufactured goods at the rate of 77 cents for each individual in this country, but being ourselves large manufacturers, and in view of the general better condition of the bulk of our population, it is probable that our consumption of cotton goods will exceed that of Great Britain 50 per cent. per head. England exports to her North American colonies cotton goods at the rate of $1·53 per head per annum, for the whole population; to Russia, only at a rate of three-fifths of a cent per head; to France, two cents per head; to her East India possessions, at the rate of 18 cents; but these three last countries manufacture at home, especially France, who mainly provides for her own wants, while Russia receives goods from several sources. Estimating the population of the globe at 850,000,000, the apportionment of the whole value of manufactured goods would be about 70 cents for every inhabitant, man, woman, and child.

The tendency of the age is gradually toward an equalization of the moral and physical condition of the human family. The wealthier and middle classes expend much more than heretofore in articles of taste and luxury, in household and personal adornment, whereby the artisan, mechanic, and laborer are benefited, and their condition improved. The barbarous and debased nations and tribes of the world are fast tending toward the habits, and acquiring the tastes of civilization; the first symptom of which is the exchange of their former rude and scanty clothing for dresses of our manufactured goods.

Hence it requires neither reflection nor argument to show that a *very small general increase* in the consumption of cotton goods would demand a supply of raw material beyond the *present* ability of the world to afford. A reference to table " General Import of Cotton into Great Britain" will show that the small product of the West Indies is almost stationary—that the same is the case with Brazil, on an average of years; the export thence, last year, was only 135,000 bales, weighing less than 200 pounds each. In Egypt, the product of the past four years has averaged about twice as much as the preceding period; and last year only 115,000 bales came from that source, weighing 250 pounds each; while the average shipments from the East Indies for the past six years is but 340,000 bales per annum, weighing about 380 pounds each.

The main dependence of the world is on this country, which last year furnished 3,500,000 bales out of a total product of 4,200,000. As the new lands of the West come into cultivation, and the progress of our railroads brings the crop within reach of the seaboard, there will be a gradual increase of our production; but to this even there must be a limit, considering the nature of the climate and soil necessary; and the time may not be very far distant when we shall fail to meet the demand. Under this state of things, it is not to be wondered at that the governments of England and France are putting forth every effort to foster the cultivation of cotton in their colonies. We have, certainly, no cause for fear or jealousy in view of these efforts. Not only are we, as producers, interested, but the foreign manufacturer, the political economist, and the philanthropist, alike have taken the matter into serious consideration. We can scarcely contemplate, without emotion, the disastrous results commercially, politically, and socially, that might follow a general failure of *only one* crop in this country. There would be no reserve to fall back upon. The stock in Great Britain on the 1st of January last was but little larger, with a consumption of 2,100,000 bales, than it was in 1841, with a consumption of a little over 1,000,000 bales; and not half so large as the stock on January 1, 1846.

2. STATISTICS OF THE COTTON TRADE OF THE UNITED STATES.

Statement respecting the Tariff Duties and Custom-house Regulations applicable to American Cotton in the principal Commercial Countries.

Countries.	Quantities.	Rates of Duty.
Great Britain	....	Free.
France	220 pounds	In national vessels, $3 72; in foreign vessels, $6 48.*
Spain	101 pounds	In national vessels, 79½ cents; in foreign vessels, $1 85.
Russia	36 pounds	18¾ cents.
Bremen	Ad valorem	⅔ of 1 per cent.
Sardinia	....	Free.
Belgium	....	Free.
Austria	....	Free.
Sweden and Norway	....	In Sweden, free; in Norway, nearly ½ cent per pound.
Mexico	101 pounds	$1 50.
Hamburg	Ad valorem	½ of 1 per cent.
Holland	....	Free.
Two Sicilies	192·050 pounds.	$8 00.
British N. A. possess.	....	Free.
Denmark	....	Free.
Portugal	101 pounds	2 1-5 cents.
Tuscany	....	Free.
Papal States	74·86 pounds	10 cents.
Cuba	101 pounds	In national vessels, 19¼; in foreign vessels, 27½ per cent. on a valuation of $5 00.

Cotton Crop of each State, according to the United States Census.

States and Territories.	Cotton gathered.	Ginned Cotton.
	1840.	1850.
	Pounds.	Bales of 400 Pounds.
Alabama	117,138,823	564,429
Arkansas	6,028,642	65,344
Delaware	334	....
Florida	12,110,533	45,131
Georgia	163,392,396	499,091
Illinois	200,947	....
Indiana	180	14
Kentucky	691,456	758
Louisiana	152,555,368	178,737
Maryland	5,673	....
Mississippi	193,401,577	484,292
Missouri	121,122	....
North Carolina	51,926,190	50,545
South Carolina	61,710,274	300,901
Tennessee	27,701,277	194,532
Texas	....	58,072
Virginia	3,494,483	3,947
Total	790,479,275	2,445,793

The above are estimates merely; and the totals vary from the tabular returns on page 445. The quantities consumed where grown will account in part for the discrepancies.

Tabular Comparative Statement showing the average Quantities of Cotton produced and exported in the United States, with the Values of the Quantities so exported; together with the Current Prices of Cotton in the United States and Great Britain, respectively, during the first three Years of each Decade, for a Period of sixty-three Years, from 1792 to 1854, both inclusive. (*a*)

Years.	Produced.	Exported.		Prices in	
		Quantities.	Values.	U. S.	G. B.
	Pounds.	Pounds.	Dollars.	Cents.	Pence.
1792 1793 1794	5,300,000	743,000	233,000	31½	19 1-6
1802 1803 1804	60,000,000	33,600,000	6,900,000	19½	16 4-6
1812 1813 1814	73,300,000	22,600,000	2,700,000	12½	20½
1822 1823 1824	203,300,000	153,500,000	22,100,000	14·6	8½
1832 1833 1834	431,600,000	344,000,000	38,500,000	11·23	7½
1842 1843 (*c*)1844	(*b*) 907,100,000	680,206,000	60,706,090	7·46	5
1852 1853 1854	(*b*) 1,227,400,000 (*d*)	1,064,200,000	97,000,000	9·12	6 1-7

(*a*) This statement, made up with care and labor from sources official and unofficial, and often conflicting, although not perhaps statistically exact, is yet probably enough so for those purposes of general comparison for which it is submitted. For obvious reasons, the aggregate of the exportation and consumption of cotton can not be expected to balance the production in any single year, independently of stocks on hand from preceding years. An average, year with year, of some 70,000 pounds consumed for household and other uses, and of some 3,000,000 pounds lost or destroyed, and of some 500,000 pounds of imported cotton consumed, are also items to be considered in striking this balance; as well, moreover, as the fact that the sums are in round numbers, and that the only figures in the statement which can be viewed as at all statistical are those giving the amounts and values of exportation. The data for quantities, values, and prices, derived from the Treasury reports, do not, it will be perceived, always afford results entirely consistent.

(*b*) The capacity of the bale is computed, agreeably to usage, at 400 pounds, in changing bales into pounds for this statement, although an average of 450 pounds to the bale would probably be more exact.

(*c*) Nine months only, the year ending June 30 instead of September 30, as before.

(*d*) The 7th decade terminates in 1861. The statement may, therefore, be viewed as embracing a period of seventy years, from 1792 to 1861, inclusive.

The following table gives, opposite to each year, the crop of the United States, the number of bales of new crop received in New Orleans up to the 1st of September, with the date of killing frost. The remarks appended are a brief synopsis of the character of the season. Reasoning from cause to effect, the reader will be enabled to form some idea of the causes operating for or against a large crop, always bearing in mind the gradual increase in the breadth of fresh land planted in the West and Southwest.

---

* By the treaty of 1822, United States vessels are equalized with French vessels in the direct importation into France of articles the growth, manufacture, or produce of the United States.

Ending Sept. 1.	Crop.	Bales in August.	Killing frost.
1840..........	2,182,000	....	....
1841..........	1,634,900	....	Nov. 19
1842..........	1,683,600	....	Nov. 29
1843..........	2,378,900	1,734	Nov. 18
1844..........	2,030,400	292	Oct. 27
1845..........	2,394,500	5,720	Nov. 14
1846..........	2,100,500	6,846	Nov. 10
1847..........	1,778,600	140	Nov. 20
1848..........	2,346,600	1,089	Nov. 20
1849..........	2,728,600	2,864	....
1850..........	2,096,700	477	Nov. 26
1851..........	2,355,000	67	Nov. 17
1852..........	3,015,000	3,155	Nov. 6
1853..........	3,262,900	5,077	Nov. 27
1854..........	2,930,000	74	....
1855..........	2,847,300	1,391	Nov. 14
1856..........	3,527,800	23,282	Oct. 24

REMARKS.

1839—First large crop. Season remarkably fine throughout.

1840—Unfavorable season. Overflow of Mississippi River.

1841—Western crop good. Severe drought in Alabama, Georgia, Florida, and Mississippi.

1842—Generally good season and early picking.

1843—Late spring, rainy summer, and early frost.

1844—Very good season, and early picking. Partial overflow of Mississippi River.

1845—Mississippi River and Western crop good and early. Drought reduced the eastern crop 300,000 bales.

1846—Late spring, early and general visitation of army worms; the latter destroying 400,000 to 500,000 bales.

1847—Late season, but favorable fall. The occurrence of the French Revolution put down prices, and 200,000 bales were held back in the country.

1848—Summer rainy, but fine fall; 200,000 bales brought forward of previous crop.

1849—Frost in spring, heavy rains in July, partial overflow of Mississippi River; Red River bottoms overflowed in summer.

1850—Backward spring, picking began unusually late. Partial overflow of Mississippi River.

1851—Favorable summer and early picking.

1852—Remarkably fine season, early picking, and late frost.

1853—Late and rainy season.

1854–'55—Backward season. About 250,000 bales kept back by lowness of the waters in Alabama, Louisiana, Arkansas, and Texas.

1855–'56—Fine season. Early picking, sufficiently good to counterbalance an early frost. About 250,000 bales of last crop received, which, in fact, will make the *actual* product of 1854–'55, 3,097,300 bales, and reduce that of 1855–'56 to 3,277,800 bales.

Sea-Island Cotton. The crop of this important staple for the year ending Sept. 1, 1856, was 44,512 bales; 1854–'55, 40,841 bales, and in 1853–'54, 39,686 bales. The receipts in 1855–'56 being, from Florida, 10,900; Georgia, 13,245; South Carolina, 20,367.

The extraordinary crop of the year 1855–'56 in the United States (3,527,300 bales) has passed into the numerous channels of consumption at prices much higher than for five years past, leaving a stock on hand on 1st September last of only 52,000 bales in all the United States ports. This consumption is still going on throughout the British and Continental manufacturing districts; and the increase of machinery added to mills hitherto working, it is estimated, will require in Great Britain alone an additional weekly supply of 4000 bales.

ACCOUNT SHOWING THE DESTINATION OF THE COTTON EXPORTED FROM THE UNITED STATES IN 1847, 1848, AND 1849.

Countries.	1847.	1848.	1849.
	Pounds.	Pounds.	Pounds.
Russia...........	5,618,565	10,266,911	10,650,631
Sweden and Norway...........	2,887,693	4,978,024	7,024,160
Denmark........	660,732	69,020	4,779
Hanse Towns....	10,889,543	17,420,498	13,844,494
Holland.........	1,978,324	4,551,569	11,887,586
Belgium.........	10,184,348	15,279,676	28,113,309
England.........	338,150,564	546,911,182	687,490,911
Scotland.........	12,683,738	25,091,965	38,171,773
Ireland..........	424,497	....	3,968,547
Gibraltar........	90,199	153,202	5,725,812
Canada..........	103,956	22,352	94,257
British Am. Col..	122,507		2,747
France, Atlantic..	97,421,966	129,263,272	142,232,509
——— Mediter'n.	4,695,492	7,034,583	6,858,283
Spain.............	12,313,658	19,323,425	23,285,804
Cuba.............	3,139,153	4,557,474	1,584,784
Portugal..........	....	774	240,895
Italy..............	8,720,718	6,077,621	10,604,462
Sardinia..........	4,494,594	2,514,364	6,053,707
Austrian ports...	11,780,673	20,463,690	13,279,384
Mexico..........	....	....	2,208,704
Central America.	....	....	524,721
China and South Seas..........	848,998	12,953	760,961
Total......	527,219,958	814,274,431	1,014,633,010

N.B.—The sea-island, amounting to 11,969,259 lbs., is excluded from the exports in the foregoing table for 1849. Including them, the total exports of that year were 1,026,602,269 pounds.

STATEMENT EXHIBITING THE QUANTITY AND VALUE OF COTTON EXPORTED ANNUALLY FROM THE UNITED STATES FROM 1821 TO 1855, INCLUSIVE, AND THE AVERAGE PRICE PER POUND.

Years.	Pounds of Cotton.			Value.	Average cost per pound.
	Sea-Island.	Other.	Total.		
1821..............	11,344,066	113,549,339	124,893,405	$20,157,484	16·2
1822..............	11,250,635	133,424,460	144,675,095	24,035,058	16·6
1823..............	12,136,688	161,586,582	173,723,270	20,445,520	11·8
1824..............	9,525,722	132,843,941	142,369,663	21,947,401	15·4
1825..............	9,665,278	166,784,629	176,449,907	36,846,649	20·9
1826..............	5,972,852	198,562,563	204,535,415	25,025,214	12·2
1827..............	15,140,798	279,169,317	294,310,115	29,359,545	10
1828..............	11,288,419	199,302,044	210,590,463	22,487,229	10·7
1829..............	12,833,307	252,003,879	264,837,186	26,575,311	10
1830..............	8,147,165	290,311,937	298,459,102	29,674,883	9·9
1831..............	8,311,762	268,668,022	276,979,784	25,289,492	9·1
1832..............	8,743,373	313,451,749	322,215,122	31,724,682	9·8
1833..............	11,142,987	313,535,617	324,698,604	36,191,105	11·1
1834..............	8,085,937	376,601,970	384,717,907	49,448,402	12·8
1835..............	7,752,736	379,686,256	387,358,992	64,961,302	16·8
1836..............	7,849,597	415,721,710	423,631,307	71,284,925	16·8
1837..............	5,286,971	438,964,566	444,211,537	63,240,102	14·2
1838..............	7,286,340	588,665,957	595,952,297	61,556,811	10·3
1839..............	5,107,404	408,566,808	413,624,212	61,238,982	14·8
1840..............	8,779,669	735,161,392	743,941,061	63,870,307	8·5
1841..............	6,237,424	523,966,676	530,204,100	54,330,341	10·2
1842..............	7,254,099	577,462,918	584,717,017	47,593,464	8·1
1843..............	7,515,079	784,782,027	792,297,106	49,119,806	6·2
1844..............	6,099,076	657,534,379	663,633,455	54,063,501	8·1
1845..............	9,389,625	863,516,371	872,905,996	51,739,643	5·92
1846..............	9,388,533	538,169,522	547,558,055	42,767,341	7·81
1847..............	6,293,973	520,925,985	527,219,958	53,415,848	10·34
1848..............	7,724,148	806,550,283	814,274,431	61,998,294	7·61
1849..............	11,969,259	1,014,633,010	1,026,602,269	66,396,967	6·4
1850..............	8,236,463	627,145,141	635,381,604	71,984,616	11·3
1851..............	8,299,656	918,937,433	927,237,089	112,315,317	12·11
1852..............	11,738,075	1,081,492,564	1,093,230,639	87,965,732	8·05
1853..............	11,165,165	1,100,405,205	1,111,570,370	109,456,404	9·85
1854..............	10,486,423	977,346,683	987,833,106	93,596,220	9·47
1855..............	13,058,590	995,366,011	1,008,424,601	88,143,844	8·74
Total lbs.......	320,507,294	18,154,756,946	18,475,264,240	$1,830,247,742	....

TABULAR COMPARATIVE STATEMENT SHOWING THE QUANTITIES OF COTTON EXPORTED FROM THE UNITED STATES TO THE PRINCIPAL COMMERCIAL COUNTRIES RESPECTIVELY, AND THE ANNUAL AVERAGE AMOUNTS THEREOF; AND THE ANNUAL AVERAGE AMOUNTS OF DUTIES DERIVED THEREFROM, FOR A PERIOD OF FIVE YEARS, FROM 1851 TO 1855, BOTH INCLUSIVE. THE DATA FOR THIS STATEMENT ARE DERIVED FROM THE UNITED STATES TREASURY REPORTS, IN WHICH THE COMMERCIAL YEAR CLOSES JUNE 30. THE YEAR IN BRITISH AND FRENCH OFFICIAL DOCUMENTS CORRESPONDS WITH THAT OF THE CALENDAR: HENCE ONE CAUSE OF APPARENT DISCREPANCIES IN FIGURES FOR NOMINALLY THE SAME YEARS.

Countries to which exported.	Pounds of Cotton exported from the United States in the Years					Annual average Amounts of Cotton.	Annual average Amounts of Duties paid.*
	1851.	1852.	1853.	1854.	1855.		
Great Britain..........	670,645,122	752,573,780	768,596,498	696,247,047	673,498,259	712,312,141	Free.
France..................	139,164,571	186,214,270	189,226,913	144,428,360	210,113,809	173,829,584	$2,939,300 25
Spain.....................	34,272,625	29,301,928	36,851,042	35,024,074	33,071,795	33,704,292	265,296 06
Hanse Towns.........	16,716,571	22,318,228	22,671,782	37,719,922	30,809,991	26,011,298	25,795 00†
Belgium.................	16,335,018	27,157,890	15,494,442	13,980.460	12,219,553	17,037,472	Free.
Austria..................	17,309,154	23,948,434	17,968.642	14,961,144	9,761,465	16,789,767	Free.
Sardinia and Italy.....	10,320,406	17,934,268	17,487,984	12,725,830	16,087,064	14,911,110	Different rates.
Russia....................	10,098,448	10,475,168	21,286.563	2,914,954	448,897	9,044.806	47,018 36
Mexico...................	845.960	6,700,091	7,463.851	12,146,080	7,527,079	6,936,612	103,018 99‡
Holland..................	5.508,670	10,259,042	7,038.994	6,048,165	4,941,414	6,759,257	Free.
Sweden and Norway...	5,160,974	5,939,025	6,099.517	9,212,710	8,428,437	6,968,132	Different rates.§
British N. A. possessions	23,525	16,528	12.295	72,790	883.204	201,679	Free.
Denmark................	....	37,042	435,169	32,983	209,186	142,876	Free.
Cuba......................	113,572	294,852	196,392	250.633	9.620	173,014	2,355 42
Portugal.................	....	98.235	87,691	121,059	144.006	90,198	19 64
Elsewhere..............	722,473	141,803	652.395	1,946,895	270,822	746,918	....
To all countries....	927,237,089	1,093,230,639	1,111,570,370	987,833,106	1,008,424,601	1,025,659,156	....

* The amounts of duties paid are calculated on the customs rates given in the preceding statement (?), although those rates, during the five years designated, have in some instances undergone changes. Belgium, for example, did not admit cotton free until the passage of the law of April 12, 1854.

† The amount is calculated on the medium of the *ad valorem* duty of Bremen and Hamburg, on an assumed valuation of 17 cents per pound.

‡ The amount is calculated on the rates of the existing tariff of January 31, 1856, prior to which cotton was either prohibited or subjected to a duty equivalent to prohibition.

§ United States Treasury reports do not give quantities to Norway distinct from those to Sweden. In the latter, cotton is free; in the former, the duty is nearly half a cent per pound.

EXPORT OF COTTON TO FOREIGN PORTS FROM SEPTEMBER 1, 1855, TO AUGUST 31, 1856.

Where from.	Great Britain.	France.	North of Europe.	Other foreign Ports.	Total.
New Orleans...............bales	986,622	244,814	162,675	178,812	1,572,923
Mobile.................... "	351,690	96,262	29,016	8,067	485,035
Texas...................... "	19,661	5,166	9,175	.....	34,002
Florida..................... "	30.899	2,939	2,020	.....	35,858
Savannah.................. "	162,748	16,857	2,907	2,808	185,320
Charleston................ "	180,532	87,396	49,727	53,456	371,111
Virginia and North Carolina "	166	.....	.....	.....	166
Baltimore.................. "	424	48	.....	.....	472
Philadelphia.............. "	178	.....	.....	.....	178
New York................. "	181,045	27,155	42,893	5,371	256,464
Boston..................... "	7.421	.....	5,592	64	13,077
GRAND TOTAL, 1855–'56....	1,921,386	480,637	304,005	248,578	2,954,606
Total, year 1854–'55.......	1,549,716	409,931	135,200	149,362	2,244,209
Increase..............	371,670	70,706	168,805	99,216	710,397

QUANTITY OF COTTON CONSUMED BY AND IN THE HANDS OF MANUFACTURERS NORTH OF VIRGINIA.

Years.	Bales.	Years.	Bales.	Years.	Bales.	Years.	Bales.	Years.	Bales.
1855–'56	652,739	1849–'50	487,769	1843–'44	346,744	1838–'39	276,018	1833–'34	196,418
1854–'55	593,584	1848–'49	518,039	1842–'43	325,129	1837–'38	246,063	1832–'33	194.412
1853–'54	610,571	1847–'48	531,772	1841–'42	267,850	1836–'37	222,540	1831–'32	173,800
1852–'53	671,009	1846–'47	427.967	1840–'41	297,288	1835–'36	236,738	1830–'31	182,142
1851–'52	603,029	1845–'46	422,597	1839–'40	295,193	1834–'35	216,888	1829–'30	126,512
1850–'51	404,108	1844–'45	389,006						

We give below a table of the amount of cotton consumed the past year in the States south and west of Virginia, and not included in the receipts at the ports. We have largely increased the estimate from the year previous, but give it only for what it purports to be, an *estimate*, which we believe approximates correctness.

There are no statistical returns of the quantities of cotton manufactured in the States south of Virginia; but it is well known that the yearly consumption in those States is increasing, as well as in Virginia, Ohio, Illinois, and Missouri. At the last census the capital employed in the manufacture of cotton goods in the Southern States was as follows: Maryland, $2,236,000; Virginia, $1,908,000; North Carolina, $1,058,000; South Carolina, $857,000; Georgia, $1,736,000; Florida, $80,000; Alabama, $651,000; Mississippi, $38,000; Kentucky, $239,000; Tennessee, $639,000; Missouri, $102,000. At this period [1856–7] these sums are probably doubled.

States.	1856.	1855.	1854.	1853.	1852.	1851.	1850.
North Carolina......bales	22,000	18,500	20,000	20,000	15,000	13,000	20,000
South Carolina...... "	15,000	10,500	12,000	10,000	10,000	10,000	15,000
Georgia............ "	25,000	20,500	23,000	20,000	22,000	13,000	27,000
Alabama............ "	6,500	5,500	6,000	5,000	5,000	4,000	6,000
Tennessee.......... "	7,000	4,000	6,000	5,000	7,000	8,000	12,000
On the Ohio, etc..... "	42,000	26,000	38,000	30,000	16,000	12,000	27,500
Total to September 1...	117,500	85,000	105,000	90,000	75,000	60,000	107,500

To which, if added (for the past year) the stocks in the interior towns 1st Sept. (say 3500 bales), the quantity now detained in the interior (say 50,000 bales), and that lost on its way to market the past year to the crop as given above, received at the shipping ports, the aggregate will show, as near as may be, the amount *raised* in the United States the past season—say, in round numbers, 3,335,000 bales (after deducting 1800 bales *new crop* received this year to the 1st Sept., and some 250,000 bales detained in the interior Sept. 1st, 1855, by low rivers, etc., which it is fair to suppose came forward the past season, and is already added to the receipts at the ports), against

1855.....	bales, 3,178,000	1851.....	bales, 2,450,000
1854.....	3,000,000	1850.....	2,212,000
1853.....	3,360,000	1849.....	2,840,000
1852.....	3,100,000	1848.....	2,357,000

STATEMENT AND TOTAL AMOUNT OF THE COTTON CROP OF THE UNITED STATES FOR THE YEARS ENDING AUGUST 31, 1855 AND 1856.

		Bales.	1856.	1855.
FROM NEW ORLEANS.				
Export.				
To foreign ports	1,572,923			
Coastwise	222,100			
Burned at New Orleans	1,200			
Stock, 1st September, 1856	6,995	1,803,218		
Deduct.				
Received from Mobile, Montgomery, etc.	73,573			
Received from Florida	5,186			
Received from Texas	23,601			
Stock, 1st September, 1855	39,425	141,785		
MOBILE.			1,661,433	1,232,644
Export.				
To foreign ports	485,035			
Coastwise	196,286			
Consumed in Mobile	1,936			
Stock, 1st September, 1856	5,005	688,262		
Deduct.				
Received from New Orleans	5			
Stock, 1st September, 1855	28,519	28,524		
TEXAS.			659,738	454,595
Export. To foreign ports	34,002			
Coastwise	83,515			
Stock, 1st September, 1856	623	118,140		
Deduct Stock, 1st September, 1855		2,062		
FLORIDA.			116,078	80,737
Export.				
To foreign ports—Uplands	35,858			
Coastwise—Uplands	97,738			
Sea-islands	10,900			
Stock in Apalachicola, 1st September, 1856	74	144,570		
Deduct Stock in Apalachicola, 1st September, 1855		166		
GEORGIA.			144,404	136,597
Export.				
To foreign ports—Uplands	177,182			
Sea-islands	8,138			
Coastwise—Uplands	200,426			
Sea-islands	7,346			
Stock in Savannah, 1st September, 1856	1,550			
Stock in Augusta, 1st September, 1856	1,781	396,423		
Deduct.				
Received from Florida—Sea-islands	2,755			
Uplands	386			
Stock in Savannah, 1st September, 1855	2,130			
Stock in Augusta, 1st September, 1855	1,707	6,978		
SOUTH CAROLINA.			389,445	378,694
Export from CHARLESTON—				
To foreign ports—Uplands	352,346			
Sea-islands	18,765			
Coastwise—Uplands	133,451			
Sea Islands	9,286			
Burned at Charleston	751			
Stock in Charleston, 1st September, 1856	3,144			
	517,743			
Export from GEORGETOWN—				
To Northern ports	2,893	520,636		
Deduct.				
Received from Florida—Sea-islands	6,027			
Uplands	578			
Received from Savannah—Sea-islands	2,689			
Uplands	13,281			
Stock in Charleston, 1st September, 1855	2,085	24,060		
NORTH CAROLINA.			495,976	499,272
Export. To foreign ports	96			
Coastwise	26,002			
			26,098	26,139
VIRGINIA.				
Export.				
To foreign ports	70			
Coastwise, and manufactured (taken from the ports)	20,748			
Stock, 1st September, 1856	842	21,660		
Deduct. Received from Mobile	652			
Stock, 1st September, 1855	550	1,202		
			20,458	31,000
Received at New York by the New York and Erie Canal			305	377
Received at New York by New York and Erie Railroad			1,781	684
Received at Baltimore and Philadelphia from the West			12,129	6,600
TOTAL CROP OF THE UNITED STATES			3,527,845	2,847,339
Increase from last year			bales,	680,506
Increase from year before				597,848

STATEMENT AND TOTAL AMOUNT OF THE COTTON CROP OF THE UNITED STATES FOR THE YEARS ENDING AUGUST 31, 1856 AND 1857.

		Bales.	1857.	1856.
FROM NEW ORLEANS.				
Export.				
To foreign ports	1,293,717			
Coastwise	223,204			
Stock, 1st September, 1857	7,321			
		1,524,242		
Deduct.				
Received from Mobile, Montgomery, etc.	60,036			
Received from Florida	4,708			
Received from Texas	17,503			
Stock, 1st September, 1856	6,995			
		89,242	1,435,000	1,061,433
MOBILE.				
Export.				
To foreign ports	314,989			
Coastwise	174,055			
Manufactured in Mobile, etc.	2,246			
Burned at Mobile	12,700			
Stock, 1st September, 1857	4,504			
		508,494		
Deduct.				
Received from New Orleans	10			
Shipment to Boston returned	302			
Stock, 1st September, 1856	5,005			
		5,317	503,177	659,738
TEXAS.				
Export.				
To foreign ports	20,907			
Coastwise	68,636			
Stock, 1st September, 1857	962			
		90,505		
Deduct Stock, 1st September, 1856		623		
			89,882	116,078
FLORIDA.				
Export.				
To foreign ports—Uplands	30,889			
Coastwise—Uplands	82,636			
Sea-islands	20,365			
Burned at Apalachicola	2,472			
Stock, 1st September, 1857	56			
		136,418		
Deduct Stock, 1st September, 1856		74		
			136,344	144,404
GEORGIA.				
Export.				
To foreign ports—Uplands	152,228			
Sea-islands	6,611			
Coastwise—Uplands	158,791			
Sea-islands	10,028			
Stock in Savannah, 1st September, 1857	1,926			
Stock in Augusta, 1st September, 1857	2,747			
		332,331		
Deduct.				
Received from Florida—Sea-islands	6,889			
Stock in Savannah, 1st September, 1856	1,550			
Stock in Augusta, 1st September, 1856	1,781			
		10,220	322,111	389,445
SOUTH CAROLINA.				
Export from CHARLESTON—				
To foreign ports—Uplands	212,604			
Sea-islands	16,581			
Coastwise—Uplands	162,541			
Sea-islands	6,908			
Burned and manufactured at Charleston	461			
Stock in Charleston, 1st September, 1857	5,644			
	404,739			
Export from GEORGETOWN—				
To coastwise ports	9,500			
		414,239		
Deduct.				
Received from Florida—Sea-islands	8,307			
Received from Key West and Nassau, N. P. (wrecked)—Uplands	431			
Received from Savannah—Sea-islands	1,589			
Uplands	3,437			
Stock in Charleston, 1st September, 1856	3,144			
		16,908	397,331	495,976
NORTH CAROLINA.				
Export. To coastwise ports	27,147			
			27,147	26,098
VIRGINIA.				
Export.				
To foreign ports	200			
Coastwise, and manufactured (taken from the ports)	23,995			
Stock, 1st September, 1857	420			
		24,615		
Deduct. Stock, 1st September, 1857		842		
			23,773	20,458
Received at New York from Memphis, Nashville, etc. (Tenn.)			2,022	2,086
Received at Philadelphia from Memphis, Nashville, etc. (Tenn.)			1,236	7,938
Received at Baltimore from Memphis, Nashville, etc. (Tenn.)			1,496	4,191
TOTAL CROP OF THE UNITED STATES			2,939,519	3,527,845
Decrease from crop of 1856			bales,	588,326
Increase over crop of 1855			"	92,180
Increase over crop of 1854			"	69,492

STATEMENT SHOWING THE WEEKLY AND TOTAL RECEIPTS OF COTTON INTO THE PORTS OF THE UNITED STATES; ALSO THE WEEKLY AND TOTAL EXPORTS OF COTTON TO GREAT BRITAIN, FRANCE, NORTH OF EUROPE AND OTHER FOREIGN PORTS; TOGETHER WITH THE STOCK ON HAND IN THE SHIPPING PORTS; DURING THE LAST FIVE YEARS. ARRANGED AND PUBLISHED BY WILLIAM P. WRIGHT, PER J. Y., COTTON BROKER, NEW YORK. (THE FIGURES REPRESENT THOUSANDS OF BALES.)

DATE.	SEPTEMBER, 1852, TO AUGUST, 1853, INCLUSIVE.													SEPTEMBER, 1853, TO AUGUST, 1854, INCLUSIVE.												
	RECEIPTS.		EXPORTS.										STOCK.	RECEIPTS.		EXPORTS.										STOCK.
			Great Britain.		France.		North Europe.		Other foreign ports.							Great Britain.		France.		North Europe.		Other foreign ports.				
	WEEKLY.	TOTAL.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly Total.	Grand Total.	Stock on hand.	WEEKLY.	TOTAL.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly Total.	Grand Total.	Stock on hand.
Sept. 19	0	18	0	12	0	1	0	0	0	1	0	14	64	0	8	0	17	0	1	0	2	0	1	21	21	82
" 26	29	47	4	16	1	2	0	0	1	2	6	20	82	10	18	8	25	0	1	1	3	1	2	10	31	85
Oct. 3	38	85	6	22	1	3	1	1	0	2	8	28	100	17	35	5	30	0	1	2	5	1	3	8	39	87
" 10	47	132	10	32	3	6	0	1	2	4	15	43	130	23	58	5	35	1	2	0	5	0	3	6	45	99
" 17	55	187	26	58	1	7	0	1	1	5	28	71	151	27	85	11	46	1	3	1	6	2	5	15	60	103
" 24	69	256	10	68	5	12	0	1	3	8	18	89	185	41	126	4	50	2	5	0	6	2	7	8	68	131
" 31	81	337	30	98	0	12	3	4	4	12	37	126	224	47	173	7	57	1	6	1	7	3	10	12	80	161
Nov. 7	84	421	19	117	5	17	1	5	4	16	29	155	262	50	223	14	71	4	10	0	7	0	10	18	98	177
" 14	105	526	43	160	3	20	2	7	3	19	51	206	302	66	289	14	85	0	10	3	10	2	12	19	117	214
" 21	109	635	59	219	6	26	1	8	6	25	72	278	324	63	352	15	100	1	11	0	10	3	15	19	136	245
" 28	116	751	32	251	9	35	1	9	9	34	51	329	382	70	422	12	112	6	17	2	12	2	17	22	158	273
Dec. 5	113	864	54	305	6	41	2	11	1	35	63	392	420	75	497	19	131	10	27	2	14	2	19	33	191	307
" 12	138	1,002	55	360	13	54	2	13	4	39	74	466	465	72	569	24	155	8	35	1	15	4	23	37	228	333
" 19	125	1,127	44	404	6	60	1	14	1	40	52	518	514	90	659	31	186	10	45	0	15	4	27	45	273	352
" 26	117	1,244	46	450	6	66	2	16	0	40	54	572	560	105	764	31	217	7	52	0	15	3	30	41	314	408
Jan. 2	114	1,358	66	516	15	81	3	19	9	49	93	665	562	108	872	26	243	5	57	3	18	2	32	36	350	468
" 9	135	1,493	49	565	17	98	2	21	10	59	78	743	595	87	959	24	267	18	75	4	22	9	41	55	405	495
" 16	101	1,594	76	641	7	105	5	26	9	68	97	840	570	76	1,035	31	298	15	90	1	23	3	44	50	455	496
" 23	114	1,708	51	692	5	110	1	27	9	77	66	906	606	77	1,112	34	332	19	109	6	29	5	49	64	519	507
" 30	118	1,826	58	750	16	126	9	36	5	82	88	994	621	97	1,209	44	376	12	121	3	32	3	52	62	581	511
Feb. 6	120	1,946	70	820	13	139	5	41	5	87	93	1,087	619	120	1,329	31	407	16	137	1	33	4	56	52	633	556
" 13	126	2,072	26	846	7	146	4	45	6	93	43	1,130	670	129	1,458	34	441	24	161	1	34	4	60	63	696	605
" 20	129	2,201	38	884	11	157	2	47	5	98	56	1,186	701	140	1,598	32	473	4	165	7	41	5	65	48	744	673
" 27	126	2,327	28	912	17	174	6	53	8	106	59	1,245	750	107	1,705	44	517	17	182	8	49	4	69	73	817	692
March 5	103	2,430	46	958	8	182	12	65	3	109	69	1,314	764	106	1,811	56	573	8	185	7	56	1	70	67	884	721
" 12	112	2,542	36	994	11	193	0	65	5	114	52	1,366	823	90	1,901	62	635	6	191	18	74	2	72	88	972	697
" 19	69	2,611	41	1,035	17	210	2	67	7	121	67	1,433	774	72	1,973	70	705	20	211	11	85	7	79	108	1,080	645
" 26	79	2,690	36	1,071	20	230	3	70	3	124	62	1,495	775	83	2,056	76	781	9	220	3	88	8	87	96	1,176	618
April 2	72	2,762	29	1,100	25	255	10	80	0	124	64	1,559	777	72	2,128	59	840	9	229	2	90	2	89	72	1,248	612
" 9	59	2,821	41	1,141	8	263	7	87	5	129	61	1,620	737	99	2,227	57	897	4	233	2	92	6	95	69	1,317	687
" 16	63	2,884	80	1,221	28	291	9	96	1	130	118	1,738	679	85	2,312	50	947	1	234	4	96	1	96	56	1,373	646
" 23	40	2,924	41	1,262	17	308	16	112	1	131	75	1,813	629	87	2,399	47	994	3	237	0	96	8	104	58	1,431	670
" 30	51	2,975	48	1,310	27	335	13	125	11	142	99	1,912	568	60	2,459	45	1,039	3	240	5	101	5	109	58	1,489	655
May 7	41	3,016	45	1,355	19	354	4	129	6	148	74	1,986	523	58	2,517	29	1,068	6	246	6	107	5	114	46	1,585	645
" 14	39	3,055	41	1,396	12	366	10	139	1	149	64	2,050	488	44	2,561	58	1,126	4	250	4	111	10	124	76	1,611	605
" 21	21	3,076	39	1,435	11	377	4	143	2	151	56	2,106	439	44	2,605	28	1,154	0	250	7	118	14	128	39	1,650	608
" 28	28	3,104	40	1,475	2	379	4	147	3	154	49	2,155	417	35	2,640	57	1,211	11	261	4	122	6	134	78	1,728	547
June 4	13	3,117	33	1,508	10	389	4	151	4	158	51	2,206	372	35	2,675	61	1,272	5	266	12	134	6	140	84	1,812	492
" 11	18	3,135	30	1,538	13	402	6	157	3	161	52	2,258	330	36	2,711	36	1,308	4	270	2	136	5	145	47	1,859	467
" 18	15	3,150	31	1,569	0	402	3	160	2	163	36	2,294	303	27	2,738	27	1,335	8	278	2	138	2	147	39	1,898	456
" 25	12	3,162	24	1,593	7	409	2	162	1	164	34	2,328	269	29	2,767	53	1,388	15	293	3	141	3	150	74	1,972	391
July 2	10	3,172	25	1,618	4	413	1	163	3	167	33	2,361	244	23	2,790	37	1,425	5	298	4	145	3	153	49	2,021	355
" 9	6	3,178	23	1,641	0	413	1	164	2	169	26	2,387	223	11	2,801	26	1,451	8	306	7	152	3	156	44	2,065	316
" 16	13	3,191	10	1,651	0	413	3	167	1	170	14	2,401	217	11	2,812	17	1,468	1	307	2	154	2	158	22	2,087	297
" 23	2	3,193	30	1,681	5	418	1	168	4	174	40	2,441	172	17	2,829	19	1,487	5	312	2	156	4	162	30	2,117	268
" 30	5	3,198	16	1,697	4	422	0	168	5	179	25	2,466	150	10	2,839	33	1,520	9	321	3	159	6	168	51	2,168	217
Aug. 6	4	3,202	18	1,715	0	422	0	168	4	183	22	2,488	125	12	2,851	16	1,536	16	337	3	161	2	170	36	2,204	186
" 13	8	3,205	10	1,725	0	422	0	168	5	188	15	2,503	112	12	2,863	25	1,561	2	339	2	163	2	172	31	2,235	156
" 20	10	3,215	7	1,732	0	422	3	171	0	188	10	2,513	99	11	2,874	12	1,573	10	349	1	164	3	175	26	2,261	128
" 27	7	3,222	5	1,737	5	427	2	173	3	191	15	2,528	83	13	2,887	14	1,587	13	362	1	165	1	176	29	2,290	108
Correction	41	3,263	0	1,737	0	427	..	171	2	193	0	2,528	107	43	2,930	17	1,604	12	374	0	165	0	176	29	2,319	117
Total....		3,263		1,737		427		171		193		2,528	107		2,930		1,604		374		165		176		2,319	117

Contrasted with the preceding season, the year just closed (1856), as we have already observed, may be considered one upon which the trade may well be congratulated. The monetary panics, the droughts and the ravages of a deadly pestilence in some of the Southern seaports, the periodical embarrassments consequent upon the changing fortunes of the European war, all contributed to render the spring and summer of 1855 memorable for the drawbacks and discouragements, not only to the cotton interest, but to the general trade. Far different are the characteristics of the twelve months under review. With nothing to complain of in respect to the crop itself, the interior streams, during the whole season, have enabled the planter to forward with promptitude to the now ready and remunerative markets abroad. Many of the New Orleans and Mobile houses, which had been compelled to stop payments, improved the earliest opportunity returning prosperity presented to redeem their acceptances, and, in many instances, with interest in full, thus re-establishing, on an honorable basis, credits which the unanticipated misfortunes of the year before had, perhaps, temporarily impaired.

The crop of 1855–56, it will be seen by the accompanying figures, was 3,527,845 bales, which has been so liberally disposed of that the supplies on hand, on

STATEMENT SHOWING THE WEEKLY AND TOTAL RECEIPTS OF COTTON INTO THE PORTS OF THE UNITED STATES; ALSO THE WEEKLY AND TOTAL EXPORTS OF COTTON TO GREAT BRITAIN, FRANCE, NORTH OF EUROPE AND OTHER FOREIGN PORTS; TOGETHER WITH THE STOCK ON HAND IN THE SHIPPING PORTS; DURING THE LAST TWO YEARS. ARRANGED AND PUBLISHED BY WILLIAM P. WRIGHT, PER J. Y., COTTON BROKER, NEW YORK. (THE FIGURES REPRESENT THOUSANDS OF BALES.)

	SEPTEMBER 1, 1854, TO AUGUST 31, 1855, INCLUSIVE.													SEPTEMBER 1, 1855, TO AUGUST 31, 1856, INCLUSIVE.													
	RECEIPTS.		EXPORTS.										STOCK.	RECEIPTS.		EXPORTS.											STOCK.
DATE.			Great Britain.		France.		North Europe.		Other foreign ports.							Great Britain.		France.		North Europe.		Other foreign ports.					
	WEEKLY.	TOTAL.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly Total.	Grand Total.	Stock on hand.	WEEKLY.	TOTAL.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly.	Total.	Weekly Total.	Grand Total.	Stock on hand.
Sept. 19	0	8	0	6	0	1	0	2	0	1	10	10	82	0	30	0	19	0	1	0	0	0	1	21	21	134
" 26	10	18	8	14	0	1	1	3	1	2	10	20	90	41	71	10	29	2	3	2	2	0	1	14	35	142
Oct. 3	20	38	5	19	6	7	0	3	0	2	11	31	127	57	128	16	45	4	7	1	3	0	1	21	56	179
" 10	47	85	14	33	10	17	1	4	0	2	25	56	134	61	189	15	60	6	13	0	3	0	1	21	77	212
" 17	39	124	8	41	6	23	0	4	2	4	16	72	146	70	259	21	81	5	18	1	4	2	3	29	106	233
" 24	43	167	8	49	1	24	1	5	1	5	11	83	166	72	331	18	99	3	21	3	7	2	5	26	132	274
" 31	41	208	6	55	5	29	0	5	1	6	12	95	192	69	400	25	124	3	24	4	11	9	14	41	173	292
Nov. 7	47	255	18	73	9	38	1	6	1	7	29	124	211	81	481	38	162	9	33	5	16	4	18	56	229	289
" 14	66	321	22	95	6	44	2	8	4	11	34	158	226	55	536	30	192	10	43	3	19	2	20	45	274	294
" 21	66	387	17	112	11	55	1	9	2	13	31	189	261	96	632	54	246	24	67	1	20	6	26	85	359	288
" 28	67	454	25	137	3	58	0	9	4	17	32	221	289	92	724	19	265	12	79	7	27	3	29	41	400	331
Dec. 5	81	535	39	176	3	61	2	11	2	19	46	267	314	116	840	17	282	17	96	2	29	5	34	41	441	402
" 12	85	620	47	223	7	68	1	12	3	22	58	325	330	124	964	45	327	18	114	7	36	6	40	76	517	432
" 19	87	707	39	262	10	78	1	13	1	23	51	376	346	144	1,108	60	387	22	136	7	43	11	51	100	617	464
" 26	77	784	54	316	7	85	0	13	6	29	67	443	354	144	1,252	28	415	20	156	6	49	8	59	62	670	525
Jan. 2	70	854	48	364	7	92	1	14	3	32	59	502	364	137	1,389	32	447	12	168	5	54	6	65	55	734	584
" 9	59	913	47	411	6	98	2	16	1	33	56	558	360	137	1,526	53	500	9	177	2	56	2	67	66	800	640
" 16	65	978	56	467	11	109	9	25	2	35	78	636	345	100	1,626	29	529	12	189	5	61	6	73	52	852	681
" 23	70	1,048	58	525	12	121	7	32	3	38	80	716	313	107	1,733	58	587	20	209	4	65	11	84	93	945	677
" 30	76	1,124	46	571	7	128	9	41	11	49	73	789	314	84	1,817	50	637	15	224	12	77	7	91	84	1,029	647
Feb. 6	121	1,245	43	614	9	137	5	46	1	50	58	847	365	88	1,905	76	713	8	232	6	83	3	94	93	1,122	655
" 13	105	1,350	33	647	8	145	10	56	5	55	56	903	398	82	1,987	50	763	28	260	9	92	4	98	91	1,213	598
" 20	101	1,451	45	692	9	154	5	61	3	58	62	965	408	111	2,098	73	836	20	280	28	120	19	117	110	1,353	554
" 27	77	1,528	51	743	18	172	3	64	9	67	81	1,046	408	117	2,215	41	877	16	296	14	134	4	121	75	1,428	566
March 5	77	1,605	48	791	16	188	6	70	2	69	72	1,118	398	151	2,366	43	920	23	319	11	145	10	131	87	1,515	628
" 12	82	1,687	55	846	7	195	10	80	4	73	76	1,194	387	131	2,497	59	979	4	323	15	160	13	144	91	1,606	650
" 19	73	1,760	33	879	12	207	2	82	1	74	48	1,242	375	123	2,620	60	1,039	11	334	13	173	4	148	88	1,694	643
" 26	63	1,823	56	935	23	230	6	88	3	77	88	1,330	311	109	2,729	55	1,094	5	339	13	186	5	153	78	1,772	660
April 2	80	1,903	28	963	19	249	2	90	0	77	49	1,379	320	97	2,826	40	1,134	16	355	9	195	2	155	67	1,839	670
" 9	92	1,995	21	984	5	254	2	92	4	81	32	1,411	357	83	2,909	66	1,200	10	365	13	208	5	160	94	1,933	653
" 16	86	2,081	35	1,019	18	272	1	93	6	87	60	1,471	346	89	2,998	79	1,279	10	375	3	211	6	166	98	2,031	619
" 23	64	2,145	29	1,048	14	286	0	93	6	93	49	1,520	359	69	3,067	69	1,348	12	387	6	217	4	170	91	2,122	587
" 30	85	2,230	41	1,089	14	300	3	96	7	100	65	1,585	354	75	3,142	68	1,416	15	402	5	222	8	178	96	2,218	550
May 7	81	2,311	36	1,125	28	328	4	100	6	106	74	1,659	341	50	3,192	56	1,472	19	421	7	220	19	197	101	2,319	500
" 14	55	2,366	39	1,164	14	342	0	100	4	110	57	1,716	324	52	3,244	65	1,537	12	433	5	234	7	204	89	2,408	440
" 21	40	2,406	21	1,185	17	359	2	102	2	112	42	1,758	325	45	3,289	33	1,570	10	443	3	237	2	206	48	2,456	404
" 28	28	2,434	48	1,233	18	377	4	106	2	114	72	1,830	265	41	3,330	24	1,594	0	443	2	239	5	211	81	2,487	410
June 4	45	2,479	39	1,272	12	389	4	110	8	122	63	1,898	202	30	3,360	49	1,643	4	447	8	247	3	214	64	2,551	350
" 11	25	2,504	36	1,308	7	396	1	111	6	128	50	1,943	179	26	3,386	40	1,683	17	464	8	249	2	216	61	2.612	320
" 18	34	2,538	30	1,338	3	399	3	114	1	129	37	1,980	162	19	3,405	62	1,745	6	470	7	256	1	217	76	2.688	262
" 25	51	2,589	24	1,362	3	402	0	114	2	131	29	2,009	174	9	3,414	42	1,787	2	472	4	260	5	222	53	2,741	213
July 2	31	2,620	17	1,379	1	403	1	115	4	135	23	2,032	175	13	2,427	45	1,832	0	472	2	262	3	225	50	2,791	177
" 9	49	2,669	10	1,389	2	405	1	116	1	136	14	2,046	200	16	3,443	26	1,858	6	478	1	263	8	233	41	2,832	160
" 16	25	2,694	27	1,416	0	405	4	120	6	142	37	2,083	184	7	3,450	18	1,876	0	478	0	263	6	239	24	2,856	122
" 23	21	2,715	19	1,435	1	406	2	122	0	142	22	2,105	178	6	3,456	25	1,901	0	478	2	265	5	244	32	2,888	87
" 30	22	2,737	20	1,455	0	406	4	126	5	147	29	2,134	166	11	3,467	8	1,909	0	478	1	266	5	249	14	2,902	78
Aug. 6	13	2,750	25	1,480	1	407	2	128	1	148	29	2,163	149	3	3,470	10	1,919	0	478	1	267	3	252	14	2,916	63
" 13	12	2,762	22	1,502	2	409	4	132	0	148	28	2,191	127	12	3,482	20	1,939	0	478	0	267	1	253	21	2,937	57
" 20	10	2,772	13	1,515	0	409	0	132	1	149	14	2,205	121	8	3,485	6	1,945	0	478	0	267	0	253	6	2.943	51
" 27	13	2,785	13	1,528	0	409	1	133	1	150	15	2,220	112	4	3,489	0	1,945	0	478	0	267	0	253	0	2,943	51
Correction	62	2,847	22	1,550	1	410	2	135	0	150	25	2,245	143	39	3,528	0	1,921	3	481	37	304	0	249	12	2,955	64
Total....		2,847		1,550		410		135		150		2,245	143		3,528		1,921		481		304		249		2,955	64

both sides of the Atlantic, are down to a figure which encourages the expectation that quite as much, in the aggregate, will be required for actual consumption, at home and abroad, in the course of the year on which we have just entered. Thus much by way of retrospect.

To revert to details; our market opened steady in September, 1855, with a fair business, but during the remainder of that month and throughout October, under the influence of adverse accounts from Europe, and heavy receipts at the South, a gradual decline ensued, prices having fallen upward of one cent on nearly all grades during that period. About the beginning of November, we received advices of a heavy frost in some of the growing regions, which, in connection with the paucity of our stock, caused a reactionary movement: but the response from Liverpool to our frost accounts not proving as favorable as was expected, the market again took a downward turn, and prices gradually receded for several weeks, when intelligence arrived of the acceptance by Russia of the proposition of the Allies as the basis for peace. Under the influence of this welcome news, greater animation was manifested in the market, and prices were once more in the ascendant. This feeling continued for several weeks—the market being supported, mainly by speculative shippers—when prices took another turn, and the improvement obtained on the strength of the peace propositions was quite lost. Subsequently, during a period of many weeks, which brings us down to the last of April, the market was very strong, and a rise of fully one cent was realized. Our domestic spinners were, during nearly the whole of this period, the most heavy operators, taking on an average 12 to 15,000 bales per week. Early in May, a complete change seems to have taken place in the minds of our leading exporters. Large holders, who had been sanguine of such an advance in Liverpool as would enable them to recover their investments in the staple, were disappointed, the market again becoming dull and drooping. The depression was not of long duration, however, for the reduced supply not only here, but in every part of the United States, now began to attract attention, and holders became indifferent about offering their supplies; and as the high prices checked consumption, the market assumed an inactivity unusual for the season, which continued throughout July and August, holders all the time maintaining an unrelenting firmness.

The year closed with a reduced stock, both here and at the South, and the supply in the manufacturers' hands at the eastward being also limited, the inclination of prices was to a higher range.

The trade of New York has *apparently* fallen off; a

COTTON CROP OF THE UNITED STATES, FOR EACH YEAR, FROM SEPTEMBER 1, 1823 TO SEPTEMBER 1, 1856.

Date.	TOTAL CROP RECEIVED IN ATLANTIC STATES.				TOTAL CROP RECEIVED IN GULF STATES.				CROP.
	Georgia.	South Carolina.	North Carolina.	Virginia.	Florida.	Alabama.	Louisiana.	Texas.	Grand Total.
1824	152,735	134,518	46,000	and Virginia	4,500	44,924	126,481	.... *	509,158
1825	138,000	97,000	72,000	"	3,000	58,796	200,458	....	569,249
1826	190,592	111,978	88,480	"	2,817	74,201	251,959	....	720,027
1827	233,920	179,810	112,811	"	4,163	89,707	336,870	....	957,281
1828	153,749	109,733	77,422	"	3,940	71,563	304,186	....	720,593
1829	249,166	168,275	104,621	"	4,146	79,958	264,249	....	870,415
1830	253,117	188,871	36,862	35,500	5,787	102,684	354,024	....	976,845
1831	230,502	185,166	36,540	33,895	13,073	113,186	426,485	....	1,038,848
1832	276,437	173,872	28,461	37,500	22,651	125,921	322,635	....	987,477
1833	271,025	181,876	30,258	30,829	23,641	129,366	403,443	....	1,070,438
1834	258,655	227,359	33,220	44,725	36,738	149,973	454,719	....	1,205,394
1835	222,670	203,166	34,399	33,170	52,085	197,692	511,146	....	1,254,328
1836	270,121	231,237	32,057	29,197	79,762	236,715	481,536	....	1,360,725
1837	262,971	196,377	13,004	28,618	83,708	232,243	600,877	....	1,422,930
1838	304,210	294,334	21,439	32,000	106,171	309,807	731,256	....	1,801,497
1839	205,112	210,171	11,136	22,200	75,177	251,742	584,994	....	1,360,532
1840	292,693	313,194	9,394	23,650	136,257	445,725	953,672	....	2,177,835
1841	148,947	227,400	7,865	20,800	93,552	320,701	814,680	....	1,634,945
1842	232,271	260,164	9,737	19,013	114,416	318,315	727,658	....	1,683,574
1843	299,491	351,658	9,039	12,139	161,088	481,714	1,060,246	....	2,378,875
1844	255,597	304,870	8,618	14,500	145,562	467,990	832,172	....	2,030,409
1845	295,440	426,361	12,487	25,200	188,693	517,196	929,126	....	2,394,503
1846	194,911	251,405	10,637	18,282	141,184	421,966	1,037,144	27,008	2,100,537
1847	242,789	350,200	6,061	13,991	127,852	323,462	705,979	8,317	1,778,651
1848	254,875	261,752	1,518	8,952	153,776	436,336	1,190,733	39,742	2,347,634
1849	391,372	458,117	10,041	17,550	200,186	518,706	1,093,797	38,827	2,728,596
1850	343,635	384,265	11,861	11,500	181,344	350,952	781,886	31,263	2,096,706
1851	322,376	387,075	12,928	19,940	181,204	451,748	933,639	45,820	2,355,257
1852	325,714	476,614	16,242	20,820	188,499	549,449	1,373,404	64,052	3,015,029
1853	349,490	468,203	23,496	25,783	179,476	545,029	1,580,875	85,790	3,262,882
1854	316,005	416,754	11,524	21,936	155,444	538,684	1,346,925	110,325	2,930,027
1855	378,694	499,272	26,139	31,000	136,597	454,595	1,232,644	80,737	2,847,339
1856	389,445	495,976	26,098	20,458	144,404	659,738	1,661,433	116,078	3,527,845

* Texas at this time was not a part of the United States.

FREIGHTS TO EUROPE, RATES OF EXCHANGE, STOCK ON HAND, AND EXTREME PRICES FROM 1823 TO 1856.

Year.	FREIGHTS, From New York, 1st October.		EXCHANGE. At New York, 1st October.		STOCK ON HAND.		Extreme Prices in Liverpool.	
	Liverpool.	Havre.	London.	France.	America.	Liverpool.	Upland. "Good."	Sea Island.
					1st October.	1st January	pence. pence.	pence. pence.
1823	—1-2*d.*	— *c.*	—	—	....	153,000	8 1-2—10 3-4	22 — 24
1824	3-8 —1-2	—1 1-4	10 1-4—10 1-2	—525	....	361,000	8 3-4—10 1-2	22 — 27
1825	3-8 —1-2	1 —1 1-4	10 1-2—11	—512 1-2	....	321,000	9 1-2—19 1-2	27 — 42
1826	3-8 —1-2	—1	12 —12 1-2	525 —530	....	311,500	6 3-4— 8 3-4	20 — 30
1827	1-4 —1-2	1-2 — 5-8	11 —11 1-4	511 1-4—515	....	237,806	6 3-4— 7 3-4	18 — 20
1828	1-4 —3-8	3-4 —1	10 1-2—11	510 —512 1-2	....	342,700	6 3-8— 7 3-8	18 — 22
1829	—1-4	7-8 —1 1-8	9 5-8— 9 3-4	—522 1-4	....	157,590	6 1-4— 7	18 — 21
1830	3-8 —7-16	—1	10 1-4—10 1-4	532 1-2—535	34,895	203,200	7 — 7 7-8	18 — 20
1831	—1-4	7-8 —1	10 3-4—11	510 —511 1-4	119,423	258,000	6 7-8— 7 1-4	18 — 18
1832	3-8 —7-16	— 3-4	— 8	530 —532 1-2	41,599	212,350	7 — 8	18 — 18
1833	1-4 —3-8	3-4 —1	7 — 7 1-2	—532 1-2	48,205	197,960	7 7-8—12 1-2	18 — 22
1834	3-8 —1-2	1-2 — 5-8	7 1-4— 7 1-2	530 —532 1-2	29,617	180,770	8 7-8—11	20 — 26
1835	3-8 —7-16	3-4 —1	9 — 9 1-4	522 1-2—525	41,623	145,310	10 1-4—13 1-4	30 — 33
1836	3-8 —1-2	3-4 —1	8 — 8 1-2	—525	43,341	184,700	10 1-2—12	30 — 36
1837	1-4 —3-8	3-4 —1	14 —15	—502 1-2	75,820	204,590	7 1-4—11	30 — 40
1838	1-4 —5-16	1-2 — 3-4	10 —10 1-4	517 1-2—520	40,305	170,820	8 1-4— 9 1-2	30 — 33
1839	5-16—7-16	3-4 —1	9 3-4—10 1-4	515 —517 1-2	52,244	248,340	7 1-2—10 1-4	36 — 36
1840	1-4 —5-16	1-2 — 3-4	8 — 8 1-4	—520	58,442	206,042	6 5-8— 7 1-4	28 — 36
					1st Sept.			
1841	1-4 —5-16	3-4 —1	9 3-4—10	—517 1-2	72,479	866,140	7 — 7 3-4	24 — 28
1842	3-16—1-4	1-2 — 3-4	6 3-4— 7 1-2	—535	31,807	429,830	6 3-4— 7	24 — 24
1843	3-16—1-4	3-8 — 5-8	9 — 9 1-4	523 3-4—525	94,486	456,600	6 1-2— 6 1-2	24 — 24
1844	5-16—3-8	3-4 —1	9 3-4—10	—522 1-2	159,772	653,880	5 1-4— 6 3-4	24 — 30
1845	1-4 —5-16	11-16— 3-4	9 3-4—10 1-4	523 3-4—525	98,420	749,580	5 — 5 3-4	30 — 30
1846	1-4 —5-16	5-8 — 7-8	8 1-2— 9	530 —532 1-2	107,122	885,480	5 — 7 3-4	30 — 30
1847	3-16—1-4	3-4 —1	7 1-2— 8	527 1-2—528 3-4	214,887	438,970	5 3-4— 8 1-4	8 —12 1-2—25—30
1848	—3-16	— 5-8	9 — 9 3-8	—520	171,468	363,530	4 3-4— 6	6 — 8 —20—25
1849	—1-8	— 1-2	9 1-2— 9 3-4	525 —527 1-2	154,753	393,340	4 7-8— 7 1-8	6 1-2— 9 3-4—20—20
1850	—1-4	— 1-2	10 —10 1-2	520 —522 1-2	167,930	468,000	7 1-2— 8 3-4	9 —11 1-2—20—20
1851	—1-8	— 3-8	10 1-4—10 1-2	511 1-4—512 1-2	128,304	558,395	5 3-4— 8 5-8	8 —11 —20—22
1852	—1-8	— 1-4	10 1-4—10 5-8	518 3-4—515	91,176	428,730	5 3-4— 7	10 —13 —22—28
1853	3-16—1-4	— 1-2	9 — 9 1-2	513 3-4—515	135,643	577,810	6 1-2— 7 1-4	13 —15 —28—36
1854	—1-8	— 1-2	9 1-4— 9 3-4	511 1-4—518 3-4	135,603	597,500	6 3-8— 7	9 1-2—12 —34—36
1855	5-32—3-16	— 1-4	9 5-8—10	—512 1-2	148,836	551,840	6 3-8— 7 1-2	8 —10 —30—34
1856	—	—	—	—	64,171			

circumstance which discovers a satisfactory explanation in the large increase of *transitu* business between the principal southern ports and the markets of Europe. These operations are mainly under the control of parties in this city, acting in the capacity of speculators, brokers, agents for foreign spinners, etc. It has frequently happened that, when the stock here was reduced to a comparatively low figure, parties who operate

STATEMENT SHOWING THE ESTIMATED WEEKLY SALES OF COTTON IN THE CITY OF NEW YORK, THE QUOTATIONS FOR "MIDDLING UPLANDS" AND "MIDDLING ORLEANS," WITH THE RATES OF FREIGHT TO LIVERPOOL, AND THE COURSE OF EXCHANGE ON LONDON AND PARIS, FOR THE YEAR ENDING SEPT. 1, 1856.

Date.	Sales.	Middling Uplands.	Middling Orleans.	Freight to Liverpool.	Exchange on London.	Exchange on Paris.
Sept. 4, 1855.....	10,000	11	11 3-8	3-16— ... per lb.	109 3-4—110	5.12 1-2— ....
" 11..........	4,000	10 3-4	11 1-8	3-16— 7-32 "	109 3-4—110	5.12 1-2— ....
" 18..........	10,000	10 1-2	10 3-4	1-4 — 9-32 "	109 7-8—	5.12 1-2— ....
" 24..........	8,000	10 1-8	10 3-8	5-16— ... "	109 7-8—	5.12 1-2— ....
Oct. 2..........	5,000	10	10 1-4	7-16— 1-2 "	109 1-2—	5.13 3-4— ....
" 8..........	5,500	9 5-8	10	3-8 — 7-16 "	109 —109 1-4	5.15 —5.16 1-4
" 16..........	5,000	9 1-2	9 7-8	3-8 — ... "	108 1-2—109	5.16 1-4—5.18 3-4
" 22..........	7,000	9 1-4	9 3-4	5-16—11-32 "	109 —109 1-4	5.16 1-4—5.18 3-4
" 30..........	9,000	9 1-8	9 5-8	5-16— ... "	108 1-2—109	5.17 1-2—5.20
Nov. 6..........	5,000	9	9 3-8	1-4 — ... "	108 1-2—109	5.17 1-2—5.18 3-4
" 13..........	9,500	9 1-4	9 5-8	5-32— 3-16 "	108 —108 1-2	5.18 3-4—5.20
" 19..........	10,500	9 1-2	9 7-8	1-8 — 5-32 "	108 —108 1-4	5.18 3-4—5.20
" 27..........	9,000	9 5-8	10	5-32— 3-16 "	108 —108 1-4	5.20 — ....
Dec. 3..........	6,000	9 1-2	9 5-8	5-32— 3-16 "	108 —108 1-4	5.21 1-4—5.20
" 11..........	14,000	9 1-8	9 1-2	1-4 — ... "	108 3-4—109	5.20 — ....
" 17..........	7,000	9 1-8	9 1-2	9-32— 5-16 "	108 3-4—109	5.18 3-4—5.17 1-2
" 25..........	11,500	9 1-4	9 1-2	7-32— 1-4 "	108 1-2—108 3-4	5.20 — ....
Jan. 1, 1856.....	6,500	9 1-4	9 1-2	3-16— ... "	108 1-2—	5.20 —5.22 1-2
" 11..........	11,000	9 1-4	9 1-2	3-16— 7-32 "	108 —108 1-4	5.22 1-2— ....
" 18..........	14,000	9 1-4	9 1-2	1-4 — ... "	108 1-4—108 1-2	5.21 1-4— ....
" 23..........	10,000	9 1-4	9 1-2	1-4 — ... "	108 —108 1-2	5.21 1-4— ....
" 28..........	5,500	9 1-4	9 1-2	1-4 — ... "	108 1-4—108 1-2	5.21 1-4— ....
Feb. 5..........	20,000	9 3-4	10	3-16— ... "	108 1-2—108 3-4	5.21 1-4— ....
" 11..........	15,000	9 7-8	10 1-4	7-32— 1-4 "	109 —109 1-4	5.21 1-4— ....
" 19..........	32,000	10 3-8	10 3-4	1-4 — ... "	109 —109 1-4	5.18 3-4—5.21 1-4
" 25..........	25,000	10 3-8	10 3-4	1-4 — 9-32 "	109 —109 1-4	5.17 1-2— ....
March 4..........	12,000	10 3-8	10 3-4	3-16— 7-32 "	109 1-4—109 3-8	5.17 1-2— ....
" 10..........	12,000	10 1-8	10 3-8	1-4 — ... "	109 1-4—109 3-8	5.21 1-4— ....
" 18..........	16,000	10 1-8	10 3-8	1-4 — 9-32 "	109 1-4—109 3-8	5.20 —5.17 1-2
" 24..........	16,500	10 1-4	10 1-2	9-32— 5-16 "	109 1-2—	5.20 —5.17 1-2
April 1..........	28,000	10 3-8	10 5-8	1-4 — ... "	109 1-2—	5.20 —5.17 1-2
" 7..........	17,000	10 1-2	10 3-4	1-4 — ... "	109 1-2—	5.17 1-2—5.18 3-4
" 15..........	25,000	10 3-4	11	3-16— ... "	109 5-8—	5.17 1-2— ....
" 21..........	22,000	11 1-8	11 3-8	1-8 — ... "	109 5-8—	5.17 1-2— ....
" 29..........	18,000	11 1-4	11 1-2	1-8 — ... "	109 3-4—110	5.16 1-4— ....
May 5..........	8,000	10 3-4	11	1-8 — ... "	109 3-4—	5.16 1-4— ....
" 13..........	12,000	10 3-4	11	3-16— ... "	109 3-4—110	5.16 1-4— ....
" 19..........	9,000	10 5-8	10 7-8	3-16— 7-32 "	110 —	5.16 1-4— ....
" 27..........	15,000	10 5-8	10 7-8	3-16— ... "	109 3-4—	5.16 1-4— ....
June 2..........	5,000	10 3-4	11	5-32— 3-16 "	109 1-2—109 3-4	5.16 1-4— ....
" 10..........	12,000	10 7-8	11 1-8	3-16— 7-32 "	109 1-2—109 3-4	5.16 1-4— ....
" 16..........	5,000	11 1-8	11 3-8	3-16— ... "	109 3-4—	5.16 1-4— ...
" 24..........	5,000	11 1-8	11 3-8	3-16— ... "	109 3-4—110	5.17 1-2—5.15
" 30..........	5,000	11 1-4	11 1-2	3-16— ... "	109 3-4—110	5.17 1-2—5.15
July 8..........	4,500	11 3-8	11 5-8	5-32— ... "	109 3-4—110	5.16 1-4—5.15
" 14..........	8,000	11 5-8	11 7-8	5-32— ... "	110 —110 1-8	5.17 1-4—5.15
" 22..........	10,000	11 5-8	11 7-8	1-8 — 5-32 "	110 —	5.17 1-2—5.15
" 28..........	3,000	11 5-8	11 7-8	1-8 — ... "	109 5-8—109 7-8	5.17 1-2—5.15
Aug. 5..........	3,000	11 5-8 nom.	11 7-8 nom.	1-8 — ... "	109 5-8—109 7-8	5.17 1-2—5.15
" 11..........	3,000	11 5-8 nom.	11 7-8 nom.	1-8 — ... "	109 3-4—	5.16 1-4—5.15
" 19..........	4,000	11	11 3-8	5-32— ... "	110 —110 1-4	5.12 1-2— ....
" 25..........	5,000	11	11 3-8	5-32— ... "	110 —110 1-4	5.12 1-2— ....

EXPORTS FROM, AND CONSUMPTION OF COTTON IN, THE UNITED STATES, FROM 1827 TO 1856.

Year.	EXPORTS TO VARIOUS PLACES.				CONSUMPTION AT VARIOUS PLACES.					
	ENGLAND. Bales.	FRANCE. Bales.	OTHER POINTS Bales.	TOTAL. Bales.	ENGLAND—weekly. Bales. Uplands.	Sea Is.	FRANCE. Bales.	United States north of Virginia.	UnitedStates south & west of Virginia.	England, weekly, of all kinds.
1827	646,139	157,952	49,707	853,798	8,181	754	280,000	103,483	....	12,977
1828	424,743	148,519	26,738	600,000	9,200	360	277,500	120,593	....	14,080
1829	489,001	184,821	66,178	749,000	9,092	369	241,680	104,853	....	14,331
1830	595,713	200,791	42,212	838,716	10,208	673	264,750	126,512	....	16,002
1831	618,718	127,029	27,036	772,783	11,041	635	250,784	182,142	....	16,496
1832	638,148	207,209	46,371	891,728	11,540	539	243.843	173,800	....	17,140
1833	630,145	207,517	29,793	867,455	11,863	460	272,463	194,412	....	16,923
1834	756,291	216,424	55,236	1,027,951	13,094	517	306,000	196,413	....	17,667
1835	722,718	252,470	48,311	1,023,499	13,719	519	279,000	216,888	....	18,348
1836	771,148	266.188	79,267	1,116,603	13,991	665	308,736	236,733	....	19,452
1837	850,786	260,722	56,917	1,168,425	14,661	498	357,212	222,540	....	20,333
1838	1,165,155	321,480	88,994	1,575,629	17,247	354	360,508	246,063	....	23,204
1839	798,418	242,243	34,028	1,074,689	15,379	379	391,403	276,018	....	21,430
1840	1,246,791	447,465	181,747	1,876,003	19,200	310	326,238	295,193	....	24,063
1841	858,742	348,776	105,759	1,313,277	17,279	317	445,685	297,288	....	22,929
1842	935,631	398,129	131,487	2,465,247	16,822	265	361,277	267,850	....	22,315
1843	1,469,711	346,139	194,287	2,010,130	19,978	392	445,086	325,129	....	26,294
1844	1,202,498	282,685	144,307	1,629,490	21,321	296	330,373	346,744	....	27,473
1845	1,439,306	359.357	285,093	1,083,756	24,412	356	330,947	389,006	....	30,277
1846	1,102,369	359,708	204,720	1,666,792	24,260	377	417,851	422,597	....	30,498
1847	830,909	241,486	168,827	1,241,222	16,400	333	418,079	427,967	....	22,265
1848	1,324,265	279,172	254,824	1,858,261	22,448	392	292,407	531,772	75,000	28,146
1849	1,537,901	368,259	321,684	2,227,854	24,111	363	259,102	518,039	110,000	30,546
1850	1,106,771	289,627	193,757	1,590,155	20,238	283	351,672	487,769	107,500	29,125
1851	1,418,265	301,358	269,087	1,988,710	23,746	427	310,612	404,108	60,000	31,988
1852	1,668,749	421,375	353,522	2,443,646	27,748	577	351,657	603,029	75,000	35,790
1853	1,736,860	426,728	364,812	2,528,400	27,514	357	394,612	671,009	90,000	36,613
1854	1,603,750	374,058	341,340	2,319,148	29,183	427	365,736	610,571	105,000	37,829
1855	1,549,716	409,931	284,560	2,244,209	29,728	550	....	593,584	85,000	40,403
1856	1,921,386	480,637	552.583	2,954,606	....	...	....	652,729	117,500	....

in *transitu* cotton were purchasing from twenty to thirty thousand bales per week, and not unfrequently turning the staple over two or three times in the period which used to suffice, under the old system, of making but one fair profit out of it. The theory of certain parties, based upon an incorrect estimate of things as they are, favors the impression that the cotton trade of New York is on the wane, but like all other theories resting only upon the basis of the imagination, it fades away before the recital of the hard facts that stare it in the face.

New York being the centre of the world's trade on this continent—the grand focus of all the latest intelligence from the old world, and all sections of the new, the rendezvous of nearly all the most important lines of ocean steamers, the entrepôt of more than five eighths of the entire foreign commerce of the country, the readiest medium, financially and every other way, between the producer and the consumer, the planter and agriculturist here, and the factor and manufacturer there—New York being all this and much more besides, we repeat, it must continue to control the cotton trade of the country for a century to come. But it is sometimes inferred that the American cotton trade at large is destined to an eventual decline, in consequence of the constant endeavors of Great Britain to seek new fields for its cultivation by means of what is called free labor, near the pyramids of Egypt, and among the sickly malarias of the East Indies. These experiments, we think, have been sufficiently tested to justify the conclusion, that the cotton planter of the United States has nothing to apprehend, for at least a generation to come, from any competition from these sources. Even did the endeavor to cultivate the plant in the Indies succeed to any considerable extent, it must be conceded that the remoteness of the producer from the manufacturer, must always give us such an advantage, as regards low freights and expeditious transit, as would render the colonial speculation comparatively profitless. There are many other considerations and arguments which might be adduced to substantiate this conclusion, but these, we take it for granted, are not required, to allay any serious apprehensions of domestic ruin from this species of foreign competition.

STOCKS OF COTTON ON HAND IN THE UNITED STATES ON 31ST AUGUST. BALES.

	1856.	1855.	1854.	1853.	1852.	1851.	1850.	1849.	1848.	1847.
New Orleans..	6,995	89,425	24,121	10,522	9,758	15,390	16,612	15,480	37,401	23,493
Mobile........	5,005	28,519	29,278	7,516	2,319	27,797	12,962	5,046	23,584	24,172
Florida........	74	166	583	523	451	278	1,148	615	507	2,108
Texas..........	623	2,062	2,205	428	817	596	265	452	747	32
Sav'h & Aug'a.	3,331	3,837	11,518	12,984	6,657	34,011	29,069	25,319	36,603	25,020
Charleston....	3,144	2,085	17,031	15,126	11,146	10,953	80,698	23,806	14,085	29,655
N. Carolina....	....	....	....	....	....	....	....	....	....	....
Virginia.......	842	550	750	400	450	620	1,000	1,750	444	448
New York.....	34,657	56,846	32,988	67,675	45,796	85,410	60,720	67,035	41,967	83,259
Other N. ports.	9,500	9,846	17,129	20,469	14,282	3,850	15,456	15,250	16,130	26,650
Total.......	64,171	143,336	135,603	135,643	91,176	128,900	167,930	154,753	171,468	214,837

IV. COTTON TRADE OF THE UNITED STATES WITH GREAT BRITAIN. 1. *General Information Respecting the Cotton Trade of the United States.—Great Britain.*— The annual average importation of cotton from all countries into England the last five years has been 838,335,984 pounds, of which quantities, according to British authorities, 661,529,220 pounds, or more than three fourths, were from the United States. The annual average exportation to the Continent and elsewhere has been 122,810,688 pounds, or about one sixth of the total quantity imported, leaving 715,525,296 pounds for the annual average consumption. About one sixth of the whole amount imported was from Brititsh possessions.

In 1781, Great Britain commenced the re-exportation of cotton to the Continent and elsewhere. In 1815 the quantity thus re-exported had risen from the annual average of 1,000,000 pounds to that of 6,000,000 pounds. In 1853, the aggregate amount exported exceeded 148,500,000 pounds, of which nearly 83,000,000 pounds were derived from the United States, and more than 60,000,000 pounds from the East Indies. The quantity of American cotton re-exported by Great Britain to the different markets of Europe, when compared with the quantities imported, is much less than of that imported from other countries—a fact which suggests the superiority of the American article, and its better adaptation to purposes of fabrile industry. For example, about one tenth of the cotton imported from the United States is re-exported, against nearly one half of that imported from the East Indies. A comparison between American and East India cotton, shows a difference of 100 per cent. in favor of the former; the cotton of the East Indies containing 25 per cent. of waste, while that of the United States contains only 12½ per cent. The fibre, also, of the latter excels that of the former.

In 1788, the efforts of the East India Company commenced for the promotion of the growth of cotton, and for the improvement of its quality, in British India; and the first exportation of the article to England was made the same year. In 1814 the exportation amounted to 4,000,000 pounds; it now averages 165,000,000 pounds per annum. An area of about 8000 square miles is said to be devoted to the culture. Liverpool is the great mart of the cotton trade of Great Britain and of Europe generally. Thus, while the total imports of the article into the United Kingom, according to British authorities, in 1852, amounted to 2,357,338 bales, the quantity at this port reached 2,205,738 bales. About six sevenths of the cotton received at Liverpool comes from the United States; and of this four fifths is estimated to be imported for the factories of Lancashire and Yorkshire. Since March, 1845, cotton has been admitted into British ports free of duty. Prior to that period the duty was, of and from British possessions, 8 cents; from other places, 70 cents per 112 pounds. The number of spindles in operation in England is estimated at more than 20,000,000. The value of cotton supplied by the United States to Great Britain in 1853 was $57,616,749, being about the average each year the last four. The quantity of cotton exported from the United States to England in 11 months of the fiscal year 1856, is estimated at 2,755,000 bales. It appears from "Commerce and Navigation," that the importation of raw cotton from the British West Indies into the United States has increased, for some years past, in a ratio quite proportional to the decrease of such importation into Great Britain. Thus, the importation of cotton into the United States and Great Britain, respectively, from the British West Indies, from 1851 to 1855, inclusive, was as follows:

Years.		Into the United States.	Into Great Britain.
1851................	pounds..	29,358	446,529
1852................	" ..	6,756	708,696
1853................	" ..	252,892	844,060
1854................	" ..	159,381	205,072
1855................	" ..	880,217	No data.

The average price per pound of cotton from 1851 to 1855, inclusive, in the United States and Great Britain, respectively, is shown as follows:

Years.	In the United States.	At Manchester, G. B.
1851................	12.11 cents.	12 1-4 cents.
1852................	8.05 "	11 1-4 "
1853................	9.85 "	12 4-7 "
1854................	9.47 "	12 3-4 "
1855................	8.74 "	12 1-1 "

The following statement shows the quantities of cotton imported into Great Britain, and the countries whence imported, from 1840 to 1855. The figures are derived from a "Statistical Abstract for the United Kingdom, presented to both Houses of Parliament, by command of her Majesty," by Mr. Albany W. Fonblanque, superintendent of the statistical department of the Board of Trade. The commercial year in England begins January 1; in the United States, July 1; hence, seeming discrepancies in figures for apparently the same periods of time. In the following table the column headed Egypt includes Turkey, Syria, and the Mediterranean generally; the East Indies includes British India generally; the West Indies, the West India Islands belonging to Great Britain, and British Guiana:

Years.	Pounds of Cotton Imported into Great Britain from—						
	United States.	Brazil.	Egypt.	East Indies.	West Indies.	Elsewhere.	All countries.
1840	487,856,504	14,779,171	8,324,937	77,011,839	866,157	3,649,402	592,448,010
1841	358,240,964	16,671,348	9,097,180	97,338,153	1,533,197	5,061,513	487,992,355
1842	414,030,779	15,222,828	4,489,017	92,972,609	593,603	4,441,250	531,750,086
1843	574,738,520	18,675,123	9,674,076	65,709,729	1,260,444	3,135,224	673,193,116
1844	517,218,622	21,084,744	12,406.327	88,639,776	1,707,194	5,054,641	646,111,304
1845	626,650,412	20,157,633	14,614,699	58,437,426	1,394,447	725,336	721,979,953
1846	401,949,393	14.746.321	14,278,447	34,540,143	1,201,857	1,140,113	467,856,274
1847	364,599,291	19.966.922	4,814,268	83,934,614	793,933	598,587	474,707,615
1848	600,247,488	19.971,378	7,231,861	84,101,961	640,437	827,036	713,020,161
1849	634.504,050	30,738,133	17,369,843	70,838,515	944,307	1,074,164	755,469,012
1850	493,153,112	30,299,982	18,931,414	118,872,742	228,913	2,090,698	663,576,861
1851	596,638,962	19,339,104	16,950,525	122,626,976	446,529	1,377,653	757,379,749
1852	765,630,544	26.506,144	48,058,640	84,922,432	703,696	3,960,992	929,782,448
1853	658,451,796	24,190,628	28,353,574	181,848,160	344.060	2,078,562	895,266,780
1854	722,151,360	19.703,600	23,353,120	119,829,152	205.072	2,090,800	887,333,104
1855	679,264,096	24.577,952	32,622,688	145,218,976	No data.	8,476,160	890,159,872
Aggregate 5 years.	3,422,136,758	114,317,428	149,338,547	654,445,696	1,699,357	17,984,167	4,359,921,953
Average 5 years...	684,427,351	22,863,485	29,867,709	130,889,139	424,839	3,596,833	871,984,390

STATEMENT SHOWING THE QUANTITIES OF COTTON EXPORTED BY GREAT BRITAIN TO ALL COUNTRIES, RESPECTIVELY, AND THE COUNTRIES WHENCE IMPORTED, FOR A PERIOD OF FIVE YEARS, FROM 1851 TO 1855, BOTH INCLUSIVE.*

Years.	Exported to all countries.	Of which was imported from—				
		United States.	Brazil.	Egypt.	East Indies.	Elsewhere.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
1851	111,980,400	66,921,344	1,888,880	211,008	42,959,168	....
1852	111,875,456	69,217,120	3,619,840	124,656	38,864.672	49,168
1853	148,569,680	82,701,472	4,786,768	948,416	60,082,064	50,960
1854	125,554,800	55,101,200	1,438,192	369,600	68,645,808	....
1855	124,345,760	56,989,632	759,360	386,064	66.210,704	....
Annual average	124,465,219	66,186,158	2,498,608	407,948	55,352,483	....

* Compiled from the monthly "Accounts Relating to Trade and Navigation," presented to the British Parliament, the only authority at hand from which the countries whence the cotton exported was imported could be ascertained. Results gathered from these monthly accounts sometimes vary from those given in the "Annual Statement of the Trade and Navigation of the United Kingdom," from which latter document was made up the table that follows.

Countries to which exported.	Pounds of cotton exported from Great Britain in the years—				Annual average.
	1851.	1852.	1853.	1854.	
Russia	35,185,472	45,605,840	48,937,392	208,544	32,484.312
Sweden	2,434,656	3,591,840	4,414,368	5,866,560	4,076.856
Prussia	1,576,064	674,240	1,143,296	23.444,624	6,709,556
Hanse Towns	27,473,040	22,472,016	33,417,440	36,055,264	29,854,440
Holland	22,119,104	15,834,224	28,676,592	26,934,544	23,391,116
Belgium	12,856,480	12.657.680	18,466,672	14,040,768	14,505,400
France	1,365,504	2.225.440	2.403,968	2,759,282	2.188,536
Sardinia	2,742,320	2,238,208	3,860.864	3,821,328	3,165,680
Austria	1,366,064	1,957,088	3,830,288	4,811,856	2,991,324
Other countries	2,647,120	2,324,560	3,418,800	5,383,392	8,443,468
Aggregate	109,765,824	109,581,136	148,569,680	123,326,112	122,810,688

STATEMENT OF IMPORT OF COTTON IN BALES INTO GREAT BRITAIN, DURING THE LAST TEN YEARS.

1855.	Atlantic States.	New Orleans, Mobile, etc.	Total United States.	Brazil.	Demarara and Berbice.	W. Indies, etc.	Egypt.	East Indies.	Grand Total.
Liverpool	620,886	987,594	1,608,480	134,442	1,090	6,844	112,100	279,856	2,142,812
London	207	74	281	320	....	468	40	99,877	100,986
Bristol & Hull	....	....	....	....	....	....	....	655	655
Glasgow	5,726	8.991	14,717	....	....	544	2,878	15,626	33,765
Total, 1855	626,819	996,659	1,623,478	134,762	1,090	7,856	115,018	396,014	2,278,218
" 1854	513,509	1,152,970	1,666,479	107,393	572	8,775	81,085	308,293	2,172,597
" 1853	503,787	1,028,276	1,532,063	132,443	572	8,267	105,398	485,527	2,264,270
" 1852	562,104	1,154,809	1,789,213	144,197	....	12,580	189,935	221,418	2,357,338
" 1851	480.464	913,242	1,393,706	108,721	....	4,877	67.433	328,809	1,903,546
" 1850	510.248	615,646	1,184,194	171,797	....	5,660	79,743	307,901	1,749,295
" 1849	499,250	883,777	1,477,727	163,768	....	9,114	72,651	182,167	1,905,427
" 1848	451,009	673,183	1,375,375	100,201	....	7,889	29,010	227,512	1,739,997
" 1847	274,217	556,489	874,087	110,229	....	4,986	20,729	222,766	1,282,797
" 1846	245,273	686,823	990,996	84,178	....	12,998	60,631	155,140	1,243,987

EXPORT AND CONSUMPTION OF COTTON IN GREAT BRITAIN FOR FOUR YEARS.

1855.	EXPORT.							CONSUMPTION.			
	Liverpool.	London.	Other Ports.	Total.	1854.	1853.	1852.	1855.	1854.	1853.	1852.
American	120,300	350	....	120,650	137,500	176,000	165,960	1,577,948	1,526,589	1,408,963	1,507,765
Brazil	4,700	50	....	4,750	8,200	18,100	14,800	114,472	100,673	119,813	124,464
West India.	200	50	....	250	100	600	300	9,056	9,177	10,599	9,863
Egyptian	2,600	50	....	2,650	2,000	3,400	1,000	120,988	105,215	119,648	109,005
East India.	106,500	82,100	....	188,600	168,600	151,500	100.740	276,834	207,723	196,587	160,461
Total	234,300	82,600	....	316,900	316,400	349,600	282,800	2,099,298	1,949,327	1,854,610	1,911,558

STATEMENT OF STOCK OF COTTON IN BRITISH PORTS, AT THE CLOSE OF THE LAST SIX YEARS.

Description.	1855.			Total in the kingdom.					
	Liverpool.	London.	Other Ports.	1855.	1854.	1853.	1852.	1851.	1850.
Sea Island...........	10,240	....	360	10,600	....	....	....	....	....
Stained do...........	1,590	....	10	1,600	....	....	....	....	....
Upland..	84,220	180	880	85,280	811,310	808,870	360,770	245,800	273,900
Mobile and Alabama.	33,240	....	330	33,570	....	....	....	....	....
New Orleans.........	102,590	....	2,550	105,140	....	....	....	....	....
Pernambuco, etc.....	22,560	....	....	22,560	....	....	....	....	....
Bahia and Maceio....	18,440	60	....	18,500	47,520	49,000	54,610	49,500	68,700
Maranham...........	21,900	100	...	22,000	....	....	....	....	....
Egyptian............	48,290	....	2,080	50,370	58,990	85,120	102,770	25,900	35,100
Surat and Madras....	82,200	49,640	330	132,170	202,620	270,650	133,210	172,000	143,400
Bengal and Manilla...	140	890	....	1,030	....			....	....
Other descriptions....	3,400	250	....	3,650	4,010	3,940	6,160	1,300	1,300
Total...........	428,810	51,120	6,540	486,470	624,450	717,580	657,520	494,500	522,400

LIVERPOOL COTTON STATEMENT.

		Bales.
Stock, 1st January, 1855........................		551,300
Import in 1855..................................		2,142,709
		2,694,000
	Bales.	
Total quantity sold in 1855, as per weekly returns,............	3,048,030	
Deduct proportion sold to speculators for re-sale...........	782,830	
		2,265,200
Stock, 1st January, 1856........................		428,800

	Bales.
Taken for consumption and export in 1855...............	2,265,200, or 43,562 pr. wk.
[In 1854—2,114,100 or 40,656 bales per week.]	
Ded. exp. to Continent, 228,500 " Ireland... 5,800	234,300
Taken for consumption......	2,030,900, or 39,056 pr. wk.
	[In 1854,.. 1,885,300, or 36,250 "]

LONDON COTTON STATEMENT.

		Bales.
Stock, 1st January, 1855................................		52,300
Import in 1855..		101,000
		153,300
	Bales.	
Stock, 1st January, 1856...... 51,100 Exported to the Continent... 82,600 " Liverpool............	133,700	
Taken for consumption in England...	19,600 or 377 pr. wk.	
[In 1854..	7,600 " 146 "	

The above figures show that the past year's consumption was double that of 1840. The aggregate production of the past 12 years sums up 37,297,500 bales, while the consumption has been 38,212,500; the latter being in excess of the former 925,000 bales, thus reducing the stock of new material by that much since 1845—a startling fact in view of the great interests involved.

From a reliable source of intelligence across the water, we learn that new machinery added to mills now working, together with manufactories now in process of erection, will require in 1857 about 4,000 bales of cotton per week more than the consumption of the present year, making an aggregate of nearly 45,000 bales per week. On the Continent, the extension of manufacturing power is supposed to be going on at about the same rate. Consequently prices will advance till they reach a point tending to a diminution of consumption. What that point will be we have yet to learn. Though the stock of cotton, at present, is larger in Liverpool than last year, it will be reduced very rapidly, as the imports up to the close of the year can scarcely be more than half so large as during the latter months of 1845, and perhaps not even that, in consequence of the lateness of the season and diminished receipts at our ports.

2. *France.*—Cotton constitutes in value more than two thirds of the domestic exports of the United States to France. By virtue of the treaty of 1832, it is imported, like all other "articles of the growth, produce, or manufacture of the United States," on the same terms, whether in United States or national vessels; but the importation must be direct, and the origin of the article duly authenticated. A ministerial decree of December 17, 1851, enlarges the provision of the treaty relative to the direct voyage, so far as to extend the equality between the vessels of the two nations when importing cotton, even should the American vessel touch at a British port; but, in that case, the captain is required to exhibit a certificate from the French consul at that port, stating that no commercial transaction there took place. The French government is directing its efforts to the development and extension of the cotton culture in its colonial province of Algeria. To that end, in December, 1853, an aggrgate value of 20,000 francs, in prizes, was offered by the emperor to the most successful cultivator of cotton in that province. The result is announced as most favorable. In December, 1854, the entire sum was divided between three rivals, whose merits were judged equal—two of them being French colonists, and one an Arab—a gold medal to each being also awarded. To the meritorious of the second rank, a silver medal to each was presented. The amount produced in 1854 was 180,552 pounds. Next to Great Britain, France is the largest importer of American cotton; and what Liverpool is to the former, Havre is to the latter. At those two points the importations are concentrated, and thence distributed to the different markets of either empire, or re-exported to foreign countries. The re-exportations of France are chiefly to Switzerland by railway; after which country, in this trade, come Sardinia and Holland; smaller quantities being sent also to Spain, the Zollverein and other countries. Next to the United States, France derives her supplies of cotton from the Levant; and the third place is held by South America. These facts are illustrated by the following statements, made up from the "*Tableau Général du Commerce de la France*," for the year designated. [The quantities are given in kilogrammes, each kilogramme being equal to about 2 1-5 pounds. Kilogrammes multiplied by 9 and divided by 4 will give pounds.]

TABULAR COMPARATIVE STATEMENT SHOWING THE QUANTITIES OF COTTON IMPORTED INTO FRANCE, AND THE COUNTRIES WHENCE IMPORTED, FOR A PERIOD OF THREE YEARS, FROM 1852 TO 1855, BOTH INCLUSIVE.

Countries whence imported.	Kilogrammes of cotton imported into France in the years—		
	1852.	1853.	1854.
United States...	76,104,454	79,381,735	77,746,470
Egypt...........	4,382,575	4,881,872	3,601,327
Turkey	1,027,837	1,371,239	375,834
England	938,907	890,322	1,547,994
Belgium........	281,074	603,449	375,350
Brazil	413,563	280,813	127,912
Peru	158,716	283,838	239,688
Venezuela.......	315,953	169,686	68,064
Hayti...........	75,697	104,510	77,165
East Indies.....	47,955	6,674	188,649
Elsewhere......	393,091	191,029	206,569
Aggregate....	83,989,822	88,065,022	84,555,022

The only country in Europe which can, in any sense, be said to compete with Great Britain in the supply of the extra European demand for cotton goods is France. And when the character and extent of this branch of the French export trade are described it will be seen that this most formidable rival is not yet much to be dreaded.

TABULAR COMPARATIVE STATEMENT EXHIBITING THE QUANTITIES OF COTTON IMPORTED INTO FRANCE FROM THE UNITED STATES, AND FROM OTHER COUNTRIES, INCLUDING BRAZIL, WITH THE AGGREGATES, FROM 1820 TO 1855.

Years.	From United States.	From other Places.	Aggregate.	Years.	From United States.	From other Places.	Aggregate.
	Kilograms.	Kilograms.	Kilograms.		Kilograms.	Kilograms.	Kilograms.
1820..........	11,630,000	8,573,000	20,203,000	1838..........	43,780,000	7,479,000	51,259,000
1821..........	10,155,000	12,432,000	22,587,000	1839..........	34.832,000	5,702,000	40,534,000
1822..........	9.500,000	12,072,000	21,572,000	1840..........	48,581,000	4,361,000	52,942,000
1823..........	12,196,000	8,158,000	20,354,000	1841..........	50,350,000	5,520,000	55 870,000
1824..........	15,749,000	12,281,000	28,030,000	1842..........	52,332,000	4,995.000	57,327,000
1825..........	13,454,000	11,213,000	24,667,000	1843..........	56,135,000	3,865,000	60,000,000
1826..........	21,921,000	9,693,000	31,914,000	1844..........	54,249,000	4,643,000	58,892.000
1827..........	21,880,000	7,804.000	29,684,000	1845..........	56,642,000	4,116,000	60,758.000
1828..........	21,617,000	5,758,000	27,375,000	1846..........	60,760,000	3,467,000	64,227,000
1829..........	25.844,000	5,995.000	31,839,000	1847..........	42,225,000	3,297,000	45,522,000
1830..........	23,150,000	6,110,000	29,260,000	1848..........	43,249,000	1,660.000	44,909,000
1831..........	22,778,000	5,451,000	28 229,000	1849..........	60,931,000	3,233,000	64,164,000
1832..........	27,383,000	5,253,000	32,636.000	1850..........	54,919,000	4,547,000	59,466,000
1833..........	28.819,000	6,791,000	35,610,000	1851..........	53,914 000	4,570,000	58,484,000
1834..........	31.587.000	5,348,000	36,935,000	1852..........	66,740,000	5.329,000	72,069,000
1835..........	32,323,000	6.437,000	38.760.000	1853..........	70,221,000	4,870,000	75,091,000
1836..........	36,368,000	7,964,000	44,332,000	1854..........	67,453,000	4.141,000	71,594,000
1837..........	36,469.000	7,361,000	43,830,000	1855..........	71,897,000	4,241,000	76,138,000

From the foregoing table it will be seen that the importation of cotton into France from other countries than the United States, including Brazil, from 1820 to 1855, has fallen off more than 50 per cent.; while from the U. States it has increased more than 600 per cent.

The French tariff in 1858 imposed five different rates of duty on raw cotton imported in French vessels, according to where it came from; and three other rates of duty, similarly distinguished, on cotton imported in foreign vessels. The duty most extensively operative —that on American cotton entering in French bottoms —was 20 francs per 100 kilograms, or about sixteen shillings per 220 pounds. And as the whole quantity imported (75,091,000 kilograms) yielded to the revenue 17,276,000 francs, giving an average of 22·23 francs per 100 kilograms, it is probable that by far the greater part of what was imported actually paid this rate of duty.

The bounty on exportation was 25 francs per 100 kilograms of manufactures or yarn. It was allowed in 1853 on 7,117,864 kilograms of manufacture and on 198,604 kilograms of yarn. This, with a moderate allowance for waste of the raw material, though called a bounty, could in effect have been little, if at all, more than a drawback of the import duty.

It would seem that the French exports in this kind are not more than a tenth in value of our own. And where were they sent, and why? The largest customer for these French manufacturers (taking two parts in seven of the whole value) was Algeria; but Algerian consumption may be deemed practically French consumption. The two customers next on the list, when arranged in order of magnitude, are the United States and the United Kingdom. These took between them two other seventh parts of the whole. And the goods sold in the English and American markets are well known to owe their peculiar value rather to the designer and the dyer than to the spinner and weaver. Their consumption does not admit of any very rapid or wide increase. French taste and French chemistry have deservedly won for the French textile fabrics, wherever they are applicable, a superiority as well known as it is incontestable. But this has little effect in determining the locality of the cotton manufacture of the whole. With a few trifling exceptions, of which cotton lace imported from Belgium is the only one worthy of notice, no cotton foreign manufactures were in 1853 admitted to French consumption.

The following table will show the exports of cotton to France for six years, ending with June 30, 1855, and the value; as also the total value of domestic exports to France during the said years, respectively.

Years.	Pounds.	Value.	Total Value domestic Exports.
1850........	125,834,091	$14,395,449	$17,950,277
1851........	139,164,571	18,124,512	25.302,085
1852........	186,214,270	15.438 586	22,190,070
1853........	189.226,913	19.248,076	25,120,806
1854........	144,428,360	14,532,712	30,968,252
1855........	210,113,869	19,035.423	31,623,898

French official documents furnish the following facts relative to our cotton trade with that empire. By the custom-house returns for 1855, it appears that there were received for the following years from all countries:

1852........................	158,400,000	pounds.
1853........................	165,000,000	"
1854........................	157.520,000	"
1855........................	167,200,000	"

The following table shows the quantities of cotton imported into Havre from all countries for a period of four years, ending with 1855:

Years.	From the United States.	From Brazil.	From elsewhere.	Total.
	Bales.	Bales.	Bales.	Bales.
1852	374,900	6000	14.400	395 300
1853	374,500	2800	12,200	389.500
1854	411,000	2000	12,000	425.000
1855	406.600	2500	9.000	418,100

TABLE SHOWING THE QUANTITIES OF COTTON RECEIVED AT THE OTHER PORTS OF FRANCE DURING THE SAME YEARS.

Years.	From the United States.	From Egypt.	From elsewhere.	Total.
	Bales.	Bales.	Bales.	Bales.
1852.......	17.800	36,700	12.500	67.000
1853.......	14,500	33,000	17,000	64 500
1854.......	19,300	21,400	4.300	45.000
1855.......	12,000	30.700	2,800	45.500

From the subjoined table, showing the quantities of cotton received by the United States in the course of trade, during a period of five years, from other countries, it will be perceived that none is imported from Brazil:

TABULAR STATEMENT SHOWING THE QUANTITIES OF COTTON IMPORTED INTO THE UNITED STATES, IN POUNDS, AND COUNTRIES WHENCE IMPORTED, FOR A PERIOD OF FIVE YEARS, FROM 1851 TO 1855, BOTH INCLUSIVE.

Years.	Dutch West Indies.	British West Indies.	Hayti.	New Granada.	Venezuela.	Elsewhere.	All Countries.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
1851	....	29.353	12,000	110,190	6,010	9.204	166.757
1852	22,474	6.756	....	69.838	....	145.480	244,548
1853	....	252,892	215.799	192.267	61,310	360	722,628
1854	130	159,381	196,127	185,928	....	3,644	545,210
1855	1.002	1,880,217	189,214	44.359	415	160	2,115.367
Aggregate	23.606	2,328,599	613.140	602,582	67.735	158.848	3,794,510
Average	4,721	465,720	122.628	120,516	13,547	31,769	758,902

It may be remarked that, with the exception of 42,522 pounds exported to England in 1853, no cotton imported into the United States was exported during the years designated.

TABULAR COMPARATIVE STATEMENT, SHOWING THE QUANTITIES OF COTTON EXPORTED BY FRANCE TO ALL COUNTRIES, RESPECTIVELY FOR A PERIOD OF THREE YEARS, FROM 1852 TO 1854, BOTH INCLUSIVE. [THE QUANTITIES ARE GIVEN IN KILOGRAMMES, AS IN THE PRECEDING TABLE.]

Countries to which exported.	Kilogrammes of cotton exported from France in the years—		
	1852.	1853.	1854.
Switzerland........	7,029,667	7,029,099	6,657,003
Netherlands........	1,709,004	857,982	688,308
Sardinia...........	1,554,395	661,924	492,374
Zollverein.........	193,408	158,637	888,974
Hanse Towns......	110,554	182,581	19,264
Austria............	17,585	138,636	103,885
England...........	1,149,966	819,820	77,008
Belgium...........	75,711	123,061	63,704
Spain.............	213,868	51,179	53,825
Tuscany...........	48,915	18,438	1,720
Elsewhere.........	74,018	30,483	6,493
Aggregate......	12,177,086	9,571,840	8,552,558

COMPARATIVE TABULAR STATEMENT SHOWING THE QUANTITIES OF COTTON CONSUMED IN FRANCE, AND THE COUNTRIES WHENCE IMPORTED, FOR A PERIOD OF THREE YEARS, FROM 1852 TO 1854, BOTH INCLUSIVE.

Countries whence imported.	Kilogrammes of cotton consumed in France in the years—		
	1852.	1853.	1854.
United States......	66,740,104	70,220,752	67,452,503
Egypt.............	2,754,662	2,401,497	2,318,665
Turkey	979,313	744,331	571,511
England...........	3,966	8,442	170,664
Belgium...........	231,074	561,066	395,176
Brazil.............	432,899	265,450	105,861
Peru..............	144,134	219,077	254,414
Venezuela.........	206,538	161,502	55,263
Hayti	47,860	70,530	57,290
East Indies........	296,953	263,374	71,517
Elsewhere.........	231,448	175,237	141,131
Aggregate.....	72,068,951	75,091,258	71,593,995

TABULAR COMPARATIVE STATEMENT SHOWING THE QUANTITIES OF COTTON WHICH PASSED IN TRANSIT THROUGH FRANCE, WITH THE COUNTRIES WHENCE IT CAME, AND WHITHER IT WENT, RESPECTIVELY, DISTINGUISHING THE QUANTITIES TO AND FROM EACH, FOR THE PERIOD OF THREE YEARS, FROM 1852 TO 1854, BOTH INCLUSIVE.

Years.	Countries whence.	Quantities.	Countries whither.	Quantities.
		Kilos.		Kilos.
1852	United States.	5,060,457	Switzerland...	7,027,627
	England......	1,255,680	Sardinia......	364,315
	Egypt........	1,025,128	Zollverein....	196,979
	Elsewhere....	266,319	Elsewhere....	18,613
	Aggregate...	7,607,534	Aggregate...	7,607,534
1853	United States.	4,800,328	Switzerland...	7,006,914
	England......	761,193	Sardinia......	197,115
	Egypt........	1,822,372	Zollverein....	192,779
	Elsewhere....	92,178	Belgium......	79,263
	Aggregate...	7,476,071	Aggregate.;.	7,476,071
1854	United States.	4,623,826	Switzerland...	6,601,925
	England......	1,402,372	Sardinia......	265,387
	Egypt........	884,750	Zollverein....	373,550
	Elsewhere....	386,693	Elsewhere....	56,779
	Aggregato...	7,297,641	Aggregate...	7,297,641

3. *Spain.*—Tabular comparative statement, showing the quantities of cotton imported into Spain, and the countries whence imported, for a period of five years, from 1851 to 1855, both inclusive.

The statistical office has no official Spanish data from which to make up the statement required.

The quantities of cotton exported from the United States to Spain, according to United States' Treasury reports, the year specified, were as follows:

	Pounds.		Pounds.
1851............	34,272,625	1854.............	35,024,074
1852.............	29,301,928	1855.............	33,071,795
1853.............	36,851,042	Average (5 years)	33,704,292

From Cuba, the same years, according to *Balanzas Generales* of that island, the quantities exported to Spain were as follows:

	Pounds.		Pounds.
1851..............	18,415	1854..............	1,489
1852..............	300,225	1855..............	No data.
1853..............	138,625	Average (4 years).	113,438

From Porto Rico, according to official Balanzas of that island, as follows:

	Pounds.		Pounds.
1851...............	815,088	1854...............	No data.
1852...............	141,807	1855...............	No data.
1853...............	245,552	Average (3 years).	234,147

From Brazil, according to the *Proposta e Relatario* of that empire, for the years 1852–'3, and 1853–'4, the quantities of cotton exported to Spain were as follows:

	Pounds.		Pounds.
1852—53..........	2,291,578	Average (2 years).	2,321,428
1853—54..........	2,351,279		

Spain, according to the *Cuadro General* of that kingdom for 1849, imported that year, from countries of production, 26,136,881 pounds of cotton; of which quantity the United States supplied 21,669,441 pounds; Cuba, 3,371,830 pounds; Brazil, 832,604 pounds; Porto Rico, 370,881 pounds, and Venezuela 21,316 pounds.

4. *Hanse Towns.*—The states of Germany are supplied with the cotton consumed in their factories chiefly through the Hanseatic cities, Hamburg and Bremen. Bremen sent to the Zollverein, in 1853, cotton imported direct from the United States, to the value of $984,772 14, and to Austria to the value of $156,153 21. The factories of Prussia and Saxony are numerous, and import not only the raw material from the cities, but also large quantities of yarns. The number of spindles in operation in the states composing the Zollverein is estimated at upward of 1,000,000. This is, doubtless, an under estimate, as the industrial enterprise of the Zollverein has made rapid progress since the date of the official document from which these figures are derived. The export of cotton tissues from the Zollverein in 1853 amounted in value to $2,394,497 34, of which amount $2,075,299 68 in value came from the factories of Saxony.

The Hanse Towns, from geographical position, are, and must always continue to be, the great marts from which raw material of all descriptions will be supplied to the states of the Germanic commercial Union. Hence exports of American cotton and tobacco to these points are heavy, and constantly increasing. These commercial cities receive their supplies of raw cotton not only from the United States, in direct trade, as well as from Brazil and other countries of South America, but also in the indirect trade from English ports and other entrepôts of Europe. In 1855, the Zollverein sent through the Hanse ports to the United States cotton fabrics to the value of more than $1,500,000 in return for the raw material.

The following statement shows the quantities of cotton exported from the United States to the Hanse Towns every 10 years, for a period of 51 years, from 1805 to 1855:

	Pounds.		Pounds.
In 1805.........	122,003	In 1835.........	2,688,147
" 1815........	1,346,283	" 1845........	17,204,094
" 1825........	577,109	" 1855........	30,809,991

Tobacco is borne in direct voyage from the United States; not so, however, with cotton, in the carrying trade, of which Great Britain has been for many years an active competitor. Entering the ports of the United Kingdom free of duty, her merchant flag can realize a profitable trade in its re-exportation to the various ports of continental Europe. Thus the Hanse Towns receive their supplies of raw cotton not only from the United States in the direct trade, but also in the indirect trade from English ports and other entrepôts of Europe. The annual average quantity of cotton exported from the United States to the Hanse Towns, including Prussia, during the 4 years from 1851 to 1854, both inclusive, was 24,811,626 pounds; while the annual average exports from Great Britain during the 4 years ending Dec. 31, 1854, was 36,563,996 pounds.

The annual average quantities of cotton exported from the same countries, respectively, during the same periods, to the other nations of northern Europe, exhibit similar results. These facts are illustrated by the subjoined statement, and suggest a strong argument for the serious consideration, by the navigation interests of the United States, of such measures as would be likely to promote the direct exportation of our great staple from our own ports, in our own vessels, to those of the countries by which it is consumed.

COMPARATIVE STATEMENT SHOWING THE QUANTITIES OF COTTON EXPORTED TO CERTAIN COUNTRIES OF NORTHERN EUROPE, FROM THE UNITED STATES AND GREAT BRITAIN, RESPECTIVELY, FOR A PERIOD OF THREE YEARS, FROM 1852 TO 1854, BOTH INCLUSIVE.

Countries.	FROM THE UNITED STATES.			FROM GREAT BRITAIN.		
	1852.	1853.	1854.	1852.	1853.	1854.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
Hanse Towns and Prussia	23,138,228	22,671,782	37,719,922	23,146,256	34,560,736	59,499,888
Belgium	27,157,890	15,494,442	13,980,450	12,657,680	18,466,672	14,040,768
Russia	10,475,168	21,286,563	2,914,954	45,605,840	48,937,392	208.544
Holland	10,259,042	7,038,994	6,048,165	15,834,224	28,676,592	26,934,544
Sweden and Norway	5,939,025	6,099,517	9,212,710	3,591,840	4,414,368	5,866,560
Aggregate	75,969,353	72,591,298	69,876,211	100,835,840	135,055,760	106,550,304

5. *Belgium.*—Most of the cotton imported into Belgium is from the United States, and is consumed by her own factories at Ghent, Liege, Antwerp, Malines (Mechlin), etc., which are said to employ a capital of $12,000,000, and more than 122,000 operatives, and to turn out an annual value of $17,000,000 in fabrics, which are in high repute. The *Tableau Général* of Belgium for 1854 gives the importation of cotton into that kingdom as follows:

STATEMENT EXHIBITING THE QUANTITIES OF COTTON IMPORTED INTO BELGIUM IN 1854.

From	Pounds.	From	Pounds.
United States	15,329,266	Hayti	73,055
England	14,208.765	Brazil	19,991
Holland	2,733,259	Other countries	30,594
France	368,516		
Hanse Towns	79,668	Total	32,833,114

Of the above total, 25,783,292 pounds were consumed, and 7,049,823 exported.

The quantity imported by land and rivers was 3,104,851 pounds; by sea, 29,729,263 pounds.

Of the quantity exported, 6,959,965 pounds was by land and rivers, and 89,858 pounds by sea.

	Pounds.
Prussia receiving (by land and rivers)	5,628,186
France " " "	842.881
Holland " " "	488,898
And all other countries receiving (by sea)	134,118
Total by land and rivers and by sea	7,094,083*

The cotton thus exported was imported as follows:

	Pounds.
From United States	5,529,537
" England	1,488,582
" Holland	70,965
" France	4,999
Total	7,094,083

The average annual amount of duties derived by Belgium from cotton for the five years ending with 1854 was upward of $40,000, and, in the latter year, it ranked the thirteenth among articles imported in this regard. The duty under the law of January 31, 1852, was 1 franc 70 centimes per 220 pounds. By the law of April 12, 1854, cotton became free.

In 1854, Belgium exported cotton fabrics in value as follows:

Cotton fabrics	$4,701,572
Belgian manufacture	2,632,586
Foreign mannfactures re-exported	$2,068,986

6. *Sardinia.*—Sardinia imports, on an average, some four or five million pounds of cotton each year from England and France, and about the same quantity from the United States; although, in 1855, the importation from the latter country suddenly rose from 1,645,372 pounds the preceding year to 14,777,765 pounds! There seems no sufficient reason why American vessels should not convey the whole quantity required by Sardinia directly to Genoa, as well as for English and French vessels to carry thither a portion of American cargoes landed at Liverpool or Havre. A similar remark is applicable to the other ports of Italy, and to those of Austria on the Adriatic; and the enterprise of establishing lines of ocean steamers between ports of the United States and those of the Mediterranean will, if successful, tend greatly to encourage, if not to secure, such direct importation.

7. *Switzerland.*—Four fifths of all the cotton consumed by the factories of Switzerland is estimated to be imported at Havre, whence it passes through France by railway, being burdened with heavy charges in the transit. In 1833, the quantity thus received amounted to nearly 6,000,000 pounds. In 1843 it had reached nearly 17,000,000 pounds. The entire receipt of cotton in 1843 was 22,000,000 pounds. In 1851 it amounted to 27,035,725 pounds, of which 13,729,320 pounds were from the United States. In 1852, Switzerland received through France 15,816,775 pounds; in 1853, 15,815,473 pounds, and in 1854, 14,978,257 pounds, according to the *Tableau Général* of France for these years. Imports from the United States into Switzerland are made, for the most part, through the customs frontiers of Berne, Basle, Soleure, and Argovie, bordering on France and the southern part of Germany. A severe restriction on the importation of cotton, and also of tobacco, to Switzerland, as well as on the reception by the United States of Swiss ware and manufactures in return, is the vexatious and expensive transitage, especially through France. The oppression of this system may be inferred from the fact, that the annual average aggregate value of merchandise on which transit tolls are paid, proceeding from Switzerland, is (1853) nearly $30,000,000; and the value of that proceeding to that republic more than half as much. Switzerland sent, in transitu to France, cotton tissues to the value of nearly $3,000,000 in 1852; and to the value of nearly $4,000,000 in 1853. By the French tariff, such fabrics are excluded from France for consumption. Since 1845, Switzerland is stated officially to have quite superseded in the markets of Germany and Austria, the yarns of Great Britain. In 1830 that republic had in operation 400,000 spindles; in 1840, 750,000, and in 1850, 950,000; the number having more than doubled in 20 years.

According to Swiss official custom-house reports, that republic received cotton from the United States as follows, the years specified:

	Pounds.		Pounds.
1850	15,942.740	1852	19,065,200
1851.	13,729,320	1853	18,441,830

In return, cotton stuffs, as follows, were sent to the United States:

	Pounds.		Pounds.
1850	3,226,300	1852	4,077,920
1851	3,509,660	1853	5,265,150

In 1855, Switzerland returned to the United States, in exchange for raw cotton, the same article manufactured, to the value of $212,700.

8. *Russia.*—Before the breaking out of the late war, the manufacture of cotton in the Russian empire was progressing with extraordinary activity. The number of spindles exceeded 350,000, producing annually upward of 10,000,000 pounds of cotton yarns. The barter trade with the Chinese at Kiachta stimulates this branch of manufacture in Russia, as the article of cotton velvets constitutes the leading staple of exchange, at that point, for the teas and other merchandise of China. In former years this article was supplied almost exclusively by Great Britain; but the Chinese prefer the Russian manufacture, and hence the steady progress of that branch of industry. Thus the annually increasing importations of the raw material, and consequent diminution in the quantities of cotton yarns imported is accounted for. Were raw cotton

---

* This is an excess of 44,260 pounds over the amount given above as exported, that quantity having been entered for consumption but subsequently withdrawn.

admitted, as in England, free of duty, the United States would, most probably, supply, in the direct trade, the whole quantity consumed in that empire. As it is, the commercial reforms in Russia, already announced officially, and now in progress, comprehending, as they do, the establishment of American houses at St. Petersburg, must necessarily tend to that result. There are at present in Russia, or there were previously to the war, 495 cotton factories, employing 112,427 operatives, and producing annually 40,907,736 pounds of yarns, and corresponding amounts of textiles.

9. *Sweden.*—The importations of cotton in 1851, according to Swedish official authorities, amount to 7,989,4281 lbs. against 1,832,431 lbs. in 1841, and 749,434 pounds in 1831. In 1843, these authorities show an importation of 2,600,000 pounds against 9,888,572 pounds in 1853; which latter amount exceeded that of the importation of 1852 by 1,247,041 pounds, and that of 1850 by more than 5,200,000 pounds, being the largest of any preceding year. In 1848 the amount was 8,074,020 pounds. The value of cotton manufactures exported from Sweden in 1850 was $46,000 against $7,500 only in 1851.

10. *Portugal.*—In the year 1855, the quantity of raw manufactured cotton imported into Oporto amounted to 6,697,454 pounds, the value of which is estimated at $1,516,644, on which the duty paid was $399,579 13. This kingdom imported 1,911,451 pounds of cotton in 1855, of which quantity 144,006 pounds were exported from the United States, and the residue from Brazil. In 1853–54, according to Brazilian official reports, Portugal received thence 2,673,766 pounds of cotton. Her imports of yarn in 1855 were 1,213,157 pounds, valued at $171,817 07, and paying an aggregate of duties of $61,142 84.

11. *Brazil.*—The exportations of cotton from Brazil, in 1843–44 and 1853–54, are stated by Brazilian official authorities as follows:

	Pounds.
1853—54	28,420,320
1843—44	26,056,160
Increase in ten years	2,364,160

The growth and export of cotton from Brazil appear to be nearly stationary. Great Britain, which is the largest customer, imported from Brazil the following quantities:

In 1825	22,600,000	pounds.
In 1855	22,824,000	"

In 1852–53 the exportation amounted to 31,933,050 pounds, of which quantity Great Britain received 26,881,201 pounds, Spain 2,291,578 pounds, Portugal 1,896,286 pounds, and France 889,048 pounds. Of the total exportations in 1853–54, Great Britain received 22,575,122 pounds, Spain 2,351,279 pounds, Portugal 2,673,766 pounds, and France, 543,611 pounds. Exports from Brazil to England began in 1781. There are insuperable drawbacks to the extension of the cotton culture in Brazil, among which may be reckoned the ravages of insects, the peculiarities of the climate, and the expense and difficulties attendant upon its transmission from the interior to the coast. It has long since been ascertained in Brazil that the cotton plant will not flourish near to the sea, and the plantations have, in consequence, receded further inland, as well to avoid this difficulty as to seek new and fresh lands. Pernambuco is the principal cotton-growing province of Brazil. The exports from that province were, according to Brazilian authorities, in

	Bales (of 160 lbs. each).		Bales (of 160 lbs. each).
1828	70,785	1840	35,849
1830	61,152	1842	21,357
1835	52,142	1845	26,562

12. *Egypt.*—The cotton culture in Egypt commenced in 1818, and exportation to England in 1823. The comparative tabular statement subjoined, derived from Egyptian sources, showing the quantities exported at the port of Alexandria, and the countries to which exported, respectively, for a period of 3 years, from 1853 to 1855, both inclusive, would indicate an increase in the culture by no means rapid in successive years:

Years.	Pounds of Cotton exported from Egypt to				
	Great Britain.	France.	Austria.	Elsewhere.	All countries.
1853....	26,439,900	10,726,500	6,321,000	397,800	43,885,200
1854....	24,938,700	7,454,100	10,165,200	988,500	43,546,500
1855....	33,980,100	9,451,200	12,774,900	668,100	56,874,300
Total...	85,358,700	27,631,800	29,261,100	2,504,400	144,306,000
Average	28,452,900	9,210,600	9,753,700	684,800	48,102,000

If to the aggregate exported be added from 5 to 6 million pounds worked up in the country, a liberal estimate of the annual amount of the cotton crops of Egypt will have been made. The factories established by Mehemet Ali are, it is stated, going rapidly to ruin. The cotton goods manufactured are coarse "caftas," or soldiers' "nizam" uniform. Much cotton is used, also, in making up divans, the usual furniture in Egypt. The Egyptian bale is estimated at Alexandria at 300 pounds. The United States' consul general at that port, in a despatch dated the 1st instant, from which are derived the above facts, says: "The new crop is now coming in, and is supposed to be a little above the average."

13. *Cotton Culture in Mexico.*—The United States' consul at Tampico has furnished the following interesting information, in relation to the varieties, culture, and manufacture of cotton in Mexico, in answer to a circular issued by the Commissioner of Patents in February last: "The greatest production in this country of this article is on the coast of Vera Cruz, and southward from the capital of the State of that name toward Alvarado, and westward toward Flacotalpan and in its neighborhood. A little over seventy-five pounds of seed cotton yields, when ginned, twenty-five pounds of cotton wool. The quality is good, and the whole is sent up the country for consumption in the factories of Jalapa, Orizaba, and Puebla. From Vera Cruz to Matamoras, notwithstanding the territory being so extensive, and so admirably adapted for the growth of cotton, none is produced beyond a little in the neighborhood of Papantle, which the Indians cultivate for their own use, and spin in the same primitive manner as did their ancestors at the time of the conquest, viz., by means of a species of wooden spindle, the point of which is put in a common wooden bowl, and its gyrations given by the fingers. From the yarn thus spun they manufacture a narrow cloth, and this is still the custom in many parts of the country. In the neighborhood of Matamoras cotton is raised, but in limited quantities, and is also cultivated in Monclova. One hundred pounds of seed are required to produce twenty-five pounds of clean cotton. All that is produced in these places is consumed in the factores of Saltillo.

"On the west coast mention may be made of Santiago, a place situated between Tepic and Mazatlan, where a considerable quantity is raised, which is disposed of by the factories of Tepic. Further south, and between the towns of Antlin and Colima, and downward toward the sea, a very rich cotton country is to be seen, and where immense quantities could be raised were there more hands to attend to its cultivation; as it is, however, sufficient is gathered for the supply of the factories of Colima, and some of it even finds its way to Guadalajara, the capital of the State of Jalisco.

"From Colima, a stretch must be made to the neighborhood of Acapulco, where cotton is raised, but by no means in abundance; but all that is gathered in that section of the country is sent to the market at the city of Mexico. That part of the country is called 'Costa Grande,' and is separated from the 'Costa Chica' by the river Papagayo. On the latter, and in the neighborhood of Ayutla, cotton is raised, but in limited quantities, and sent to Puebla for sale. The cotton on the whole of this coast only requires seventy-five pounds of seed to produce twenty-five pounds of cotton-wool when ginned. The whole of the east, as well as that of the west coast, for about 40 leagues inland, is admirably adapted for the growth of cotton. The country is, however, entirely unpopulated, and considerable difficulty is experienced in getting in the harvest in consequence thereof. There are very few landed proprietors who devote their attention to the cultivation of cotton, except on the coast of Vera Cruz. All the rest is raised by small farmers (rancheros) who are content to get about one half the amount of its value. Such payments are made in a few goods and groceries, in anticipation for which they are charged exorbitant prices. An experiment has been made to raise cotton on a farm about 12 leagues from San Luis Potosi, between 6 and 7 thousand feet above the level of the sea, and the result has been favorable. An enterprising Spaniard is now raising cotton 5 leagues from Tula, with every prospect of a satisfactory return. His farm is about 4500 or 5000 feet above the level of the sea. No care is bestowed on the plant. The seed is put into the ground, and no further notice is taken of it until it is quite ripe and ready for picking. The consequence is, that the staple is not so long, nor the cotton very fine, although quite good enough for the manufactories of this country. The growth of cotton throughout Mexico is perennial."

V. Capacity of the Cotton Bale.—The commercial standard of quantity in the cotton trade is generally the bale. The weight of the bale, however, is by no means uniform. Indeed, scarcely any weight, measure, or standard of capacity may be considered less so. It varies, from different causes, in different countries, and in different sections of the same country, at different periods, and according to the different kinds or qualities of the article. Improvements in pressing and packing, to diminish expense in bagging and freight, tend constantly to augment the weight of the bale. Thus, in 1790, the United States' bale was computed at only 200 pounds. In 1824, the average weight of bales imported into Liverpool was 266 pounds; but, increasing constantly, 12 years later the average was 319 pounds. M'Culloch, however, in 1832, considered 300 to 310 pounds a fair average; and Burns, 310. At the same time, the upland cotton bale was estimated at 320 pounds, and the sea island at 280 pounds. According to Pitkins, the Egyptian bale weighed at one time but 90 pounds, though it now weighs more than 3 times as many. At the same period the Brazilian bale contained 180 pounds, though it now contains but 160 pounds, while the West Indian bale weighed 350 pounds, and the Colombian bale 101 pounds, or the Spanish quintal. According to Burns, the United States' bale at Liverpool averaged 345 pounds, the Brazilian, 180 pounds, the Egyptian, 220 pounds, the West Indian, 300 pounds, and the East Indian, 330 pounds. At the Lowell factories, in 1831, according to Pitkins, the bale averaged 361 pounds. In 1836, the bale of the Atlantic cotton States was estimated at 300 and 325 pounds, and that of the Gulf States at 300 and 450 pounds. In Liverpool, at the same time, the estimate for the bale of upland or short staple cotton was 321 pounds; for Orleans and Alabama, 402 pounds; for sea island 322 pounds; for Brazil, 173 pounds; for Egyptian, 218 pounds; for East Indian, 360 pounds; and for West Indian 230 pounds; while, according to Burns, bales imported into France were computed at only 200 pounds each. Waterston's *Manual of Commerce*, a reliable British publication (1855), gives the Virginia, Carolina, Georgia, and West Indian bale at 300 to 310 pounds; that of New Orleans and Alabama at 400 to 500 pounds; East Indies at 320 to 360 pounds; Brazil at 160 to 200 pounds; Egyptian at 180 to 280 pounds. Alexander's *Universal Dictionary of Weights and Measures* gives the bale of Alabama, Louisiana, and Mississippi at 500 pounds, that of Georgia at 375 pounds, and that of South Carolina at 362 pounds. At Rio de Janeiro the Brazil bale is estimated at 160 pounds.

Prior to 1855, the United States' "Commerce and Navigation" gave exports of cotton in pounds only. They are now given in bales as well as in pounds—the aggregate amount of the year ending June 30, 1855, being 2,303,403 bales, or 1,008,424,601 pounds: the bale, accordingly, averaging about 438 pounds. Some bales, however, are evidently much heavier, and some much lighter than this. For example, the 210,113,809 pounds of cotton exported to France give 446 pounds to each of the 470,293 bales; and the 955,114 pounds exported to Austria give 492 pounds to each of the 1,939 bales; while the 7,527,079 pounds exported to Mexico give only 290 pounds to each of the 25,917 bales in which they were contained.

Liverpool Weight.—The relative average weights and cubical contents of bales of cotton imported into Liverpool, in 1852, are thus given:

Description of bale.	Av'ge wt. in lbs.	Contents in cu. ft.
Mobile	504	33
New Orleans	455	32
Upland	390	27
Sea Island	333	35
East Indian	383	15
Egyptian	245	27
West Indian	212	25
Brazilian	182	27

These figures show not only the great variety of bales that enter Liverpool, but that the most eligible form of bale is that of the East Indies—double the weight being packed within the same compass as in any other description of bale. In the great cotton marts of Liverpool and Havre, as in those of New Orleans and Mobile, the article is almost invariably treated of by merchants, brokers, and commercial men, by the bale. Thus, a report on the trade of Liverpool gives the import of cotton into Great Britain, in 1852, at 2,357,338 bales. The aggregate of cotton imported in that year is given in the official report by the Board of Trade, at 929,782,448 pounds; the bales averaging, accordingly, 395 pounds each.

Cotton Manufacture. This subject will be considered under the general heads of, I. Origin and Introduction. II. Invention and Improvements. III. Cotton Manufactures of Foreign Countries. IV. Statistics of Cotton Manufacture. V. Origin and Early History of Cotton Manufactures in America. VI. Cotton Manufacture in the United States.

I. Origin and Introduction.—The manufacture of cotton had its origin in the East, where the cotton plant is indigenous, and where the climate renders a light and absorbent fabric a suitable clothing for the people. It has in consequence been long established over every part of Asia, although it was only in India that the fabric was manufactured extensively, with a view to foreign exchange. Arrian mentions cotton cloth among the commodities which the Romans brought from India; but the quantity imported by them was inconsiderable, arising from the preference which they gave to woolen clothing. Dr. Robertson remarks, that the difference between the cargoes imported from India in ancient and in modern times appears to have arisen, not from any diversity in the nature of the goods prepared for sale in that country, but from variety in the tastes or in the wants of the nations with which they have successively traded.

The antiquity of the manufacture of cotton can not be reached by any authentic records. Neither wool, silk, nor linen, can claim a higher antiquity. One thing is pretty certain, that its first manufacture may be traced to India, whence it passed to all the rest of the world. India, indeed, has been the source of many of the arts of civilized life. It was, in all probability, the cradle of mankind, and the source of Assyrian, Egyptian, and Persian civilization.

The Indians have in all ages maintained an unapproached and almost incredible perfection in their fabrics of cotton. Indeed, some of their muslins might be thought the work of fairies or insects rather than of man; but these are produced in small quantities, and seldom have been exported. In the same province of India from which the ancient Greeks obtained the finest muslins then known, namely, Bengal, these astonishing fabrics are manufactured at the present day.*

We are told by two Mohammedan travelers, who went to India in the 9th century, that "in that country they make garments of such extraordinary perfection, that nowhere else are the like to be seen. They are woven to that degree of fineness, that they may be drawn through a ring of moderate size." Marco Polo, in the 16th century, mentions Coromandel, and especially Masulipatam, as producing "the finest and most beautiful cottons that are to be found in any part of the world;" and this is still the case as to the flowered and glazed cottons, called chintzes.

The Portuguese adventurers who went to India immediately after the discovery of the route by the Cape of Good Hope, speak of "the great quantities of cotton cloths admirably painted, also some white, and some striped, held in the highest estimation, which were made in Bengal." Cæsar Frederick, a Venetian merchant, who traveled in India in 1563, describes the extensive trade carried on between St. Thomé (a port 150 miles from Negapatam) and Pegu, in bumbast (cotton) cloth of every sort, painted, which is a rare thing, because this kind of cloth shows as if it were gilded with divers colors; and the more they are washed, the livelier the colors will become. And there is made such account of this kind of cloth, that a small bale of it will cost 1000 or 2000 ducats.

Tavernier, who traveled in India about 200 years ago, speaks of the white calicoes (so called from the city of Calicut, in India, where they were first seen by Europeans), or muslins woven in Bengal, and rendered so remarkably white by being dipped in lemon juice. He says: "Some calicuts are so fine that you can hardly feel them in your hand; and the thread, when spun, is scarcely discernible." The same writer says that "there is made at Seconge, in the province of Malwa, a sort of calicut so fine, that when a man puts it on, his skin shall appear as plainly through it as if he was quite naked; but the merchants are not permitted to transport it, for the governor is obliged to send it all to the Great Mogul's seraglio and the principal lords of the court, to make the sultanesses and noblemen's wives' shifts and garments for the hot weather. And the king and the lords take great pleasure to behold them in these, and see them dance with nothing else upon them." Speaking of the turbans of the Mohammedan Indians, Tavernier says: "The rich have them of so fine a cloth, that 25 or 30 ells of it put into a turban will not weigh 4 ounces."

Eighteen hundred years ago, according to Arrian, author of the "Periplus," there were thousands of men, women, and children employed at Baroche, in Guzerat, and the adjacent villages, in the manufacture of cotton, from the coarsest sail-cloth to the finest muslins. So that it is a great mistake to suppose that cotton manufactories are of a modern origin. They existed in India centuries before the Christian era.

The ingenuity of the Hindoo cotton manufacturers is truly wonderful. The late Rev. William Ward, a missionary of Serampore, says that "at two places in Bengal muslins are made so exceedingly fine that four months are required to weave one piece, which sells at 500 rupees. When this muslin is laid on the grass, and the dew has fallen upon it, it is no longer discernible." We might cite a great number of creditable authorities in proof of the fineness of India cotton manufactures, and the ingenuity of the Hindoos, but these will suffice. The oriental hyperbole, which describes the muslins of Decca as "*webs of woven wind*," is less poetical than is generally supposed. No modern European manufacturer of cotton at all approaches the Hindoos in respect to the fineness of his fabrics. The extreme of fineness to which yarns for muslins are now spun in Great Britain is 250 hanks to the pound, though cotton yarn has been spun in England making 350 hanks to the pound. This was, however, only an experiment, to ascertain how fine cotton could be spun. No such yarn is or could be used in making muslins, or for any other purpose. The Hindoos are the only ones who have ever woven such yarn into fabrics.—DE BOW'S *Industrial Resources.*

The implements used by the Indians in the different processes of the cotton manufacture, from the cleaning of the wool to its conversion into the finest muslin, may be purchased for the value of a few shillings, and are so rude and simple a construction as to be evidently the invention of a very early period. With the exception of the loom, none of them deserve the name of a machine, or display the slightest mechanical ingenuity. They spin the yarn upon the distaff; and yet, with all the advantages which we in this country derive from machinery, we have only recently been able to equal, either in fineness or quality, the yarn which is produced by means of this primitive instrument. The well managed use of the finger and thumb of the Indian spinner, patiently and carefully applied in the formation of the thread, and the moisture at the same time communicated to it, are found to have the effect of incorporating the fibres of the cotton more perfectly than can be accomplished by our most improved machines.

The loom is composed of a few sticks or reeds, which the Indian carries about with him, and puts up in the fields under the shade of a tree, or at the side of his cottage. He digs a hole large enough to contain his legs and the lower part of the "geer," and fastens the balance to some convennint branch over-head. Two loops underneath the geer, in which he inserts his great toes, serve as tradles: and he employs the shuttle, formed like a large netting-needle, but of a length somewhat exceeding the breadth of the cloth, as "battoon," using it alternately to draw through the weft and strike it up. The reed is the only part of the weaving apparatus which approaches, in the perfection of its construction, to the instruments we use. The loom has no beam, and the warp is laid out upon the ground the whole length of the piece of cloth. The weavers live entirely in villages, as they could not, if shut up in towns, work in this manner. Upon this rude machine, worked in the way we have mentioned, the Indians produce these muslins, which have long been such objects of curiosity from the exquisite beauty and fineness of their texture.

It is probable that the whole of the implements which we have just described existed as we now find them before the people of India were divided into castes. The transmission of the same employment from father to son (which, although not specially enjoined by the Hindoo code, is the invariable practice in India), while it has the effect of conveying unimpaired the knowledge acquired in any art, tends to check its further advancement. It is the opinion of Mr. Rickards, who so ably advocated the interests of the natives of India in the discussion in the British Parliament on the renewal of the Company's charter (1814), that latterly this form of society, with all its dependencies, habits, and restraints, has been held together chiefly by the oppression of the fiscal exactions, the want of a free trade, and the consequent universal poverty of the people. In support of this opinion, he refers to what the Hindoo population of Calcutta and Bombay have achieved in the pursuits of commerce. We trust, however, that we may now look forward to the speedy abolition of this system, so much opposed to all development of talent; and which, by reducing man to the condition of a machine, has paralyzed the exertions and arrested the improvement of the people of India.

---

* Baine's History of the Cotton Manufacture, p. 55.

To the same cause, however, which thus prevented improvement in India is to be attributed that dexterity in his particular employment which the Indian artisan possesses. From the earliest age he learns to spin and weave under the direction of his father; and having no hope or desire of advancement in any other line, he gains, through constant practice, that wonderful skill, which may thus be considered almost as a family inheritance. To be able to manage his ill-constructed loom, even in the production of ordinary fabrics, he is obliged to acquire such a sleight of hand, that it is not surprising if, out of the multitude trained in this manner, a few should be found capable of producing those muslins which are said, when spread upon the grass, to appear like the gossamer web. From the superiority of these goods, and from their retaining the beauty of their appearance longer than European muslins, it has been supposed that the cotton of which they are made is of better quality than any known to the European manufacturers. This, however, is a mistake: there is no cotton in India of a quality superior to the best sea islands. The excellence which these muslins possess is to be ascribed wholly to the skillful tact of the workman in the processes of spinning and weaving. The long cloths and fine pullicats are made chiefly within the presidency of Madras, the coarse piece goods and pullicats in Surat, the finest calicoes at Musulipatam, and table-cloths of a superior quality at Patna. Each district varies from the others in the nature of its productions, as may be seen from the different denominations of cotton goods to be found in every consignment coming from India.

An apprehension has sometimes been expressed that the inhabitants of India, in possession of the raw material, may obtain a knowledge of machinery, and by combining with its peculiar advantages their cheaper labor and superior manual dexterity, may be enabled to undersell to such a degree as to ruin and put an end to British manufacture; but in the state of the people of India there are circumstances which render this impossible, without a change being first produced upon their moral condition, their institutions, and their habits. The training which makes the Indian, with such imperfect tools, able to perform his work so well, disqualifies him from doing it in any other way, or with any other implements than those to which he has been familiarized from his infancy. The attempt to introduce machinery into India is, however, now being made. A spinning-mill has been built at Calcutta; and although the private company which commenced the undertaking has failed, the work continues to be carried on. There are at present nearly 700 persons employed in the mill, engaged at the rate of about seven shillings each per month; but these people, it is found, can not continue to work beyond a few hours at a time, and a succession of hands to carry on the operations through the day is required. To train them, in such circumstances, to dexterity and skill is impossible; and, accordingly, the yarn spun is not only of inferior quality, but even with the low nominal wages, costs so much as to disqualify it for competition with the yarn of Great Britain. An attempt is now being made to establish a cotton-spinning mill at Bombay.

The extensive introduction of machinery into Great Britain has, meanwhile, by reducing the price of manufactures, enabled them to maintain a successful competition with the Indian goods at home, by sending cotton manufactures to a large amount to India itself. A complete revolution has in consequence taken place in the nature of the exports from that country to Europe, and, indeed, to all the markets on this side of the Cape of Good Hope. When England first got possession of India, her investments at home were principally (in point of value almost entirely) composed of manufactured produce. They are now, in a great measure, made up of the produce of the soil, indigo, cotton, wool, raw silk, saltpetre, etc., etc.

The following table shows the difference of the cost of cotton yarn produced in India and in Great Britain, and indicates the changeless nature of unaided human labor in the former, whilst by mechanical appliances in the latter, cheapness and plenty result:

COMPARATIVE STATEMENT OF THE COST OF ENGLISH AND INDIAN COTTON YARN IN THE YEARS 1812 AND 1830, FURNISHED BY MR. KENNEDY OF MANCHESTER TO THE COMMITTEE OF PARLIAMENT ON EAST INDIA AFFAIRS, AND CONTINUED TO 1854.

No.	ENGLISH COTTON YARN.													INDIAN COTTON YARN.		
	Hanks per day per spindle.			Price of Cotton and Waste per lb.			Labor per lb.			Cost per lb.			Price of Cotton and Waste per lb.	Labor per lb.	Cost per lb.
	1812.	1830.	1854.	1812.	1830.	1854.	1812.	1830.	1854.	1812.	1830.	1854.	1812, 1830. and 1854.	1812, 1830, and 1854.	1812, 1830, and 1854.
				s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
40	2·	2·75	2·75	1 6	0 7	0 6	1 0	0 7½	0 5	2 6	1 2½	0 11	0 3	3 4	3 7
60	1·75	2·5	2·5	2 0	0 10	0 7½	1 6	1 0½	0 8	3 6	1 10½	1 3½	0 3½	5 8½	6 0
80	1·5	2·	2	2 2	0 11¼	0 9	2 2	1 7½	1 3	4 4	2 6¼	2 0	0 4½	8 10½	9 3
100	1·4	1·8	1·8	2 4	1 1¾	0 11	2 10	2 2½	1 8	5 2	3 4¼	2 5	0 5	11 11	12 4
120	1·25	1·65	1·65	2 6	1 4	1 3	3 6	2 8	2 0	6 0	4 0	3 3	0 5	16 0	16 5
150	1·	1·33	1·33	2 10	1 8	1 9	6 6	4 11	3 6	9 4	6 7	5 3	0 6	25 0	25 6
200	·75	·9	·9	3 4	3 0	2 6	16 8	11 6	6 0	20 0	14 6	8 6	0 6	44 7	45 1
250	·05	·6	·6	4 0	3 8	3 6	31 0	24 6	18 0	35 0	28 2	21 6	0 8	83 4	84 0

It might have been expected that this change would have produced most distressing effects upon the crowded population of a country such as India, which in all ages has been a great manufacturing and exporting community; but no materially unfavorable consequences have resulted from it. In India, every manufacturer is, at the same time, a husbandman. When not employed in making a web, he supports his family by agricultural labor. It thus happened, that in proportion as the demand for goods for export declined, the natives, without difficulty, and without that distress which generally attends a change of employment in other countries, were able to direct their attention more and more to agriculture; and the result has hitherto been rather an improvement in their condition than otherwise.

The cotton manufacture of China is of immense amount, and is carried on almost entirely for home consumption; but its origin is not of the same remote date as that of India. Indeed, the lateness of its rise, and the slowness of its progress, in a situation so favorable, appear extraordinary. In the accounts of the revenues and of the arts in China during the period of the celebrated dynasty, which commenced about 1100 years before the Christian era, and lasted for some centuries, no mention is made of the cotton plant; nor, indeed, is there any notice of cotton in these records until about 200 years before the Christian era; from which period to the sixth century, the cotton cloth, which was either paid in tribute, or offered in presents to the emperors, is always mentioned as a thing rare and precious.

The cotton-tree was introduced into China at the time of the conquest of that country by the Mogul Tartars, in the year 1280; after which period every encouragement was given by government to the culture and manufacture of cotton. But there were considerable difficulties to be encountered, in the prejudices of the people, and in the opposition of those engaged in the manufacture of woolen and linen; and it was not until the year 1368 that these obstacles were altogether surmounted. After that date the progress of cotton manufacture was rapid, and now nine tenths of the population are clothed in its fabrics.

Almost the only cotton goods exported from China are nankeens. Barrow states the production of all the fabrics of the Chinese manufacture at the time he visited the country (in 1792), to be stationary, attributing this to the want of proper encouragement from the government, and to the rigid adherence of the people to ancient usages. To keep a manufacture in a progressive state, there must be a progressive demand for its products; and the Chinese manufacturers having no means of disposing of any surplus quantity, must accommodate the supply to the wants of their own consumption. It is said by travelers who have obtained access to that country, that the people show a great desire for articles of foreign manufacture. How valuable, then, to that country, as well as to others, must be the establishment of a free intercourse, and how conducive, probably, to the increase of the productions of all! The Chinese, over and above the cotton wool which they raise at home, import largely from British India, and from the Burmese territories. This intercourse commenced toward the close of the eighteenth century. A famine, which happened in China about that period, induced the government to direct, by an imperial edict, that a greater proportion of the land should be thrown into the cultivation of grain. Since then, the importation of cotton from India has been considerable, although constituting but a small part of what is consumed in their manufacture. The amount of their importations is stated at 40,000 bales.

Introduction into Europe.—The manufacture of cotton goods in Europe is said to have been first attempted by the commercial states of Italy, before the discovery of the passage to India by the Cape of Good Hope. These enterprising communities were the entrepôts through which the cotton fabrics of India passed to the different markets of the West; and being situated in the neighborhood of countries where the cotton wool was grown, and familiar with manufacturing processes, it is supposed that they were led to attempt the imitation of articles so much valued, and bringing so high a price. Another account assigns the introduction of the cotton manufacture into Europe to a later date, and gives to the people of the Low Countries the honor of having been the first manufacturers of these articles, in imitation of the cotton fabrics which the Dutch, about the beginning of the seventeenth century, began to import from India. But this last account can not be correct; for Guicciardini, in 1560, in a very full list which he gives of the different articles annually imported into and exported from Antwerp,* then the greatest commercial mart in Europe, specifies fustians and dimities of many fine sorts among the manufactured articles imported from Milan, and mentions cottons generally among those brought from Venice. But in the articles exported from Antwerp, although we find linens sent to almost every country, cotton cloth is not once mentioned. Italy, therefore, at that time had a cotton manufacture, which, it is probable, soon after made its way to the Netherlands; for we know it was brought from the latter country to Britain by Protestant refugees about the close of the sixteenth or early in the seventeenth century.

For the introduction and after improvement of many of these articles, Great Britain is indebted to the late Mr. John Wilson, of Ainsworth. This gentleman was originally a manufacturer of fustians at Manchester, but had early engaged in the manufacture of cotton velvets, which by persevering efforts he succeeded in bringing to the utmost degree of perfection. His improvement of the mode of dressing, of finishing, and particularly of dyeing these goods, acquired for them so high a character, that both in the home and foreign market his articles sold in preference to those of every other manufacturer. His plan for cleaning off the loose and uneven fibres, was by the use of razors. He afterward successively employed for this end, singeing by spirits of wine and the application of a hot iron resembling a weaver's drying iron, which last instrument had been introduced for the same purpose in the manufacture carried on in the Manchester House of Correction by Mr. Whitlow, governor of that institution. At a later period, Mr. Wilson effected his object by drawing the goods rapidly over a cylinder of cast iron heated to redness, by which they were in a superior manner cleared of the down or pile which had been raised upon them in the various operations of weaving, washing, bleaching, or dyeing. These successive inventions of Mr. Wilson, for performing this process, give us some idea of the manner in which improvements are introduced into the manufactures, when, fortunately, the efforts of self-interest are directed by intelligence and talent. Mr. Wilson, having a turn for chemical inquiries, investigated the different known processes of dyeing; and, by the improvements he introduced in the application of them to his own manufacture, materially advanced that art. Having succeeded to his satisfaction in dyeing the other rich colors, he procured from the Greeks of Smyrna, the secret of dyeing Turkey red. An account of this process was given by him in two essays, read to the Philosophical and Literary Society of Manchester, and which, on his retiring from business, he printed and distributed among his friends. The many valuable improvements introduced by Mr. Wilson into the different processes connected with the cotton manufacture had the effect not only to establish it more firmly, but rapidly to enlarge its extent.

II. INVENTIONS AND IMPROVEMENTS IN COTTON MANUFACTURE.—It has been said that the yarn produced a century ago in England, by the one-thread wheel, the only spinning machine known, did not exceed in quantity what 50,000 spindles of the present machinery can yield. To have reared and trained hands sufficient to have doubled this quantity, had it been possible, must have been the work of a length of time, and the amount of manufacture would still have been insignificant. A change in the system, therefore, had become indispensable; and we find that different ingenious individuals had already begun to employ themselves in contriving a better mode of spinning. When we contrast the splendid inventions connected with the cotton manufacture, which from this period burst forth in rapid succession, with the passive acquiescence in the use of imperfect machinery during the long period which preceded, we are apt to ascribe these improvements to the circumstance alone of a number of men of genius having at that moment arisen, and to forget that the ultimate cause exists in the times which called their energies into action. About the year 1750, the fly-shuttle had been invented by Kaye of Bury—one of the most important steps in the progress of the art of weaving; and in the year 1760 improvements had begun to be made in the carding process.

James Hargreaves, a weaver at Stanhill, near Church, in Lancashire, England, an illiterate man, possesed of no great mechanical knowledge, had adapted the stock cards, used in the woolen manufacture, to the carding of cotton, and had besides greatly improved them. By his invention a person was able to do double the work, and with more ease than by hand-carding. In the stock cards, one of the cards is fixed, while the other, being suspended by a cord over a pulley, is worked by the carder; and in this way, two or three cards can be applied to the same stock. This

---

[*] See Macpherson's *Annals of Commerce.*

contrivance was soon succeeded by the cylinder cards, or carding engine. It is not ascertained who was the inventor of this valuable machine, but it is known that the father of the late Sir Robert Peel was among the persons who first used it; and that, so early as 1762, he, with the assistance of Hargreaves, erected a carding engine with cylinders, at Blackburn. This machine did not differ materially from that now in use, except that it had no contrivance for detaching the cotton from the cards, an operation which was performed by women with hand-cards.

These successful advantages show that the minds of the manufacturing class had been awakened to discovery, and must have encouraged and stimulated the efforts that were then making to effect corresponding improvements in spinning.

There had been several unsuccessful attempts to improve the mode of spinning before the year 1767, when James Hargreaves, whom we have already mentioned, invented the "*spinning-jenny*." The idea of this machine is said to have been suggested to him by seeing a common spinning-wheel, which had been accidentally overturned, continue its motion while it lay on the ground. If such was the cause, it marks a mind of no common description, which from so casual an occurrence could elicit an invention of so much importance. After several unsuccessful attempts to carry into execution the conception he had formed, he succeeded in producing a rudely-constructed *jenny* of eight spindles, turned by bands from a horizontal wheel. In it the eight rovings were passed between two pieces of wood laid horizontally the breadth of the machine; and these being grasped in the spinner's hand, and drawn out by him, formed the rovings into threads. The structure of this jenny was soon afterward greatly improved, and it was at last brought to work as many as eighty spindles. This machine, although of limited powers when compared with the beautiful inventions which succeeded it, must be considered as the first and leading step in that progress of discovery which carried improvement to every branch of the manufacture —which, as it proceeded, changed the nature and character of the means of production, by substituting mechanical operations for human labor—which caused the manufactured article to become more and more a product of capital. The progress of invention after this was rapid; for when it was seen that, with the aid of the few mechanical combinations we have mentioned, the spinner had been enabled to increase his power of production eightyfold, the attention of those engaged in other branches of manufacture, was awakened to the possibility of introducing changes equally beneficial into their peculiar employments.

Hargreaves' invention occasioned great alarm among those who earned their subsistence by the old mode of spinning, and even produced popular commotion. A mob broke into his house and destroyed his machine; and some time after, when a better knowledge of the advantage of his invention had begun to bring his spinning-jenny into general use, the people rose a second time, and scouring the country, broke to pieces every carding and spinning-machine they could find. Hargreaves himself had by this time removed to Nottingham, where he was engaged in erecting a small spinning-work, about the same period that Mr. Arkwright came to settle there, who had also been driven from Lancashire by the fear of similar violence.

The jenny in a short time put an end to the spinning of cotton by the common wheel; and the whole wefts used in the manufacture continued to be spun upon that machine, until the invention of the "mule-jenny," by which it was in its turn superseded. Hargreaves died, in great poverty, a few years after his removal to Nottingham.

While Hargreaves was producing the common jenny, Mr. Arkwright (afterward Sir Richard Arkwright) was employed in contriving that wonderful piece of mechanism, the spinning-frame, called first the water-frame, and afterward the throstle, which, when put into motion, performs of itself the whole process of spinning, leaving to the workman only the office of supplying the roving or prepared material, and of joining or piecing the thread when it happens to break. In the year 1769, Mr. Arkwright obtained his patent for spinning with rollers, and Mr. Need and Mr. Strutt became his partners in the concerns to be carried on under it. He erected a mill at Nottingham, which he worked by horse-power. But this mode of giving motion to the machinery being expensive, he, in the year 1771, built another mill at Cromford, in Derbyshire, to which motion was given by water. We shall now proceed to give an account of the different machines used in cotton-spinning, invented by Sir Richard Arkwright, and of those afterward invented by others, describing them in the order in which they are employed. In this manner we shall be able to exhibit a view of the present state of the art. The instruments used in the preparation and spinning of cotton-wool, are the following:

The opener; the scutcher, and spreading-machine; the carding-engine; the lap-machine; the drawing-frame; the slabbing fly-frame; the intermediate fly-frame; the finishing fly-frame; the throstle-frame for coarse warps; the self-acting jenny for numbers below 50; and the hand-mule jenny for higher numbers. The first three of these instruments are employed in the rude process of cleansing the raw cotton, and separating its matted flocks. In the carding-machine it is carded and further purified; in the lap-machine it is fashioned in flat folds; and in the drawing-frame it is formed into a loose rope, the fibres of which have a parallel arrangement. In the slabbing-frame it is slightly twisted; and in the intermediate and finishing-frame it is still further twisted, particularly in the higher numbers; but it is not yet yarn. The throstle-frame is chiefly used for coarse warps; while upon the self-acting and hand-mule jennies, both coarse and fine yarns are spun.

This description of the carding-machine is still applicable for numbers of yarn above 100, which are made from sea-island cotton. For numbers above 50, a system of twice carding it is still employed. The engines are generally 36 inches wide. The cotton is partially carded in the breaker or first card; it is then re-formed into a lap; and is lastly passed through the finisher or second card; for the finest yarns, however, combing is substituted.

To make the operations of the various machines just enumerated more plain, we will give the metamorphoses of a bale of cotton, from the time it is brought to the manufacturers until it becomes yarn ready to be made into cloth. Women and girls in the mill take the cotton from the bale by handfuls, and feed with it the opening-machine. The cotton, laid upon an endless apron, is caught between the teeth of revolving rollers, which effectually tear and separate the locks asunder; the cotton is opened into a light and flocculent mass, and the few remaining seeds and the dirt are expelled. Then the scutching-machine comes into requisition; again is the cotton placed upon an endless apron, and again exposed to the action of revolving rollers; the impurities are yet further separated, and the beautiful downy cotton becomes lapped in a continuous sheet upon a cylinder. These sheets of down —these softest of all soft layers—how do we convert them into delicate yarn? The broad, soft sheets go to the carding-machine, where a number of wire combs, or rather wire brushes, comb the cotton out into straight fibres; and these fibres are dexterously whipped off by a "doffing" apparatus, to assume the form of delicate, narrow ribbons, or *slivers*. Next we see all these slivers joined by another machine, so as to form a continuous lap; and this lap is again carded and doffed, by which the substance becomes equalized as much as possible. The cotton is thus again brought to the state of a ribbon or sliver; and then are brought into use the machines which convert this ribbon into a yarn or thread. The drawing, the slubbing, and the roving-machines, all have relation to this conversion; we see numerous pairs of rollers, between which the cotton is drawn; the drawing rounds it, equalizes it, and gives it a slight twist; until at length we see the delicate yarn—fine, perchance, as a spider's web—elaborated from the thick but soft ropes of cotton.

More correctly, however, we should say that the cotton does not become yarn till after the spinning. Nothing excites more astonishment in cotton factories than the self-acting mule. The complex carriage, 20 or 30 feet long, with its army of spindles (sometimes as many as 800 in number), travels slowly to and fro, and draws out delicate threads to a state of still greater delicacy and tenuity; the drawing out thins the cotton, the rapid revolution twists it; and thus by drawing and spinning do the Houldsworths and the Bazleys of the nineteenth century produce cotton-yarn whose fineness almost exceeds belief. And while the mule-machine is thus making fine yarn for weft-threads, the throstle-machine, by a different mode of action, produces the stronger yarn for warp-threads; then again, if it be sewing-cotton, or hosiery-cotton that is required, we trace the yarn to the doubling-machine, where two or more are twisted, one around another, whereby a much denser thread is produced. The amount of machinery in the spinning-rooms of some of the mills is astonishing; in some cases 75,000 spindles whirling away at once in one room, each one requiring the co-operation of a number of other delicate little pieces of mechanism.

We have noticed, in speaking of the carding-engine, which Mr. Peel erected in 1762, that at that time the cotton was taken off the finishing-cylinder by means of hand-cards. But by the time Mr. Arkwright began his spinning, this operation was performed by the application of a roller with tin plates upon it like the floats of a water-wheel, which, revolving with a quick motion, scraped off the cotton from the card. This was a rude contrivance, and in its operation injured both the cotton and the cards. Mr. Arkwright substituted for it a plate of metal, toothed at the edge like a comb, which, in place of being made to revolve like the other, was moved rapidly in a perpendicular direction by a crank, and with slight but reiterated strokes on the teeth of the cards, detached the cotton from them in a uniform fleece. He employed narrow fillet-cards, wound round the doffing-cylinder in a spiral form, by which contrivance a continuity of fleece was produced, which, as it left the card, was gradually contracted in its size by being passed through a kind of funnel, and then flattened or compressed between two rollers; after which it was received into a tin can in the state of a uniform, continued carding. The taking off the cotton from the cards in this manner, is one of the most beautiful and curious operations in the process of cotton-spinning; and although the crank, which forms a part of the apparatus, had perhaps been used in some way or other prior to the date of Mr. Arkwright's second patent (as was urged in the action for having it set aside), the comb for taking off the fleece, and the spiral card which produces its continuity, were inventions indisputably his own.

Description of the Mule-jenny.—The mule, in its structure and operation, is a compound of the spinning-frame and of Hargreaves' jenny, from which circumstances it has probably received its name. It contains a system of rollers like that belonging to the twist-frame; but in place of having every four or six of them in separate hands, as is the case in that machine, the whole are coupled together; and the rove being drawn through them, is, in its conversion into thread, received on spindles revolving like those of the jenny. The carriage on which these spindles are placed is movable, and is made to recede from the rollers a degree faster than the thread is given out. After a certain quantity of the roving has been thus delivered by the rollers, they are stopped; but the carriage continues to recede somewhat further; and the spindles continuing also to revolve, the thread is drawn out to the fineness required, and then receives its proper portion of twist. This last operation resembles that performed by the common jenny, and produces a similar effect.

In an account of the means which contributed to that fall in the price of spinning which we have mentioned, we must not omit the progressive improvement in the cultivation of the raw material, and in the application of its different qualities to their most profitable uses. Previous to the year 1793, the cotton used in the coarser articles of the manufacture, with the exception of a small quantity imported from India and from the Levant for the fustian-trade, was wholly the growth of the English and of the French West India Islands. That for the better kind of goods was raised in Demerara, Surinam, and Berbice. The wool for fine goods was grown in the Brazils; and that for the few very fine muslins then manufactured, in the Isle of Bourbon.

In 1787 the descriptions of cotton imported into Britain appear to have been as follows:

	Pounds.
From the British West Indies............	6,800,000
From the French and Spanish colonies...	6,000,000
From the Dutch	1,700,000
From the Portuguese....................	2,500,000
From the Isle of Bourbon, by Ostend	100,000
From Smyrna and Turkey...............	5,700,000
Total..............................	82,800,000

Had Britain continued to derive her sole supply of cotton from these countries, the progress of the manufacture would have been greatly retarded, not only from the difficulty of making the production of the raw material keep pace with the increasing consumption, but from the impossibility of obtaining the qualities of wool suited to the finer descriptions of goods, which the improved machinery enabled us to undertake.

The year 1770 has always been stated as the period at which the planters of the southern States began to turn their attention to the raising of cotton-wool. But we happen to know that in 1764, William Rathbone, an extensive American merchant in Liverpool, received from one of his correspondents in the southern States a consignment of eight bags of cotton. This cotton, on its arrival at Liverpool, was seized by the custom-house officers, on the allegation that it could not have been grown in the United States, and that it was liable to seizure under the shipping-act, as not being imported in a vessel belonging to the country of its growth. When afterward released, it lay for many months unsold, in consequence of the spinners doubting whether it could be profitably worked up. But fortunately, about the year 1770, the planters in the southern States began to turn their attention to raising cotton-wool; and besides carrying the cultivation of the article to a great extent, they produced qualities of cotton before unknown. In 1792 the quantity of cotton exported from the United States was only 138,328 lbs., no manufacture of cotton goods having been attempted in America for many years after that period. In 1831 they exported 619,000 bales to Great Britain, 127,000 to France, and 27,000 to other parts. In 1845 the quantity grown in the United States was 2,100,537 bales, and it is estimated that 3,500,000 bales will be shipped in 1857.

The American cotton-wool first taken to Great Britain was very ill-cleaned, and, in consequence, was indiscriminately applied to the manufacture of the coarser species of goods. It was soon, however, perceived that the cotton raised upon the coast, termed *sea island cotton*, had a finer and longer staple than that grown further back in the country, and known by the name of *upland cotton*. But it was not for several years, and until after a succession of trials, that this wool was ascertained to be of a quality in every respect superior to the cotton of the Isle of Bourbon. Indeed, it was only in the year 1796 that the finest description of it was applied to the purposes for which Bourbon wool had till then been used, and which it soon entirely supplanted. The second quality of it about the same time supplanted the Brazil wool in many kinds of goods.

The cotton received from Egypt is found to be among the most useful that is grown, and that raised from sea island seed ranks in quality next to American sea island.

III. Cotton Manufacture of Foreign Countries.—Having succeeded in the production of cotton, the Pasha of Egypt thought he might advance another step, and have it spun into yarn and woven into cloth. He accordingly formed establishments for spinning and weaving in Cairo, Bosaco, Rosetta, and other places; and so early as 1826 he had at work 61 mills, moved by the power of buffaloes. The machinery was supplied from France and England, orders in council having been obtained in the latter country to authorize its export. Power-looms were also sent out, but did not succeed. A few years later, the pasha shipped 1,000 bales of yarn to Calcutta for sale; but it was not of a quality to enter into competition with English yarn, and it was found to be unsalable, except at a most disadvantageous price. He ordered it, therefore, to be woven into cloth, in Calcutta, on his own account, and to be re-shipped to Egypt, in a manufactured state. Clapperton and Landers, on their expedition to trace the courses of the Niger, found the inhabitants everywhere clothed in cotton. They mention that cotton-wool is produced in the different districts in the interior, and is spun into cloth on the spot. There exists, therefore, in the heart of Africa, an extensive manufacture of cotton cloth. It is to be regretted that they give no information of the way in which the yarn is spun, and no description of the loom employed to weave it. It would be interesting to know the nature of the instruments used by the natives in these processes, as such knowledge might enable us to trace whence the Africans derive their acquaintance with the art of weaving, and thus perhaps throw some light on African history. It appears that the people of Eboe, and of the countries near the coast, are chiefly clothed in Manchester cotton goods; a circumstance which would lead us to expect, should we succeed in obtaining a commercial intercourse with the interior of Africa, that a valuable market for the manufactures may be found in that country.

Within the last 20 years (1854), the American settlers of Liberia have established a communication across the country to Timbuctoo, and have found there a considerable market for cotton cloths. For more extended information of this trade, see Liberia.

In France, cotton yarn is often made in a different place from cotton cloth. Paris and the northern departments are the chief quarters for the supply of the former article, which is sent in quantities to Rouen, St. Quentin, and other places. In former years, cotton yarn used to be smuggled in great quantities from England; but this is now limited to the finer qualities. The cotton manufactures of the more substantial kind, called *bonneterie*, such as stockings and caps, are carried on in the Ardennes, in Normandy, and the department of the Gard, in Languedoc, is also noted for this manufacture. The exportation of cotton goods from France in 1840, reached 5,000,000 kilogrammes, valued at 105,753,743 francs. The importation of cotton thread from England in 1853, was 90,002 kilogrammes, in value, 1,559,311 francs. That of raw cotton in 1839 was 40,534,278 kilogrammes, in value, 71,204,784 francs; in 1840, 52,941,581 kilogrammes, in value, 94,005,975 francs. The cotton manufactures of France consume between 50 and 60 millions of kilogrammes, annually imported.

	Francs.
Cotton wool consumed in France	94,005,975
Cotton wool in transit	57,191,970
Cotton thread used at home	1,218,034
Cotton thread in transit	383,356
Cotton cloth consumed in France	305.256
Cotton cloth in transit	34,413,978
Total	187,518,569

We shall now resume our account of the progress of the manufacture in Great Britain. From Sir Richard Arkwright having commenced his operations at Nottingham, the seat of the stocking manufacture, and from his connection with Mr. Need, who was largely engaged in it, the whole produce of his spinning was at first devoted to that trade. The cotton yarn for this manufacture requires to be particularly smooth and equal; and to secure these qualities, it is spun by a process differing a little from that employed for ordinary twist. Being from two roves in place of one, it is called double spun twist. The introduction of this article produced a great change upon the stocking manufacture. Hand-spun cotton was entirely laid aside; and stockings made of twist were of so superior a quality, that in a short time they wholly supplanted thread stockings.

The manufacture of cotton stockings in Nottinghamshire, Derbyshire, and Leicestershire, is now of great extent.

About the year 1773, Mr. Need and Mr. Strutt made the important discovery, that the yarn produced by the spinning-frame had sufficient strength to fit it for warp, although its firmness and hardness rendered it less suitable for weft. The weft, therefore, continued to be spun by Hargreaves' jenny; and from this time the calicoes, and other articles in imitation of India goods, which had hitherto been manufactured with linen warp, came to be made wholly of cotton; and the progressive increase of these manufactures, particularly of calicoes, after this time, was unexampled.

After having made a considerable quantity of those goods, Mr. Need and Mr. Strutt discovered that, when printed, they were subject to double the duty charged upon calicoes woven with linen warp, and that their sale was even prohibited in the home market. After a long and expensive application to the legislature, they succeeded in procuring the repeal of those impolitic laws. Nearly about the same period, calicoes entirely of cotton were begun to be made at Blackburn, and also at Preston; which places soon became the seat of their manufacture, and for a long time the great market to which the printers from all parts of the kingdom resorted for their supplies. This branch went on increasing for many years in a most extraordinary degree. About the year 1805, it was calculated that the number of pieces sold annually in the Blackburn market was not less than a million; and by that time the manufacture of this article was not confined to the country around Blackburn, but had spread into the north-west district of Yorkshire, principally about Colne and Bradford, from which part of the country 20,000 pieces weekly are said to have been sent to Manchester.

The *nomenclature* of *Cotton Goods*, and the admission of new names, are among the oddities of the cotton manufacture. What these names mean, it would, perhaps, not be very easy to say; sometimes they indicate a degree of fineness in the goods; sometimes the mode of weaving; sometimes a color, a pattern, a garment for which they are suitable, or a distinguished personage who first wore them; sometimes a foreign product which they imitate; sometimes a country for whose market they are intended, or a town which is the chief seat of their manufacture, or a firm which takes a lead in their production—it matters little what the meaning may be; a new name has a commercial value; and the Shakesperian dictum concerning "a rose by any other name," etc., is not always assented to in shopkeeping philosophy. Let us run hastily over a bundle of these names. We have dress ginghams and fancy ginghams, and umbrella ginghams, checked and striped ginghams, and ginghams known by the high-sounding names of Camperdowns, Coromandels, matallas, vicuñas, and briolas. We have book muslins, jaconet muslins, bishop lawn muslins, sacharilla muslins, tarlatan muslins, Scotch lawn muslins, Victoria muslins, India and Swiss mull muslins, leno muslins, striped muslins, lappet muslins, spot muslins, sprig muslins, and a number of other members of the muslin family. We have table-cloths, diapers, huckabacks, jean-stripes, clan tartans, galas, Hungarians, and Derries—all made of cotton. There are surongs, crossovers, selampores, Granvilles, denims, panos da costa—all, we believe, of the cotton shawl family. There are counterpanes, quiltings, vestings, dimities, swansdowns, moleskins, doeskins, lambskins, velveteens, beaverteens, fustians, long-cloths, shirtings, calicoes, everlastings, nankeens, coutils, and other cotton goods, the enumeration of which would be almost wearisome. A few groupings will show the relations between these goods. For instance, the *gingham* family consists of stout cotton, in which threads of two or more colors are woven together into stripes, etc.; *fustians*, *beaverteens*, *velveteens*, *moleskins*, and several others, are woven on the same principle as velvet, with a nap or pile, which is either cut or left uncut; *damasks*, *huckabacks*, *diapers*, *ticks*, and *cambrics*, are cotton limitations of the similarly-named flaxen goods; *quilts* and *counterpanes* have downy tufts to increase the thickness and softness; *shirting* calicoes, *sheeting* calicoes, *printing* calicoes, *long-cloth*, and *duck*, are varieties of plain, serviceable cotton goods, varying in stoutness; *chintz* is a stout calico, afterward printed in several colors; *corduroys*, *jeans*, *quiltings*, and many other varieties, are very strong cotton goods, mostly twilled. As for muslins, their variety is almost interminable.

The first attempts to make muslins in Great Britain commenced simultaneously in Lancashire and at Glasgow about the year 1780, but without success. There was no yarn fitted for the weft of these goods, except that spun upon Hargreaves' jenny; and when made of this, it was found they were not of a marketable quality. Recourse was then had to wefts brought from India; and although a better article than the former was by this means produced, it was still not of a quality to compete successfully with Indian muslin. As soon, however, as the invention of the mule jenny enabled the spinner to produce yarns suited to such fabrics, the manufacture of the finest cotton articles became an important branch of trade in Great Britain. That machine, as has been mentioned, came into use at the end of the year 1785, upon Sir Richard Arkwright's patent being cancelled; and it is from that period we ought to date the commencement of this part of the manufacture. So rapid was its progress, that in 1787 it was computed that 500,000 pieces of muslin were in that year manufactured in Great Britain.

Muslin began to be made nearly at the same time at Bolton, at Glasgow, and at Paisley, each place adopting the peculiar description of fabric which resembled most those goods it had been accustomed to manufacture; and in consequence of this judicious distribution at first, each place has continued to maintain a superiority in the production of its own article.

Jaconet, both coarse and fine, but of a stout fabric, checked and striped muslins, and other articles of the heavier description of this branch, are manufactured in Bolton and in its neighborhood.

Book, mull, and lino muslins, and jaconets of a lighter fabric than those made in Lancashire, are manufactured in Glasgow. Sewed and tamboured muslins are almost exclusively made there and in Paisley. A machine of most ingenious contrivance for performing the operation of tambouring, was, in the year 1807, invented by Mr. John Duncan of Glasgow, and a patent taken out for the discovery. Each machine contains about 40 tambouring needles, and is superintended by a girl, who pieces the thread when it breaks. This beautiful and, at first, promising piece of mechanism has never come into general use. At present there are only three or four machines kept at work by the Messrs. Mitchells of Glasgow, who at an early period became proprietors of the patent. What are called fancy goods, woven in the loom, were first made at Paisley, which had been the chief seat of the silk gauze manufacture of this country. In the silk trade, which was then beginning to fall into decay, a body of most ingenious workmen had been bred. By employing them, the taste and invention which had produced the varieties displayed in that beautiful article were immediately transferred to the production of similar fabrics of muslin. From this circumstance, Paisley for a long time retained the exclusive possession of this branch; but being only seven miles distant from Glasgow, the general seat of the cotton manufacture of Scotland, and the mart to which most purchasers of muslin resort, many of its principal manufacturers have been induced to move their establishments to that city, although the weaving of these muslins continues to be executed in Paisley and its neighborhood.

There is a curious circumstance to be noticed with regard to the manufacture of the very fine fabrics of muslins in Scotland—that a great part of the yarn used for them is brought from Manchester, in consequence of the Scotch spinners not having yet been able to produce the very fine numbers of yarn of the best quality. This inferiority does not proceed from a less perfect construction of the machinery employed in Scotland, the mechanics and the machine-makers of Glasgow being admitted to be excellent workmen; neither does it arise from the want of skill in those who conduct the business, or from any difference in the processes employed in the two countries; but it is to be attributed to the same cause which produces the superior yarn of India, namely, an adroitness and mechanical sleight of hand in the operative spinners of Manchester, acquired by a few out of the great multitudes bred there. The manufacture of the thicker cotton fabrics was, at the same time, rapidly rising in importance. The manufacture of dimities has been exclusively confined to the north of England, all attempts to make them in Scotland having proved unsuccessful. Balason handkerchiefs were first manufactured about Preston and Chorley, where they still continue to be made. The manufacture of ginghams was for a long time confined to Lancashire, but for many years it has been extensively introduced at Glasgow, although Lancashire continues to be the chief seat of this branch.

Pullicat handkerchiefs were first made about the year 1785, at Glasgow, where the manufacture of them has been carried on to a great extent. They were not made in Lancashire till some time afterward, and the manufacture of them there has never been to the same amount; Glasgow, therefore, continues to be the principal mart for this article.

Blue and white checks and stripes for exportation were at first of a linen fabric, but were afterward woven with linen warp and cotton weft; and when Sir Richard Arkwright's discovery enabled the spinner to produce cotton yarns of sufficient strength to be used for warps, a great proportion of these goods came to be made wholly of cotton. This manufacture is carried on in Lancashire, and in the county of Fife, and to a small extent at Aberdeen; its chief seat, however, is Carlisle.

The manufacture of cotton cambric was begun about the same period, and was separated into two branches; into cambric to be used in garments in a white or printed state, and into cambric made in imitation of French linen cambric, to be used for the same purpose as that article. The first is made nearly altogether in Lancashire, where the manufacture of it is carried on to a great extent; and the second, of much less amount, wholly at Glasgow. The Scotch manufacturers have never been able to rival the Lancashire in the first, nor the Lancashire manufacturers to rival the Scotch in the last.

Bandana handkerchiefs, and Bandana cloths for garments, were first made by Mr. Henry Monteith, at Glasgow, about the year 1802, and are now manufactured there to a considerable amount. The cloth is dyed a bright Turkey red, and the color is discharged from those parts which form the pattern or figure, by passing a chemical mixture through them. Glasgow still continues to be the chief seat of this manufacture, and there are in that city several large works for carrying it on. The demand for Bandanas, however, has utterly fallen off, while, in consequence of the repeal of the impolitic duty on printed cloths, the consumption of these has greatly increased; and most of the proprietors of the Turkey-red dyeing establishments have therefore been induced to add calico-printing to their former business.

The value of the present annual production of the cotton manufacture of Great Britain is estimated at £54,000,000 sterling, of which nearly £33,000,000 is the value of goods and yarn made for exportation. The capital invested in buildings and machinery may be calculated at nearly the same as the annual amount of the manufacture, and more than double what it was 30 years ago, while the quantity of goods annually produced is much more than triple; yet, from the improvement of the processes, and consequent diminution of the expense of production, with the reduction which has taken place at the same time in the price of the raw material, this more than tripled quantity of the manufactured article does not represent more capital than was represented by, and required for the bringing to market the lesser amount during the preceding period. In the year 1812, when Mr. Crompton applied to Parliament for a remuneration for his invention, he found by as accurate an investigation as he could make, that the number of mule spindles in the country was between four and five millions; and Mr. Kennedy, in his memoir of Mr. Crompton, has stated, that the number in 1829 had increased to 7,000,000. In 1817, he estimated the number of persons employed in the spinning of cotton in Great Britain at 110,763, and the number of spindles in motion at 6,645,833, and the quantity of yarn produced at 99,687,500 pounds. The quantity of cotton yarn spun in 1832 was 222,000,000 pounds, of which 132,000,000 pounds have been manufactured into cloth, giving employment to 203,373 looms; but in 1853 the yarn spun was 685,440,000 pounds.

IV. Statistics of the Cotton Manufacture.—It is obvious that the home consumption in the United States has always borne a most disproportioned ratio to the entire growth, and that even in the last four years, when it had attained to the highest point which it has yet reached, the quantity reserved for domestic use never exceeded a seventh part of the whole, and generally fell considerably below it. It is deserving of notice, however, that in the period of time which this table comprehends, the internal consumption of the United States has been trebled; but large as this increase may seem in the eye of a native economist, the conclusion from it will not be satisfactory if the collateral circumstances are not considered; and the chief of these is, that it is an increase on small quantities, and indicates no more than the gradual growth of an infant trade, which the cotton manufacture was in North America in 1829. We believe that in this manufacture Great Britain has as yet little to fear from competition; but we are not equally confident that its prosperity may not be exposed to risk from her ill-judged anxiety to secure a monopoly of its advantages. The practice of excluding from her markets the manufactures of other countries is not only contrary to sound political principles, but gives rise to a spirit of hostility unfavorable to her interests, and places her in such a state that when other nations in retaliation, exclude her manufactures from their markets, she has no right to complain.

That we may not decide this question rashly, let us examine what is the danger to which she would be exposed if she were to take the opposite system, and open her ports to the manufactures of other countries. If they can now export annually to the value of about £32,000,000 sterling of cotton goods, which, burdened with freight, charges, and the exporter's profit, they are able to sell in competition with foreign manufacture, can they have any thing to fear from a competition with that manufacture in her home market, where the circumstances of the competing parties would be reversed? So far from the introduction of foreign manufacture into her market being an evil, we are inclined to think that it would be advantageous to her interests; and that, in the interchange of various fabrics which would be the result, the sale of her own manufactures would be increased. Commerce being altogether a matter of barter, it is necessary for every country to purchase in order that she may sell; and, fortunately, even in the same branch of manufacture, there is always room for such exchanges. There are shades of difference in the fabric of every article, upon which taste or fashion, or caprice, never fails to fix an arbitrary value, thereby constituting them into separate commodities capable of being exchanged. But the view we are taking of this important question does not rest altogether upon theory. Happily we have experience in support of it. No one disputes the advantage resulting from the interchange of commodities between Maine and Louisiana, or alleges that it would be for the benefit of either to have the manufacture of the other excluded from its market. Yet these two districts have their dependence upon manufactures which in their general features are the same.

It is well known regarding the commercial treaty with France, in which some approach was made to a free trade between the two countries, that while it lasted, the sale warehouses of London and Manchester were resorted to by purchasers from the different towns of France, with the same freedom, and in nearly an equal proportion of numbers, as from the towns in England. And although in these warehouses French and English commodities of a similar description were to be found, and British shopkeepers were at the same time daily resorting to France to make purchases, in no period were her manufactures in a state of greater progressive prosperity than during the eight years (from 1786 to 1793) that this treaty existed. There is no one, we believe, who has taken the trouble to investigate the matter, that will not say that both were benefited by this treaty, and probably exactly in the degree that the exclusive system in both had been departed from.

In addition to this, it may be proper to notice, that Switzerland and Saxony have always been open to the reception of cotton goods free of duty; and that in no other countries on the Continent is the cotton manufacture in a more thriving state. Might it not, therefore, be a wise measure to withdraw their restrictions against the importation of foreign manufactures, since the interference of these with her own products in the home market, supposing no interchange of the two to take place, never could counterbalance the amount of the sale she may be deprived of by following the opposite policy, and thus inducing the exclusion of her own goods from the foreign market?

Fears have been expressed that the lower wages for which the laborers of other countries that compete with Great Britain in the manufacture can work, and upon which, from the cheapness of their provisions, they can afford to live, may ultimately enable them to take the manufacture out of her hands. In reply to this, it may, perhaps, be sufficient to recall to our readers the small part of the cost of the commodity which now belongs to the labor of the hand, and the daily diminution which is taking place even of that part, by the introduction of new mechanical substitutes. Thus, for example, in 1767, each spindle required a person to work it; but now one man, with the aid of a few piecers to take up and join his broken ends, can work a thousand spindles. In Lancashire, in 1818, there were not more than 2000 power-looms, and of these not a half in employment; while in 1832, so extensive had been the change from hand-weaving to weaving by power, the number had increased to 80,000.

TABULAR COMPARATIVE STATEMENT SHOWING THE DECLARED VALUE OF COTTON MANUFACTURES OF ALL KINDS, AND COTTON YARNS EXPORTED FROM GREAT BRITAIN FROM 1840 TO 1850, BOTH INCLUSIVE.

Years.	Manufactures.	Yarns.
1840	$87,836,550	$35,506,540
1841	81,162,550	36,334,840
1842	69,539,420	38,857,320
1843	81,270,000	35,969,855
1844	94,088,820	34,942,920
1845	95,780,480	34,816,175
1846	88,588,890	39,410,240
1847	86,876,225	29,789,900
1848	83,766,845	29,639,155
1849	100,855,230	33,520,445
1850	109,368,485	31,918,520

The following table gives the extreme prices of cotton wool at Liverpool on the 31st December, from 1818 to 1853, showing the progressive reduction of the raw material during that time:

	1818.	1822.	1826.	1828.	1830.	1832.	1834.	1836.	1838.	1840.
	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.
Sea Island	33 —48	14½—24	10 —20	12 —20	11¼—20	—18	13½—26	14 —36	14 —33	10 —36
Orleans	16½—21	7 —11	7 — 9	6 — 9	6¼— 8	8 — 9	7¼—12½	7 —14	5 —10	4½— 9
Upland	17 —19¾	6½— 8½	6⅜— 7½	5¾— 7	5⅞— 7⅜	7 — 8	7¼—11	7⅛—12	5 —9½	4½— 7¼
Egyptian	—	—	7¼— 8½	7 — 8½	8 — 9½	9 — 9½	12 —16½	11 —18	8¼—16½	8 —14
Pernambuco	22 —23½	10½—11½	10 —11	7½— 8½	7½— 8¾	8¾—10½	9⅜—14½	10 —15½	8½—11	8¼—10½
Maranham	20 —20½	9¼—10¼	8¾— 9¾	7¼— 7¾	7 — 7⅝	7⅞— 9⅝	8¾—13¼	9¾—14	7 —10	7¼—10
Demerara	19 —24	8½—11½	8 —11	6⅝— 9	6½— 9	9½—10	8 —15½	9 —15	8 —18	7 —18
West India	17 —18½	7½— 8¼	6½— 7½	6 — 7	6 — 7	—	—	—	—	—
Surat	8 —14½	5¼— 7¼	5 — 6½	3½— 5	4½— 5¾	4¾— 5½	5 — 8⅜	3½— 9	3¾— 6½	3¼— 6½

	1842.	1844.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.
	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.	d. d.
Sea Island	7½—24	9 —30	9 —30	8 —30	6 —25	6½—20	9 —20	8 —22	10 —28	13 —36
Orleans	3½— 9	2⅝— 8½	3 —10	4¼—10	2½— 8	3¼— 8½	5¼—10	3½— 9½	3½— 8½	4¼— 8½
Upland	3¼— 7	3 — 6¾	3⅛— 7¾	4⅛— 8¼	3 — 6	3⅜— 7½	5⅜— 8¾	3⅞— 8⅞	3⅝— 7	4½— 7¼
Egyptian	6 —10½	5¼— 9	5¼—11	5¾—11	4¾— 8	4¼— 9	6 —11	5 —11	5 —12	5 —15
Pernambuco	6⅜— 8	4¼— 8	5½— 8½	6 — 9¼	4½— 8	4¾— 7½	6½— 8¼	5⅞— 9	5⅜— 8¼	6¼— 8½
Maranham	5 — 7¼	4¼— 7¼	4 — 8	4¾— 8½	3½— 7	3⅞— 6¼	5½— 7¼	4½— 8¾	4½— 8	5 — 8
Demerara	5½—10½	4¼—10	—	4½— 9	4 — 7	3½— 7½	5 — 9	4½— 8	4½— 9	4½— 8½
Surat	2¾— 5	2¼— 5	2 — 6	2½— 6	2½— 4½	2½— 5¼	3½— 6¾	2¼— 6¼	2¼— 5½	2¼— 5¼

The subjoined table contains comparative estimates of the quantities of raw cotton consumed in the chief manufacturing countries during 1840 to 1853, inclusive (in millions of pounds' weight).

Countries.	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	Spindles required in 1850 to produce the quantities into 40's Mule Yarn.
Great Britain	473	422	462	531	543	597	604	425	591	627	584	648	745	784	17,975,384
Russia, Germany, Holland, and Belgium	72	65	78	82	86	96	97	105	112	160	133	118	172	185	4,092,308
France	157	154	163	152	446	158	159	126	127	186	142	149	199	194	4,369,230
Spain	..	..	..	..	..	..	..	..	..	..	29	34	44	42	892,308
Countries bordering on the Adriatic	28	29	38	44	26	38	39	31	29	47	45	45	55	45	338,461
United States of America	111	115	105	131	143	158	175	175	209	205	188	158	237	265	1,384,615
Sundries, Mediterranean, etc.	..	..	..	..	..	..	..	..	..	..	..	23	29	38	5,784,615
Total	841	785	846	940	944	1,047	1,074	862	1,068	1.225	1,182	1,175	1,481	1,503	84,836,921

Looking at the production of the past and the demands for the future, it is not strange that the cotton manufactures should show uneasiness lest their spindles should be idle for want of the raw material. The consumption of raw cotton has rapidly increased during the last few years, and the unusually large crop of last year has been fully used up, leaving no residue, though with the prospect of better prices. As an illustration of the increased consumption for the past year, we give the quantities of raw cotton consumed in Great Britain since 1847. It will be seen, that of the increase for the last year—equal to 15 per cent.—over three fourths, or 11 per cent., came from the United States.

QUANTITIES OF RAW COTTON IMPORTED INTO THE UNITED KINGDOM FROM VARIOUS COUNTRIES.

Year.	The United States.	Brazil.	The Mediterranean.	British Possessions in the East Indies.	British West Indies and British Guiana.	Other Countries.	Total.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
1847	864,599,291	19,966,922	4.814.268	83.934,614	799,933	598,587	474,707,615
1848	600,247,488	19,971,878	7,231,861	84,101,961	640,437	827,036	713,020,161
1849	634,504,050	30,738,133	17,369,843	70,838,515	944,307	1,074,164	755,469,012
1850	493,153,112	30,299,982	48,931,414	118,872,742	228,931	2,090,698	663,576,861
1851	596,638,962	19,339,104	16,950,525	123,626,976	446,529	1,877,653	757,379,749
1852	765,630,544	26,506,144	18,058,640	84,922,432	703,696	3,960,992	929,782,448
1853	658,451,796	24,190,628	28,353,575	181,848,160	350,428	2,084,162	895,278,749
1854	722,151,346	19,703,600	23,503,003	119,836,009	409,110	1,730,081	887,333,149
1855	681,629,424	24,577,952	32,904,153	145,179,216	468,452	6,992,805	891,752,002
1856	780,040,000	21,830,000	34,616,000	180,496,000	462,824	6,439,000	1,023,886,528

According to official tables, the cotton industry of Great Britain and Ireland yielded last year about fifty-four millions sterling, and which may be regarded as half the cotton industry of the whole world; but foreign countries, besides taking half of the raw cotton sent to market, receive large supplies of cotton yarns from Great Britain; and in Asia and Africa cotton is still largely spun by hand; hence the world's cotton industry may be valued at 120,000,000, which would afford to every man, woman, and child, on the face of the earth, 2s. 9¾d. worth of cotton manufactures, or about fourteen yards per head per annum of excellent calico.

DECLARED VALUE OF BRITISH AND IRISH COTTON MANUFACTURES AND TWIST AND YARN EXPORTED TO THE UNDERMENTIONED COUNTRIES IN THE YEAR 1853.

Population of Countries exported to.	Value per head of Exports to each Country.			Countries to which exported.	DECLARED VALUE.			
					Cotton manufactures entered by the yard.	Hosiery, Lace, and Small Wares.	Cotton Twist, and Yarn.	Total.
	£	s.	d.		£	£	£	£
67,000,000	0	0	0·625	Russia—Northern ports	34,333	8,592	137,324	180,249
3,000,000	0	0	1·25	" Ports within the Black Sea	9,462	102	4,186	13,750
2,864,831	0	0	4.50	Sweden	7,166	2,176	45.295	54,637
1,050,132	0	1	0·25	Norway	27,303	1,728	25,399	54,430
2,900,000	0	0	8·25	Denmark (including Iceland)	34,989	2,027	64,142	101,158
15,726,820	0	0	0·375	Prussia	537	200	26,508	27,245
20,000	0	0	0·75	Mecklenburg-Schwerin	....	....	60	60
2,003,200	0	1	5·50	Hanover	612	13	146,795	147,420
241,000	....			Oldenburg and Kniphausen	....	....	....	....
384,000	7	19	7	Hanseatic Towns	785,395	202,268	2,076,717	3,064,380
2,000	....			Heligoland	....	2	....	2
2,444,550	0	17	11·50	Holland	473,700	81.435	1,692,043	2,247,178
3,533,538	0	1	8·25	Belgium	62,170	57,390	179,676	299,236
143,126	0	0	6·75	Channel Islands	46,565	1,253	474	48,292
36,897,152	0	0	1	France	65,552	46,574	43,584	155,710
4,530,000	0	3	0	Portugal Proper	611,195	10,858	42,310	664,363
271,416	0	3	7·75	" Azores	47,609	803	1,140	49,552
90,000	0	4	0	" Madeira	16,945	721	18	17,684
14,357,210	0	0	1·25	Spain, Continental, and the Balearic Isls.	73,283	6,897	5,953	86,133
200,000	0	6	6	" Canary Islands	61,839	3,035	401	65,275
17,024	23	14	2·75	Gibraltar	374,289	21,926	7,455	403,670
4,890,000	0	1	3	Italy, etc.—viz. Sardinian Territories	242,213	17,795	46,775	306,783
1,275,000	0	5	9·25	" Duchy of Tuscany	236,676	26,695	104,742	368,113
2,500,000	0	1	3·25	" Papal Territories	80,423	613	78,740	159,776
7,500,000	0	0	11·50	" Naples and Sicily	148,621	13,272	199,630	361,523
7,835,000	0	0	10·46	" Austrian Territories	200,304	6,052	135,113	341,469
120,000	1	3	6	Malta and Gozo	108,445	2,099	30,447	140,991
208,100	0	8	3	Ionian Islands	67,026	623	18,411	86,060
1,000,000	0	2	2	Kingdom of Greece	95,590	307	12,161	108,058
26,100,000	0	1	10·50	Turkish Dominions, exclusive of Wallachia, Moldavia, Syria, and Egypt	1,510,622	13,529	158,368	1,682,519
				Wallachia and Moldavia	77,460	538	75,332	153,330
				Syria and Palestine	242,639	651	33,430	276,720
				Egypt—Ports on the Mediterranean	318,143	7,601	27,795	353,539
100,000	....			Tunis	....	....	....	....
2,000,000	....			Algeria	....	....	....	....
15.000,000	0	0	1	Morocco, etc	63,532	218	60	63,810
10,000,000	0	1	2.75	Western coast of Africa	384,719	1,167	617	386,503
				British possessions in South Africa	207,785	12,714	541	221,040
				Eastern coast of Africa	1,580	....	....	1,580
				African Ports on the Red Sea	....	....	....	....
				Cape Verde Islands	2,737	....	....	2,737
				Ascension and St. Helena	979	486	....	1,465
101,469	1	5	7·25	Mauritius	124,257	5,732	3	129,992
40,000	0	0	3	Aden	535	....	....	535
13,750,000	....			Persia	....	....	....	....
150,000,000	0	0	9	Continental India, with the contiguous Islands:—viz. British Territories	4,447,413	64,392	1,168,264	5,680,069
				" " The Birman Empire	....	....	....	....
5,000,000	0	1	9·50	Islands of the Indian Seas:—Java	412,194	5,727	30,344	448,265
2,500,000	0	2	9	" " Philippine Isls.	333,160	8,855	2,140	344,155
360,000,000	0	0	0·75	China	1,028,074	329	101,396	1,129,799
20,000	13	18	7·50	Hong Kong	177,921	3,624	97,089	278,634
25,000	....			Japanese Islands	....	....	....	....
2,695,000	0	7	8·50	British Settlements in Australia	806,715	225,588	8,218	1,040,521
600,000	0	0	0·75	South Sea Islands	18,704	176	....	18,880
2,456,046	0	6	1·25	British North America	665,635	60,161	23,456	749,252
944,800	0	8	4·25	British W. India Isls. and Brit. Guiana.	370,016	24,828	182	395,026
14,600	3	17	10·50	Honduras (British Settlements)	52,400	3,114	1,351	56,865
600,000	0	12	9·75	Foreign West India Isls.:—Cuba	341,294	43,092	78	384,464
461,200	0	0	2·50	" " Porto Rico	4,773	144	....	4,917
120,839	....			" " Guadaloupe.	....	....	....	....
135,000	....			" " Martinique	....	....	....	....
31,000	0	7	8·75	" " Curacoa	11,316	662	....	11,978
	....			" " St. Croix	....	....	....	....
8,000	86	19	8·25	" " St. Thomas	275,046	16,879	4,283	295,708
	....			French Guiana	....	....	....	....
236,000	0	0	1	Dutch Guiana	1,010	21	....	1,031
860,000	0	1	9·25	Hayti	73,441	2,953	80	76,474
27,000,000	0	8	1	United States of America	3,524,629	648,601	9,671	4,182,901
8,000,000	0	1	10·50	California	82,979	6,914	670	90,563
				Mexico	473,216	47,720	11,719	532,655
				Central America	116,787	6,801	7,741	131,329
28,000	10	9	9·50	New Grenada	280,994	12,489	248	293,731
1,267,692	0	2	6	Venezuela	152,456	6,385	82	158,923
500,000	0	0	9·25	Ecuador	18.922	622	25	19,569
6,000.000	0	5	11·50	Brazil	1,727,587	60,009	820	1,788,366
860,000	0	6	1·75	Oriental Republic of the Uruguay	253,072	10,988	382	264,442
100,000	2	11	1·75	Buenos Ayres, or Argentine Republic	238,431	17,164	213	255,808
1,600,000	0	7	4·75	Chili	543,413	45,599	4,073	598,085
1,500,000	....			Bolivia	....	....	....	....
2,000,000	0	6	6·75	Peru	628,054	33,780	1,481	658,315
12,000	0	0	4	Falkland Islands	108	100	2	210
20,000	....			Greenland and Davis' Straits	....	....	....	....
825,690,745				Total	£23,901,940	£1,915,309	£6,895,653	£32,712,902
27,512,687	0	15	5	Estimated consumption of Cotton Manufactures in Great Britain and Ireland				21,224,494
853,203,432	0	1	3·172	The amount of British Cotton Manufactures supplied for the whole world				53,937,396

V. Origin and Early History of Cotton Manufactures of America.—Cotton is of indigenous American growth. On the first landing of the Spaniards in Mexico, they found it in considerable perfection. The Mexicans are said to have been solely dependent upon this product, the wool of rabbits and hares, feathers, and a fibrous plant called maguet, for their clothing materials. They had neither wool, hemp, nor silk, and their flax was not used for these purposes. Out of cotton they fabricated webs of exceeding tenuity, and their cloths were woven into beautiful figures. Mantles, bed-curtains, and carpets, they finished elegantly with mingled cotton and feathers. Cortez sent to Charles V. of Spain, "cotton mantles, some all white, others mixed with white and black, or red, green, yellow, and blue, waistcoats, handkerchiefs, counterpanes, tapestries, and carpets of cotton." A peculiar cotton paper was made in Mexico, small cloths of the same material constituted a part of their currency, and their warriors are said to have had cotton cuirasses. The modern Mexicans have lost the perfection of their ancient art of manufacture. The American plant was not confined to Mexico alone; Columbus found it wild in Hispaniola and on the continent of South America, where it had already grown into an article of use for clothing and other purposes. The Brazilians made their beds of it. The Abbe Clavigero says, that of "cotton, the Mexicans made large webs, and as delicate and fine as those of Holland, which were so highly esteemed in Europe. They wove their cloths of different figures and colors, representing different animals and flowers. Of feathers, interwoven with cotton, they made mantles, bed-curtains, carpets, gowns, and other things, not less soft than beautiful. With cotton, also, they interwove the finest hair of the belly of rabbits and hares, after having spun it into thread; of this they made most beautiful cloths, and in particular, winter waistcoats for their lords." Cochineal and indigo being native products of Mexico, they were well supplied with dyeing materials; but the fact of their having carried the arts of manufacturing and dyeing cotton to such a high stage of perfection, is proof that they must have received their knowledge from India, by way of the west.

Magellan, Drake, Cavendish, Dampier, Van Noort, all agree that cotton was one of the articles of dress among the American savages, on the discovery of the country. At St. Salvador the women are described as dressed in cotton coats. Even as far north, says Mr. Seabrook, as the Mes-chacebe, or Mississippi, the earliest explorers of that river, and its tributary streams, saw cotton growing wild in the pod, and in great plenty. These facts, and they might almost be indefinitely multiplied, are introduced to rebut the opinion founded on the negative testimony of Captain Cook, that the gossypum is not a native of the western hemisphere. That celebrated voyager found no cotton between New Zealand, 36° S., and the Sandwich Islands, 20° N. In addition to flax, and the bark of the mulberry-tree, in which Captain Cook says that the inhabitants of those regions were habited, the nations all over the continent nearly, used as articles of dress, besides cotton, feathers, the wool of rabbits, the maguei, and silk-grass. In 1726, cotton was a staple product of Hispaniola. In 1753, Jamaica exported 2,000 bags. On an average of eight years, from 1740 to 1748, the export of cotton from Barbadoes was 600 bags annually. In 1787, St. Domingo, St. Christopher, Grenada, Dominica, Antigua, Montserrat, and Nevis, and the Virgin Islands, exported the same commodity. In 1803, there were grown five varieties of cotton in Jamaica, the common, the brown-bearded, the Nankin, the French, and the Brazilian. From these facts, Mr. Baines draws the conclusion that the manufacture of cotton must therefore be supposed to be coeval with the original settlement of America; but learned men are much divided as to the date of this event, some carrying it nearly as high as the deluge, and others contending for a much later period. The American manufacture may at all events claim a high degree of antiquity.

VI. Cotton Manufactures in the United States.—*Historical Sketch of the Rise and Progress of the Cotton Manufactories in the United States.*—As early as the year 1787, a society was formed in Philadelphia, under the name of the "Pennsylvania Society for the Encouragement of Manufactures and the Useful Arts," which made some progress in the manufacturing of various kinds of goods, such as jeans, corduroys, fustians, plain and flowered cottons, flax linens, tow linens, etc. But the machinery employed in this manufacture seems to have been of the very rudest kind. A short time before the formation of this society, an attempt to spin cotton-yarn by machinery had been made at Bridgewater and Beverly, in the State of Massachusetts. Two mechanics from Scotland, Alexander and Robert Barr, brothers, were employed by a Mr. Orr, of East Bridgewater, to make carding, spinning, and roving-machines, which they completed; and on the 16th of November, 1786, the General Court of Massachusetts made them a grant of £200, lawful money, for their encouragement, and afterward added to the bounty, by giving them six tickets in the State land lottery, in which there were no blanks.

In March, 1787, Thomas Somers, an English midshipman, constructed a machine, or model, under the direction of Mr. Orr; and, by a resolution of the General Court, £20 were placed in the hands of the latter, to encourage him in the enterprise.

The above remained in the possession of Mr. Orr for the inspection of all disposed to see them, and he was requested by the General Court, to exhibit and give all information or explanation regarding them. It is believed that the above were the first machines made in the United States for the manufacture of cotton.

The Beverly Company commenced operations in 1787, and are supposed to be the first company that made any progress in the manufacture of cotton goods (that at Bridgewater had been on a very limited scale), yet the difficulties under which they labored—the extraordinary loss of materials in the instruction of their servants and workmen—the high prices of machines, unknown to their mechanics, and both intricate and difficult in their construction, together with other incidents which usually attend a new business—were such that the company were put to the necessity of applying to the State legislature for assistance, to save them from being compelled to abandon the enterprise altogether.

In their petition to the Senate and House of Representatives of Massachusetts, presented June 2d, 1790, only three years after they had commenced operations, they state: "That their expenditure had already amounted to nearly £4,000, while the value of their remaining stock was not equal to £2.000, and a further very considerable advance was absolutely necessary to obtain that degree of perfection in the manufacture, which alone could ensure success."

Accordingly a grant of £1.000 was presented them. to be appropriated in such a way as would effectually promote the manufacturing of cotton piece-goods in the commonwealth.

The petition above referred to, and other collateral facts, sufficiently prove that cotton-spinning in this country, further than the hand-card and one thread-wheel, was carried through its first struggles by the Beverly Company in Massachusetts. And from this State the manufacture was carried to Rhode Island—though it must be acknowledged that both States were indebted to foreign emigrants for instruction and assistance in spinntng and weaving, as well as in preparing the cotton.

Cotton-spinning commenced in Rhode Island in 1788, in which year Daniel Anthony, Andrew Dexter, and Lewis Peck, all of Providence, entered into an agreement to make what was then called "home-spun cloth." The idea at first was to make jeans of linen warp spun by hand; but hearing that Mr. Orr, of Bridgewater, and the Beverly Company, had imported some models or draughts of machinery from England, they sent thither and obtained drawings of them, according to which they constructed machinery of their own. The first they made was a carding-machine, which was something similar to those now used for carding wool, the cotton being taken off the machine in rolls, and afterward roped by hand. The next was a spinning-frame, something similar to the water-frame, or rather the common jenny, but a very imperfect machine. It consisted of eight heads of four spindles each, being 32 spindles in all, and was wrought by means of a crank turned by the hand; this, after being tried for some time in Providence, was taken to Pawtucket and attached to a wheel propelled by water; the work of turning the machine was too laborious to be done by hand, and the machine itself was too imperfect to be turned by water. Soon after, these machines were sold to Moses Brown, of Providence; but as all the carding and roving was done by hand, it was very imperfect, and but very little could be done in this way. Such were the rude machines used for spinning cotton previous to 1790; and the wonder is, not that the manufacturers failed in their undertakings, but rather that they were able to persevere. And we can now perceive that from these small beginnings, the present brightened prospects received their foundation.

The first cotton-mill of the United States was erected in Pawtucket, Rhode Island, by the late Mr. Samuel Slater, a native of Belper, Derbyshire, England, in 1790. The machinery was that of the Arkwright patent. There is evidence that Hargreave's jennies were in use in this country previous to 1790, but by whom, and when introduced, is not known. They were worked principally by Scotch and Irish weavers, who produced mixed goods of linen and cotton. Great Britain, at that time, used every means to prevent the introduction of her spinning machinery into other countries. Her law expressly forbid its exportation; and every attempt to import the machinery into America had failed. The Hon. Tench Coxe, of Philadelphia, entered into a bond with a person, who engaged to send him from London complete brass models of Arkwright's patents. The machinery was completed and packed, but was detected by the examining officer, and forfeited, according to the existing laws of Great Britain. No way remained to obtain the benefit of the British inventions but to manufacture them on our own soil. For this purpose Mr. Slater came to America. He had been a pupil of Arkwright, and was perfectly familiar with all his patents. He brought with him neither patterns nor memoranda to assist him in his work, but depended entirely on his memory, a thing which the statutes of Great Britain could not reach. The King of England had frequently made proclamations against any tradesman leaving the kingdom, and had called on his officers for their most vigilant watch against it; but the professions of men leaving the kingdom could not be always detected.

Some of the first yarn made by Mr. Slater in America, and some of the first cotton cloth made from it, was sent to the Secretary of the Treasury, on the 15th of October, 1791; and it is probably in existence now. It is stated that Mr. Clay had some of the first yarn in his possession in 1836. It was as fine as a No. 40.

Mr. Slater was induced to leave his employment under Mr. Arkwright, in England, to come to America, by seeing a premium offered by the Pennsylvania Society for a certain machine to spin cotton.

Mr. Slater labored under the greatest disadvantages for the want of suitable materials, and mechanics of sufficient ingenuity to assist him. The history of his first labors is deeply interesting, for the details of which we must refer the reader to his biographer. His first machine was what is called a water-frame, of only 24 spindles. Such was the humble origin of cotton manufacturing in America. From that first machine the advancement of the cotton manufacture has been truly astonishing. It has caused hundreds of populous villages, towns, and even cities, to spring up as if by magic, where only a few years ago nothing was seen but a barren wilderness. Astonishing as has been the increase of the various manufacturing towns and villages in the United States, Lowell, in Massachusetts, surpasses every thing of the kind that has been witnessed within the memory of man. In 1819 its site was a wilderness, whither sportsmen went to shoot game. The entire population of the territory around it did not exceed 200 souls. It was a poor, barren district, with but a few houses on the spot where the city now stands; and the inhabitants supported themselves principally by fishing in the Concord and Merrimac rivers, at the junction of which Lowell is situated. A company of wealthy men in Boston, seeing the valuable water-privileges of the spot, purchased it for manufacturing purposes. The first cotton mill was erected there in 1822; and in 1830 the population of the place had increased to 6477 persons. In 1840 the population had increased to 20,796; and the value of property there was $12,400,000. In 1856 the number of cotton-mills was 35, spindles 350,348. Thus, what only 30 years ago was a wild pasture-ground has become a large and flourishing city; a proof of what a water-power, seconded by capital and enterprise, can do for a place. Lowell is a splendid example of an American manufacturing city, and excites the attention, and in some measure the jealousy, says Mr. McCulloch, of Manchester and Glasgow. We need no better proof of what manufactures can accomplish than the history of Lowell. The Lowell cotton-mills, owned by twelve manufacturing companies, extend in a continuous line of about a mile, from the Merimac to the Pawtucket Falls.

The rapid growth of the cotton manufacture in this country is unparalleled in the history of industry. The second cotton-mill in America was erected in 1795, at the same place as the first. No more were built until 1803, when a third was erected in Massachusetts, followed by a fourth in 1804. During the three following years ten more mills were erected in Rhode Island, and one in Connecticut, making in all fifteen mills, with 8000 spindles, producing 300,000 pounds of yarn annually. By a report made to the government in 1810, it appears that 87 additional mills had been erected by the end of 1809, of which 62 were then in operation by horse and water-power, running 31,000 spindles. The cotton manufacture continued to spread, and received a considerable impulse from the war of 1812. In that year there were in Rhode Island 33 cotton factories, with 30,663 spindles. In Massachusetts there were 20 mills, with 17,371 spindles.

A report made to Congress in 1816 gives the following statement of the consumption of cotton by our mills, showing how rapidly the cotton manufacture had advanced. The consumption of cotton was, in

	Bales.		Bales.
1800	500	1810	10,000
1805	1,000	1815	90,000

The following statement is also officially made in the same report, showing the state of the cotton manufacture at that time:

Capital employed in 1816	$40,000,000
Males employed over 17 years old	10,000
Women and female children	66,000
Boys under 17 years	24,000
Cotton cloth manufactured........yards	81,000,000
Cost of same	$24,000,000
Raw cotton, ...90,000 bales, ..or lbs.	27,000,000

The subject of protection was then extensively agitated. The importations of cotton goods in 1815 and 1816 were immense, and created great alarm among manufacturers. The amount of importations of those two years was about $180,000,000. During the years 1817, 1818, 1819, and 1820, great distress prevailed among the manufacturers, but Congress was not disposed to grant their petitions in full.

Tariff laws were passed in 1824, 1828, and 1832, in each of which the duty upon foreign cotton goods imported was 25 per cent. *ad valorem.* These duties, though they did not prevent our markets from being glutted with foreign goods, caused our manufactures to gradually increase.

In 1820, the first cotton mill in Pennsylvania was erected at Manayunk by Captain John Towers. There were then only two small cottages on the spot. It now contains 500 dwellings, 5 churches, 15 stores, and about 30 mills.

Among the numerous towns that have sprung into existence, owing to the influence of manufactures, may be mentioned—Waltham, Paterson, Ware, Fall River, Taunton, Pawtucket, Lowell, Lawrence, Providence, Rhode Island, Saco, Lewiston Falls, Maine, etc.

THE COTTON MANUFACTURES IN TWELVE OF THE STATES, IN 1831.

States.	Mills.	Looms.	Capital.	Number of spindles.	Yards of cloth produced yearly.	Pounds of cloth produced yearly.	Pounds of cotton consumed yearly.
Maine	8	91	$765,000	6,500	1,750,000	525,000	588,500
New Hampshire	40	8,530	5,300,000	113,776	29,060,500	7,255,000	7,845,000
Vermont	17	352	295,500	12,392	2,238,400	574,500	760,000
Massachusetts	256	8,981	12,891,000	339,777	79,231,000	21,301,062	24,871,961
Rhode Island	116	5,773	6,262,840	235,753	37,121,681	9,271,481	10,414,578
Connecticut	94	2,609	2,825,000	115,528	20,055,500	5,612,000	6,777,209
New York	112	8,653	3,669,500	157,316	21,010,920	5,297,713	7,661,670
New Jersey	51	815	2,027,644	62,979	5,133,776	1,877,418	5,832,204
Pennsylvania	67	6,301	3,758,500	120,810	21,332,467	4,207,192	7,111,174
Delaware	10	235	384,500	24,806	5,203,746	1,201,500	1,435,000
Maryland	23	1,002	2,144,000	47,222	7,649,000	2,224,000	3,008,000
Virginia	7	91	290,000	9,844	675,000	168,000	1,152,000
Total	801	33,433	$40,612,984	1,246,703	230,461,990	59,514,926	77,457,316

COTTON MANUFACTURES IN 1850.

States.	No. of estabs. in operation.	Capital invested.	Bales of cotton.	Tons of coal.	Value of all raw material.	Number of hands employed.		Entire wages per month.		Value of entire products.	Yards of sheeting, etc.
						Males.	Females.	Males.	Females.		
Maine	12	$3,329,700	31,531	2,921	$1,573,110	780	2,959	$22,895	$35,973	$2,596,356	32,852,556
New Hampshire	44	10,950,500	83,026	7,679	4,839,429	2,911	9,211	75,713	124,131	8,830,619	113,106,247
Vermont	9	202,500	2,243	....	114,415	94	147	1,460	1,861	196,100	1,651,000
Massachusetts	213	28,455,630	223,607	46,545	11,289,309	9,293	19,437	212,892	264,514	19,712,461	298,751,892
Rhode Island	158	6,675,000	50,713	13,116	3,484,579	4,959	5,916	92,282	76,656	6,447,120	96,725,612
Connecticut	128	4,219,100	39,483	2,866	2,500,062	2,708	3,478	51,679	41,060	4,257,522	51,780,700
New York	86	4,176,920	37,778	1,589	1,985,973	2,632	3,688	48,244	35,699	3,591,989	44,901,475
New Jersey	21	1,483,500	14,437	4,467	666,645	616	1,096	11,078	10,487	1,109,524	8,122,580
Pennsylvania	208	4,528,925	44,162	24,189	3,152,530	3,564	4,099	63,642	40,656	5,322,262	45,746,790
Delaware	12	460,100	4,730	1,920	312,068	413	425	6,326	4,926	538,439	3,521,636
Maryland	24	2,236,000	23,325	2,212	1,165,579	1,008	2,014	15,546	19,108	2,120,504	27,883,923
Virginia	27	1,908,900	17,785	4,805	828,375	1,275	1,688	12,983	11,791	1,486,384	15,640,107
North Carolina	28	1,058,800	13,617	....	531,903	442	1,777	5,153	7,216	831,342	2,470,110
South Carolina	18	857,200	9,929	....	295,971	399	620	5,565	5,151	748,338	6,563,737
Georgia	35	1,736,156	20,230	1,000	900,419	873	1,399	12,725	10,352	2,135,044	7,209,292
Florida	..	80,000	600	....	80,000	28	67	900	335	49,920	624,000
Alabama	12	651,900	5,208	....	237,081	346	369	4,053	2,946	382,260	3,081,000
Mississippi	2	38,000	430	....	21,500	19	17	270	101	30,500	....
Louisiana	..	....	....	....	....	....	....	....	....	....	....
Texas	..	....	....	....	....	....	....	....	....	....	....
Arkansas	3	16,500	170	....	8,975	13	18	190	106	16,637	....
Tennessee	33	669,600	6,411	3,010	297,500	310	581	3,394	3,730	510,624	363,250
Kentucky	8	239,000	3,760	720	180,907	181	221	2,707	2,070	273,439	1,003,000
Ohio	8	297,000	4,270	2,152	237,060	132	269	2,191	2,584	394,700	280,000
Michigan	..	....	....	....	....	....	....	....	....	....	....
Indiana	2	43,000	675	300	28,220	38	57	495	386	44,200	....
Illinois	..	....	....	....	....	....	....	....	....	....	....
Missouri	2	102,000	2,160	1,658	86,446	75	80	820	800	142,900	....
Iowa	..	....	....	....	....	....	....	....	....	....	....
Wisconsin	..	....	....	....	....	....	....	....	....	....	....
California	.	....	....	....	....	....	....	....	....	....	....
Dist. of Columbia	1	85,000	960	....	67,000	41	103	575	825	100,000	1,400,000
Total	1,094	74,501,031	641,240	121,099	$34,835,056	33,150	59,136	$653,778	$703,414	$61,869,184	763,678,407

TABULAR COMPARATIVE STATEMENT SHOWING THE QUANTITIES AND DECLARED VALUES OF COTTON MANUFACTURES AND YARNS EXPORTED FROM GREAT BRITAIN AND FROM THE UNITED STATES, RESPECTIVELY, TO ALL COUNTRIES, FOR A PERIOD OF FIVE YEARS, FROM 1851 TO 1855, BOTH INCLUSIVE.*

Years.	GREAT BRITAIN.				UNITED STATES.			
	MANUFACTURES.		YARNS.		MANUFACTURES.		YARNS.	
	Quantities.	Values.†	Quantities.	Values.	Quantities.	Values.	Quantities.	Values.
	Yards.		Pounds.					
1851	1,543,161,789	$110,246,010	143,966,106	$33,246,010	No data.	$7,203,945	No data.	$37,260
1852	1,524,256,914	108,242,290	145,478,302	33,273,275	"	7,687,433	"	34,718
1853	1,594,592,659	119,509,700	147,539,302	34,478,265	"	8,746,300	"	22,594
1854	1,692,977,476	116,884,300	147,128,498	33,456,935	"	5,486,201	"	49,315
1855	1,935,846,937	130,623,375	165,499,547	36,152,140	"	5,857,181	"	None.
Aggregate.	8,290,835,775	585,505,675	749,611,755	170,606,625	....	$34,981,060	....	$143,887
Average.	1,658,167,155	117,101,115	149,922,351	34,121,325	....	6,986,212	....	29,777

* Made up from British and United States' official documents, respectively; the commercial year of the former ending December 31, and of the latter June 30.

† The pound sterling is computed at five dollars.

The articles Cotton and Cotton Manufactures have been compiled principally from the official report of the Statistical Office to Congress in 1856, United States' Patent Office Reports, tables prepared by Mr. W. P. Wright, cotton broker, New York city, Encyclopedia Britannica, eighth edition, and De Bow's Industrial Resources of the United States, the latter now published at Washington, D. C.

Statement exhibiting the foreign Importations and Re-exportations, domestic Exportations and home Consumption of foreign Cotton Goods, together with the Consumption of foreign Cotton Goods over domestic Exportations; the Number of Pounds of Sea-island and other Cotton annually exported from the U. S.

Years.	COTTON, MANUFACTURES OF.					COTTON, UNMANUFACTURED, EXPORTED.				
	Foreign imported.	Foreign exported.	Domestic exported.	Home consumption of foreign Cotton Goods.	Home consumption of foreign Cotton Goods over domestic Exportations.	Sea-island.	Other.	Total.	Value.	Average Cost per Pound.
	$	$	$	$	$	Pounds.	Pounds.	Pounds.	$	Cts.
1840	6,504 484	1,103,489	3,549,607	5,400,995	1,851,388	8,779,669	735,161,392	743 941,061	63,870,307	8·5
1841	11,757,036	929,05	3,122 546	10,827,98	7,705,434	6,237,424	523,966,676	530,204,100	54,330,341	10·2
1842	9,578,515	836,892	2,970,690	8,741,623	5,770,933	7,254 099	577,462,918	584,717,017	47,593,464	8·1
1843	2,958,796	314,040	3,223,550	2,644,756	578,794*	7,515,079	784,782,027	792,297,106	49,119,806	6·2
1844	13,641,478	404,648	2,898,780	13,236,830	10,338,050	6,099,076	657,534,379	663,633,455	54 063,501	8·1
1845	13,863,282	502,553	4,327,928	13,360,729	8,862,151	9,389,625	863,516,371	872,905,996	51,739,643	5·92
1846	13,530,625	673,203	3,545,481	12,857,422	9,311,941	9,388,533	538,169,522	547,558,055	42,767 341	7·81
1847	15,192,875	486,135	4,082,523	14,706,740	10,624,217	6,293,973	520,925,985	527,219,958	53,415,848	10 34
1848	18,421,589	1,216,172	5,718,205	17,205 417	11,487,212	7,724,148	806,550,283	814,274,431	61,998,294	7·61
1849	15,754,841	571,082	4,933,129	15 183,759	10,250,630	11,969,259	1,014,633,010	1,026,602,269	66,396,967	6·4
1850	20,108,719	427,107	4,734,424	19,681,612	14,947,188	8,236,463	627,145,141	635,381,604	71,984,616	11·3
1851	22,164,442	677,940	7,241,205	21,486,502	14,245,297	8,299,656	918,937,433	927,237,089	112,315,317	12·11
1852	16,689,496	997,030	7,672,151	15 692,466	8,020,315	11,738,075	1,081,492,564	1 093,230,639	87,965,732	8·05
1853	27,731,313	1,254,363	8,768,894	26,476,950	17,708,056	11,165,165	1,100,405,205	1,111,570,370	109,456 404	9·85
1854	33,949,503	1,468,179	5,535,516	32,481,324	26,945,808	10,486,423	977,346,683	987,833,106	93,596,220	9·47
1855	17,757,112	2,012,554	5,857,181	15,744,558	9,887,377	13,058,590	995 366,011	1,008,424,601	88,143,844	8·74
1856	25,917,999	1,580,495	6,967,309	24,337,504	17 370,195	12,797,225	1,338 634,476	1,351,431 701	128,382,351	9·5
Yearly av.	16,735,418	900,114	5,008,772	15,836,304	11,582,857	9,201,911	827,178,23	836 380,150	72,772,941	8·7·17

* Domestic exportations over home consumption of foreign cotton goods.

Statement exhibiting the Population, total Product of Manufactures of Cotton and Exports of raw Cotton, Manufactures of Cotton in the United States, home Consumption of domestic Goods, home Consumption of foreign Goods, and the total home Consumption of foreign and domestic Cotton Goods, and the Allotment per Capita, for the Years 1840, 1850, and 1855.

	1840.	1850.	1855.
Population	17,069,453	23,191 876	27,185 517
Total product of manufactures of cotton and exports of raw cotton	$110,220,760	$133,853,800	$159,108 556
Allotment per capita of manufactures of cotton and exports of raw cotton	6 45·72	5 17·15	5 85·27
Manufactures of cotton in the United States	46,350,453	61,869,184	70,964,712
Allotment per capita of the manufactures of cotton in the United States	2 71·54	2 66·77	2 61·04
Home consumption of domestic goods	42,800,846	57,134,760	65,107,531
Allotment per capita of the home consumption of domestic cotton goods	2 50·74	2 46·36	2 39·49
Home consumption of foreign cotton goods	5,400,995	19,681,612	15,744,558
Allotment per capita of the home consumption of foreign cotton goods	0 31·64	0 84·86	0 57·91
Total home consumption of foreign and domestic goods	48,201,841	76,816,372	80,852,089
Allotment per capita of total home consumption of foreign and domestic goods	2 82·38	3 31·22	2 97·40

Statement of the Imports into the United States of foreign Cottons and Cotton Manufactures during the fiscal Years 1854, 1855, and 1856.

	1854.	1855.	1856.
Raw cotton	$31,318	$131,457	$71,335
Printed and colored cottons	17,423,249	12,563 522	19,110,752
White cottons	2,191,212		
Cottons, tamboured or embroidered	4,045,476	3,000,000	3,000,000
Velvets of cotton	496,442	432,715	565,883
Velvets of cotton and silk	95,343		
Cords, gimps, and galloons	189,639	128 500	194 005
Hosiery and articles made on frames	3,013 664	2,055 595	2,516 848
Cotton, yarn and thread	1,076,987	997,673	1,276,760
Hatters' plush, part silk	102,824	45 081	26,468
Cotton inserting, laces, etc.	853,552	767,055	1,191,019
All other cottons	5 314,622	1,534,026	2,227,283
Total imports of cotton	$34,834,033	$21,655,624	$30 180,353

Summary showing the exports of domestic and foreign unmanufactured and manufactured cotton from, and the imports of manufactured cotton into the United States for the fiscal year ending June 30, 1857. This summary also specifies the countries with which this trade was conducted.

Exports of the foreign Manufactures of Cotton from the United States for the Year ending June 30, 1857.

Whither exported.	Piece Goods.	Velvets.	Cords, Gimps, and Galloons.	Hosiery and Articles made on Frames.	Twist Yarn and Thread.	Manufactures of, not specified.
Asiatic Russia	$1,344	....	....	....	$50	....
Russian Possessions in North America	8,154	....	....	....	....	....
Danish West Indies	486	....	....	....	....	....
Hamburg	1,527	....	....	....	....	....
Bremen	410	....	....	....	....	$276
England	3,795	$230	....	....	....	....
Scotland	1,310	....	....	....	....	....
Canada	13,449	145	$140	$4,215	....	185 533
Other British North American Possessions	6,979	....	....	768	....	3,398
British Honduras	230	....	....	....	....	....
British East Indies	2,056	....	....	....	....	....
Azores	72	....	....	....	....	....
Ports in Africa	36,115	....	....	....	....	19,287
Mexico	171,240	....	2353	2,315	22,566	6,187
Central Republic	2,391	....	....	....	....	....
New Granada	49,638	....	....	4,521	....	....
Venezuela	440	....	....	....	....	....
Brazil	....	....	....	....	....	116
Chili	3,189	....	....	....	....	....
Sandwich Islands	2,356	....	....	....	....	13,310
Whale-fisheries	211	....	....	....	....	....
Total	$305,392	$375	$2493	$11,819	$22,616	$228,107
From warehouse	$185,995	....	$2481	$6,147	$15 361	$155,244
Not from warehouse	119,397	$375	12	5,672	7,255	72,863

EXPORTS OF THE DOMESTIC MANUFACTURES OF COTTON FROM THE UNITED STATES FOR THE YEAR ENDING JUNE 30, 1857.

Whither exported.	Printed and colored.	White other than Duck.	Duck.	Other manufactures of.
	$	$	$	$
Russian Poss. in N. A. ..	41	1,154	....	....
Swedish West Indies....	505	930	652	....
Denmark	....	1,727	....	....
Danish West Indies	4,191	16,334	13,000	3,303
Bremen	757	....	1,530	....
Dutch West Indies	1,027	13,838	3,320	....
Dutch East Indies	22,679	40,416	....	301
Belgium	....	100	....	....
England	....	8,251	....	1,313
Scotland	....	720	....	....
Gibraltar	1,947	1,000	67	....
Malta	9,660	13,526	....	....
Canada	119,245	102,219	3,473	368,738
Other Brit. N. A. Poss...	173,519	158,818	30,844	27,768
British West Indies.....	6,350	4,618	8,842	547
British Honduras	3,167	19,225	1,52	4,183
British Guiana..........	....	....	1,85	....
British Poss. in Africa...	6,105	23,330	92	356
British Australia........	27,866	93,400	64,821	2,205
British East Indies......	274,524	116,865	7,854	600
France on the Atlantic ..	....	1,606	991	2,465
France on the Mediterr'n	....	....	2,097	....
French N. A. Possessions	5,616	2,813	3,820	10
Spain on the Atlantic ...	....	....	9,545	....
Canary Islands.........	....	....	755	....
Philippine Islands	5,100	34,535	1,000	....
Cuba	645	17,345	21,257	10,385
Porto Rico	3,063	2,95	567	82
Portugal...............	....	22	....	....
Madeira	....	1,930	....	....
Cape de Verd Islands....	2,938	9,7	....	62
Azores.................	803	3,748	....	1,395
Turkey in Europe.......	2,400	2,824	....	....
Turkey in Asia	90,612	45,515	....	356
Ports in Africa..........	121,431	667,8	5,959	126,43
Hayti	87,672	96,236	3,973	45
San Domingo	....	1,24	....	....
Mexico	45,819	171,188	3,937	27,815
Central Republic	4,773	11,795	....	24
New Granada	6,748	51,114	3,760	....
Venezuela	2,372	21,773	3,168	1,962
Brazil	197,692	285,951	2,977	23,857
Uruguay, or Cisplat. Rep.	10,289	18,091	24,830	2,063
Argentine Republic......	19,470	35,392	6,107	426
Chili	272,484	371,023	4,713	1,564
Peru	77,632	5,258	1,667	....
Sandwich Islands	40,002	33,984	5,481	5,009
Other islands in the Pacific	4,646	5,549	310	....
China	131,815	935,768	6,435	....
Whale-fisheries	680	63	914	145
Total value........	1,785,685	3,463,230	252,109	614,153

EXPORTS OF UNMANUFACTURED COTTON, OF HOME PRODUCTION, FROM THE UNITED STATES FOR THE YEAR ENDING JUNE 30, 1857.

Whither exported.	Bales.	Sea-island.	Other.	Value.
	Number.	Pounds.	Pounds.	
Russia on the Baltic and North Seas........	69,832	....	31,933,534	$4,267,234
Prussia..................................	50	....	30,000	3,574
Sweden and Norway	21,393	....	10,038,015	1,249,042
Denmark................................	2,423	....	1,176,366	154,635
Hamburg	22,720	....	10,524,075	1,311,935
Bremen	71,165	19,125	34,359,560	4,356,418
Holland.................................	21,862	....	10,434,227	1,283,318
Belgium	24,218	100,000	12,147,423	1,420,035
England	1,410,627	9,054,993	647,039,434	81,526,012
Scotland	16,408	278,914	7,070,835	950,282
Ireland	45,217	....	20,553,796	2,612,334
Canada	1,947	680	856,810	12,688
France on the Atlantic.....................	375,870	3,486,678	169,262,352	22,082,187
France on the Mediterranean...............	3,187	....	1,485,648	180,983
Spain on the Atlantic	8,350	....	3,805,136	474,043
Spain on the Mediterranean	95,704	....	41,751,931	5,691,118
Cuba	4	....	2,000	200
Portugal	132	....	56,439	6,992
Azores..................................	4	335	1,000	220
Sardinia.................................	36,794	....	16,058,272	1,967,522
Two Sicilies	1,275	....	581,587	71,806
Austria..................................	16,137	....	7,614,582	954,924
Mexico..................................	20,269	....	7,958,638	999,747
Total..........................	2,265,588	12,940,725	1,035,341,750	$131,575,859

IMPORTS OF THE MANUFACTURES OF COTTON INTO THE UNITED STATES FOR THE YEAR ENDING JUNE 30, 1857.

Whence imported.	Piece Goods.	Velvets.	Cords, Gimps, and Galloons.	Hosiery, and Articles made on Frames.	Twist Yarn and Thread.	Hatters' Plush of Silk and Cotton.	Manufactures of, not specified.
Russia on the Baltic and North Seas	$1,080	....	....	....	....	....	$785
Hamburg..........................	129,726	$991	$2,518	$364,091	$181	....	53,990
Bremen	318,100	19,379	2,418	1,637,384	178	$3,341	252,450
Other German ports...............	....	....	....	2	....	....	....
Holland	361	....	88	189	....	....	3,018
Belgium	64,818	1,437	973	20,956	214	....	19,283
England..........................	16,439,037	652,376	200,830	1,112,385	994,026	6,194	1,107,115
Scotland..........................	2,522,295	1,653	81	14,195	397,313	....	66,964
Ireland...........................	3,427	....	....	....	....	....	848
Canada...........................	598	42	....	2	1	....	2,769
Other British N. A. Possessions....	27	....	....	....	....	....	4
British West Indies	274	....	....	2	....	....	187
British Possessions in Africa	184	....	....	....	....	....	....
British Australia..................	228	....	....	....	....	....	....
British East Indies................	....	....	....	232	770	....	442
France on the Atlantic	1,914,187	2,356	6,661	59,969	7,789	1,437	221,701
France on the Mediterranean	1,021	....	....	....	737	....	....
Spain on the Mediterranean	4	....	....	....	....	....	....
Philippine Islands	....	....	....	....	....	....	4
Cuba.............................	334	....	....	....	....	....	24
Azores	....	....	....	161	....	....	....
Sardinia..........................	121	....	....	192	....	....	40
Tuscany	....	....	....	....	....	....	5
Ports in Africa....................	3	....	....	....	....	....	44
New Granada	41,770	....	215	527	....	501	....
Venezuela........................	19	....	....	....	....	....	....
Chili	383	....	....	....	....	....	....
Sandwich Islands	888	....	....	....	....	....	....
China	2,277	....	....	....	4	....	....
Total value................	$21,441,082	$678,294	$213,814	$3,210,287	$1,401,153	$11,473	$1,729,633

Cotton Dyeing. (*Teinture de Coton*, Fr.; *Baumwollenfärberei*, Germ.) Cotton and linen yarns and cloths have nearly the same affinity for dyes, and may therefore with propriety be treated, in this respect, together. After they have acquired the proper degree of whiteness, they are still unfit to receive and retain the dyes in a permanent manner. It is necessary, before dipping them into the dye-bath, to give them a tendency to condense the coloring particles within their cavities or pores, and to communicate such chemical properties as will fix these particles so that they will not separate, to whatever ordinary trial they may be subjected. All the colors which it would be desirable to transfer to these stuffs, unfortunately do not possess this permanence. Men of science engaged in this important art, have constantly aimed at the discovery of some new processes which may transfer into the class of fast colors those dyes which are at present more or less fugitive. Almost all the goods manufactured of cotton, flax or hemp, are intended to be washed, and ought, therefore, to be so dyed as to resist the alkaline and soapy solutions commonly used in the laundry. Vitalis distinguished dyed cottons into three classes: 1. the *fugitive*, or fancy-colored (*petit teint*), which change their hue or are destroyed by one or two boils with soap; 2. those which resist five or six careful washings with soap, are *good* dyes (*bon teint*); and those which were still more durable, such as Turkey reds, may be called fast colors (*grand teint*). The colors of Brazil-wood, logwood, annotto, safflower, etc., are *fugitive;* those made with madder without an oily base, are *good;* and those of madder with an oily mordant, are *fast.*

Cotton-wood. (*Populus argentea.*) This species is scattered over a great extent of country, comprising the middle, southern and western States. It is, however, quite rare in the middle States. New York city may be considered as the most northern point at which it grows. It is quite common along the Mississippi river. The cotton-tree grows sometimes to the height of 70 or 80 feet, and 2 or 3 feet in diameter. The leaves, while very young, are covered with a thick, white down, which gradually disappears, leaving them smooth above, and slightly downy beneath. The wood of the cotton-tree is soft, light, and unfit for use, and inferior to that of most of the other poplars. It is appropriated to no particular use in the arts or for fuel.—BROWNE, *Sylva Americana.*

Counterfeiting. Large sums of money have been expended with a view to devise plans for the prevention of counterfeiting bank notes, bank checks, etc., but thus far no successful plan has been devised. The New England Society for the Prevention of Counterfeiting, has for some years been in operation at Boston, and is aided by the treasury of Massachusetts to the extent of $2,500 per year. This society has been the means of detecting and punishing numerous counterfeiters. Forging of government certificates of United States stock, land warrants, etc., is, by act of Congress, punishable by imprisonment not over 10 years. For counterfeiting a post-office frank, a fine of $10 will be imposed. The counterfeiting of coins of the United States, or of foreign coins, shall be punished by imprisonment between 3 and 10 years, or imprisonment of 5 years and a fine of $1,000.—See DUNLAP'S *Digest Laws U. S.*, pp. 76, 403, 404, 726, 728, 1002.

Countermark. In Numismatics, a stamp frequently seen on ancient coins, often obliterating a large part of the impression. The countermark is generally a figure or inscription, and some antiquaries have considered that their use was to augment the value of the money; others, that it was only struck on money taken from an enemy.

Coupons, from the French, is a term employed in England and elsewhere, to denote the warrants for the payment of the periodical dividends or interest on public stocks, a number of which being appended to the bonds, are severally *cut off* for presentation as the dividends fall due, generally semi-annually—sometimes quarterly. The practice of appending coupons to bonds is now generally adopted by States and corporations, as they facilitate the collection of the semi-annual or quarterly interest thereon.

Courier (Fr., *courir*, to run), a messenger sent post or express with dispatches. The couriers employed by the ancients were of two kinds; first, those who ran on foot, called by the Greeks *hemerodromi*, or day-runners, regarding whom Pliny, Cornelius Nepos, and Cæsar mention that some of them would run twenty, thirty, thirty-six, and in the circus even forty leagues a day; second, riding couriers (*cursores equitantes*), who changed horses as modern couriers do. Xenophon attributes the first couriers to Cyrus. Herodotus says they were very common among the Persians, and that there was nothing in the world more swift than such messengers. That prince, says Xenophon, proved how far a horse could run in a day, and built stables at corresponding distances; and at each station a courier was always ready with a fresh horse to forward the package to the next stage, and so on throughout the empire. But it does not appear that either the Greeks or Romans had any regular system of couriers till the time of Augustus. Under that prince they traveled in cars, about 24 B.C., though it would appear that they afterward went on horseback. Under the Western Empire they were called *viatores;* and under that of Constantinople *cursores.* Couriers or posts are said to have been instituted in France by Charlemagne, about A.D. 800. The couriers or posts for letters were established in the early part of the reign of Louis XI. of France, owing to this monarch's extraordinary eagerness for news. They were the first institution of the kind in Europe, A.D. 1463.

Court-plaster is a considerable object of manufacture. It is made as follows: Black silk is strained and brushed over ten or twelve times with the following preparation: Dissolve ½ an ounce of balsam of benzoin in 6 ounces of rectified spirits of wine; and in a separate vessel dissolve 1 ounce of isinglass in as little water as may be. Strain each solution, mix them, and let the mixture rest, so that any undissolved parts may subside. When the clear liquid is cold it will form a jelly, which must be warmed before it is applied to the silk. When the silk coated with it is quite dry, it must be finished off with a coat of a solution of 4 ounces of China turpentine in 6 ounces of tincture of benzoin, to prevent its cracking.

Court of Claims. This is a new court, established by act of Congress of the United States, February 24, 1854, having jurisdiction of claims by individuals against the United States, arising from disputed cases at the Treasury. This obviates the necessity of petitioning Congress for indemnity for losses sustained under government contracts, etc. See DUNLAP'S *Digest Laws U. S.*, pp. 1457—1459.

Coutts, Thomas. This distinguished London banker, whose death caused much excitement in the metropolis, was at one time, in wealth and importance, at the head of the banking and moneyed interest in England. He was at first a partner in the house at St. Mary Axe, London, and afterward admitted into his brother's banking-house, in the Strand, London. His own bank stands on nearly the centre of the site where stood, many years ago, an exchange, similar to Exeter Exchange. It was then considered one of the best-constructed places of safety in Great Britain, except the Bank of England.

Mr. Coutts died on the 24th of February, 1822, having attained the age of *ninety-one*. His will was read the Sunday evening after his death, in the presence of his family. To the surprise of many, he bequeathed his whole property, to the amount of £900,000, to Mrs. Coutts, formerly Miss Mellon, an actress, at her own disposal, without mentioning any other person, or leaving a single legacy. This was, probably, to escape the legacy duty, which, if his fortune were left to others, would have amounted to £60,000. The firm of Coutts and Co., said to be controlled by Miss Burdett Coutts, is still among the banking-houses of London.—See *Bankers' Mag.*, N. Y., 11. p. 525 (1848).

Cove. An inlet on a rocky coast. It is a term nearly synonymous with *harbor:* the word cove being generally, though not always, used when the indentation on the coast is too shallow or narrow to admit first-class vessels.

Cowes, West, a seaport-town of the Isle of Wight, at the mouth of the Medina, 4 miles N. of Newport, and 78 miles from London. It occupies a rising ground on the W. bank of the river, presenting a striking appearance from the sea. The streets are narrow and irregular; but many of the modern buildings are handsome, and in the vicinity are numerous elegant villas. It is much resorted to for sea-bathing, and has numerous hotels and lodging-houses for the accommodation of visitors. The harbor is safe and convenient, and its entrance is defended by a battery. It forms the rendezvous of the Royal Yacht Club, who hold their annual regatta here. It has a very considerable coasting trade. Exports, chiefly agricultural produce and malt; imports, coal, colonial produce, manufactured goods, etc. Ship-building is extensively carried on. On the opposite side of the river, which is here about half a mile broad, is East Cowes, where is the custom-house of the port, and near which is Osborne House, the marine residence of her Majesty. Pop. (1851), 4,786.—E.B.

Cowhage, or **Cowitch** (Hind. *Kiwach*), the fruit or bean of a perennial climbing plant (*Dolichos pruriens*, Lin.) It is a native of India, as well as of several other Eastern countries, and of America. The pod is about 4 or 5 inches long, a little curved, and contains from 3 to 5 oval and flattish seeds; the outside is thickly covered with short, bristly, brown hairs, which, if incautiously touched, stick to the skin, and occasion intolerable itching.—AINSLIE'S *Materia Indica.*

Cowries (Ger. *Kauris;* Du. *Kauris;* Fr. *Coris, Cauris, Bouges;* It. *Cori, Porcellane;* Sp. *Bucios Zimbos*) are small shells brought from the Maldives, which pass current as coin in smaller payments in Hindostan, and throughout extensive districts, in Africa. They used to be imported into England previously to the abolition of the slave trade, in which they were subsequently employed. They are an article of trade at Bombay. The best are small, clean, and white, having a beautiful gloss; those that are yellow, large, and without lustre, should be rejected. The freight is calculated at 20 cwt. to the ton.—MILBURN'S *Orient. Com.*

Cozening, tricking, defrauding. In law it denotes an offense where any thing is done deceitfully, either with regard to contracts or otherwise, and which can not properly be defined by any special name. In the civil law it is called *stellionatus.*

Cranberries, or **Red Whortleberries,** the fruit of a moss plant, the *Vaccinium oxycoccus* of Linnæus. The berries are globular, about the size of currants; are found in mossy bogs. Cranberries have a peculiar flavor, and a sharp, acid, agreeable taste; they are easily preserved, and are extensively used in making tarts. They are very abundant in North America, and in the northern parts of Russia; the latter being of a superior quality. It is said that some very fine ones have recently been brought from New South Wales. Considerable quantities are produced in New England on the marshy lands near the coast.

Crank, in sea language, is applied to a vessel when, from too much top weight, or the want of sufficient ballast, or cargo, or from any other cause, she can not bear much sail without danger of oversetting. It also denotes an iron brace for supporting the lanterns on the poop-quarters of the ship.

Crape (Fr. *Crêpe;* Ger. *Flohr, Krausflor;* It. *Espumilla, Soplillo;* Rus. *Flior;* Sp. *Crespon*), a light, transparent stuff, in manner of gauze, made of raw silk, gummed and twisted on the mill, and woven without crossing. When dyed black it is much worn by ladies as a mourning dress. Crapes are crisped (*crepés*) or smooth; the former being double, are used in close mourning, the latter in less deep. White crape is appropriate to young unmarried females, and to virgins on taking the vail in nunneries. The silk destined for the first is spun harder than for the second; since the degree of twist, particularly for the warp, determines the degree of crisping which it assumes after being taken from the loom. It is for this purpose steeped in clear water, and rubbed with prepared wax. Crapes are all woven and dyed with the silk in the raw state. They are finished with a stiffening of gum-water. Crape is a Bolognese invention, but has been long manufactured with superior excellence at Lyons, in France, and Norwich, in England. There is now a magnificent fabric of it at Yarmouth, by power-loom machinery. There is another kind of stuff, called *crépon*, made either of fine wool, or of wool and silk, of which the warp is twisted much harder than the weft. The *crépons* of Naples consist altogether of silk.

Crayons. Colored cylinders used for drawing upon paper; they are usually made of a fine pipe-clay, colored with metallic pigments or carmine. Crayons containing plumbago are styled *solid lead pencils.*

Cream. (Fr. *Crême*). A semi-fluid yellowish substance which collects on the surface of milk, and which is made into butter by the process of churning. When the milk of any animal is allowed to stand for some time, it spontaneously undergoes certain changes —this substance rises to the surface and forms a thin stratum, which is called cream, and which consists chiefly of oily particles; while the milk below, which of course is thinner than it was before the cream separated from it, is of a pale bluish color, and consists of curd, coagulum, or the matter of which cheese is made. When cream is kept for some days it gradually becomes thicker, and partially coagulated; and if put into a linen bag and suspended from the ceiling of a cool room, it will acquire the consistence of cheese; and this is one among other modes of making cream cheeses. When cream is shaken by churning, it is resolved into its component parts, and hence we have butter and buttermilk. In order to make butter it is not always necessary that the cream should be separated from the milk; but whether separated or not, the process is facilitated by allowing the liquid to stand for some time, during which a part of the sugar contained in the serum is changed into an acid, which shortens the process of churning by facilitating the separation of the butter from the milk. When either cream or milk is churned without having previously become sour, the process is much more tedious; and sometimes, from causes not easily accounted for by the dairy-maid, it is unsuccessful, and the milk is said to be bewitched. The true cause, however, is the want of acidity; because it has been found that the addition of a small portion of vinegar will dissolve the charm, and cause the almost immediate appearance of butter. Cream, when separated from milk and kept till it has become acid, is frequently mixed with milk newly drawn from the cow; and this eaten with sugar is one of the most delicious preparations of the dairy. Costorphin cream, so called from a village of that name in the neighborhood of Edinburg, is made by putting the milk of three or four days together with the cream into a vessel, and allowing it to remain there till it has become sour and coagulated. The whey is then drawn off and fresh cream added; and when it is brought to table it is eaten with sugar, and in the strawberry season, with that fruit. Devonshire cream is simply sour curd, or sour cream eaten with fresh milk, or fresh cream, with or without the addition of sugar. Devonshire scalded or clouted cream is milk and cream heated to the boiling point, and suffered to cool, when the cream will be found to have separated from the milk, and when skimmed off may either be made into butter or eaten with fresh cream and sugar. Common clotted cream is simply milk and cream in a coagulated state, and sour. When the clotted cream is broken and stirred, and the whey drawn off, the mass may be turned into cheese by artificial pressure, by which the whey is separated instantaneously; or by suspending it in a porous bag, in a cool, airy situation, when it will be separated by degrees. *See* BUTTER, CHEESE.—BRANDE'S *Em. of Art.* *See* BUTTER DIARY.

Credentials, Letters of. The instrument, in the form of a letter, from one government to another, which constitutes the evidence of the title of a minister at a foreign court to the power which he exercises. There are two sorts of credentials: the one sealed, drawn up and countersigned by the minister of foreign affairs; the other open, signed only by the government. Unless the minister be mentioned expressly in his credentials as an embassador, he has only a right to the observances due to foreign ministers of inferior rank.

Credit, in the sense in which we generally treat of it, is the trust which is given to a person when he obtains a loan of money, or purchases any article, the payment of which is to be made at an after period. Every sum of credit, therefore, must be founded on a transfer of a corresponding sum of capital; and the whole amount of credit existing at any time can never exceed that of the lent capital. Credit is, in reference to the person who gives it, the power of lending, and to him who receives it, the power of borrowing. The basis of credit is confidence, and this is found to exist extensively only where good faith and punctuality have been allowed to grow into habit, and where laws afford to creditors the easy and certain means of recovering their debts.

In young countries, before dealings have become multiplied, we find people inattentive to their money engagements, when there is no want of property with the debtor, and even when the payment of the debt has been fixed by document to a positive term. But as transactions increase, and population presses more closely together, a knowledge of the circumstances of individuals is rendered difficult, and a necessity for punctuality arises, to prevent doubts being entertained of the ability to pay. And this apprehension of discredit entertained by the debtor, and of its consequences to his future transactions, has more effect to establish and maintain good faith and exactness than the operation of the laws is able to produce. When capital is abundant, relatively to the means of employing it, the competition of capitalists produces a facility of obtaining credit; and parties become enabled to borrow and purchase upon credit who could not do so before. Credit is then said to be high, but it is the value of the capital which, from the overstock, has become low. The capitalist, in these circumstances, grows less scrupulous about his security, that he may bring within the range of his dealings a greater body of borrowers or purchasers, and thereby be enabled to keep up his price.

When the supply of capital continues in this state for any length of time, it gives rise to an imprudence of conduct which lays the foundation of much after evil. Sales and loans are made at credits far beyond the ordinary periods; and those into whose hands the extra capital by this means passes, considering it as a fund with which they may trade, go on also extending their dealings and credits, until the whole system is put upon the stretch. In this situation any interruption to the sale of commodities occasions instant confusion and distress. The confidence which had prevailed gives place to alarm and distrust, and the same effect is produced for the time by the retardment of the circulation that would have been experienced had the capital itself been withdrawn.

By the operation of credit, not only is the circulation of capital facilitated, and its employment increased; but by its means alone certain descriptions of capital can be brought into action. When an article is sold upon credit, the seller places, for the time, a portion of his capital at the command of a party who may have no capital of his own. This person, nevertheless, by another operation of credit, is enabled to sell upon credit also, and still keep his engagement with the party from whom he bought. This he accomplishes by calling in the assistance of the money capitalist, the banker, who advances to him the amount of the sale upon his and his purchaser's joint security, and receives in consideration a rent for the sum advanced. By this process facility and extension are given to circulation, beyond what could take place if the commodity could be exchanged only for immediate value; while an opportunity is, at the same time, afforded of employing a branch of capital which would otherwise remain inactive and without use. It is almost unnecessary to remark, that it is by the operation of credit that a return is got from the capital of persons who are incapable of employing it themselves, and which can be put into a state of useful activity only by lending it to others.

In Scotland, after the disposition to commercial pursuits began to manifest itself, the progress was retarded, by the total want of commercial capital in the country. To get the better of this difficulty, and draw to these employments any little capital that otherwise existed, it became the practice, when a commercial undertaking was to be entered upon, to associate in the adventure some persons of known substance, and upon the joint credit of the parties forming the company, to borrow the capital necessary for carrying it on. The credit which was thus established is called company credit, and is effectual to its proposed end of borrowing or purchasing with advantage, according to the supposed responsibility of the parties of whom the company is composed. Up to the year 1793 a considerable proportion of the manufacturing and mercantile concerns of Scotland were carried on upon this plan; and to give strength to their credit, and encourage those who had money to lend to place it with them, a rule was established, and confirmed by decisions of the courts of law, that, in case of bankruptcy, a creditor of a company should be entitled to claim upon each of the partners' separate estates, in competition with the party's individual creditors, for the balance of his debt unpaid from the company's effects.

When a party purchasing or borrowing capital gives a written obligation for the amount, payable to the order of his creditor at a certain fixed period, he embodies a sum of credit capable of being exchanged again for capital; and the transference of these documents to new parties, who replace to the former creditor the capital he had lent upon them, is what is called a circulation of credit. Indeed, without the use of bills, or of some instrument of similar powers, credit must have been confined to a single operation between first contracting parties, and the circulation of capital limited to what could have been effected in this way. But a transferable document of the sum to be received becomes itself a negotiable or marketable article; and the collective credit of the parties through whose hands it may successively pass continuing to be engrafted upon it, a new facility is gained to circulation by every movement which it makes. The whole of the credit embodied by bills, however, is not brought into circulation; a part only of the sellers or lenders requiring to have their capital replaced to them by anticipation. But it is according to the expected facility with which payment may be thus anticipated, that credit is at first freely and readily given; and whenever any thing occurs to impede the circulation of credit, there is an immediate disposition in the merchant to withhold or limit it.

Every transfer of capital made upon a buyer or borrower's own obligation of payment creates a new sum of transferable credit; and this is the case, although it should be the same capital that is again and again transferred. But a sale of goods, or an advance of money upon the obligation of a third party, indorsed to the seller or lender, forms no addition to the sum of circulating credit, the transaction being the circulation, not the creation, of a sum of credit. Neither does a succession of purchases or borrowings, effected by means of the same document indorsed from the one party to the other, add to the sum of credit in circulation. For although each of these transactions is the ground of a separate obligation between the parties contracting, there is with the whole but one absolute creditor, the holder of the bill, and one absolute debtor, the acceptor of the bill, the others being merely contingent debtors to the one, and contingent creditors of the other.

Circulated credit is to be classed into that circulated by loan, and that which is circulated by means of sale. The first is the circulation of the credit founded upon the obligation of individuals or private companies, and called private credit; the second, of that founded upon the obligations of the state, or the transfers of the stock of corporate bodies, and called public credit. The documents of these two descriptions of credit possess different and distinct qualities, and are differently negotiable. It may be proper, therefore, to examine how they are employed as means of borrowing or purchasing, what are their separate powers, and what is the probable extent of the circulation of each. We shall begin with those belonging to private credit, which are as follows:

First, Obligations payable to the bearer on demand, and which, being passed without recourse, are employed as money. *Secondly*, Transferable obligations payable at an after date, as notes of hand and bills of exchange, which, being negotiated with recourse upon the preceding obligants, are taken as guarantied pledges of a sum to be received when they become due.

The circulation of obligations, payable to the bearer on demand, or notes employed as money, is the circulation of a credit borrowed by the issuer of the note from the public; the holder of the note at the time is the creditor; and the property he gave in exchange for it is a loan from him to the banker. As it is in the power of the party giving this credit at any time to put an end to it by calling for his money, these notes circulate upon the credit of the issuer alone. No assurance of payment is required from the person from whom they are received, as is the case with bills; the payment of which being at a future date, it is thought necessary to reserve recourse against the parties through whose hands they have passed. The circulation of notes payable on demand is therefore a circulation of what may be termed single credit, and bills a circulation of collective credit.

When bank-notes are issued by a banker in discount of a bill, it may be supposed that a twofold credit is put into circulation: a credit to the party to whom the bill has been discounted, and a counter credit from him to the issuer of the notes. But in this stage of the transaction, no circulation of credit has taken place. Credit is circulated only when exchanged for capital, and in this case it has been but the exchange of one credit for another. The banker, indeed, in giving his notes payable on demand in exchange for a bill payable at a future date, gives what is of a quality different from that which he receives; for what he gives is immediately exchangeable for capital, and to the person receiving it is the same as capital.

But still it is only credit he has parted with, which will not be in a state of circulation until it comes to be exchanged for capital. In as far as relates to circulation, the transaction is the same with that of a person lending his credit to another, by accepting a bill to him without value. A sum of credit is thereby created, but is not circulated until the bill comes to be exchanged for value. The credit that is in circulation from the exchange of bank-notes for a bill, is a credit from the party who at the time has given capital or value for the notes. When the banker "cashes" them, he becomes the creditor, but while they remain in circulation the public is the creditor.

The amount of credit from the circulation of cash notes never can be pushed beyond what would have been the value of the specie that would have been in circulation had the currency been of the precious metals, which the notes only serve to represent. Should the notes cease to be convertible into specie, their amount, indeed, may be augmented at the pleasure of the issuer; but their value, and the credit in circulation from them, will still be regulated by this limit. The increased sum will represent the value which the smaller did before, and each note will be reduced in its value, in the proportion of the increase that may have taken place of the whole. This description of circulating credit is of a quality different from the others. From supplying the place of capital, in its character of currency, it is lent out as capital; but loans from this fund are precarious, its amount depending upon the state of public confidence, and being liable to be diminished by every call upon the banks to replace the notes with specie.

Circulating notes, not convertible into specie, issued under the authority of the state, have been called a fabric of unreal credit. But this currency, however unsuitable to its proper ends, affords a circulation of real credit. It is indeed exposed to constant fluctuation of value, according to the amount of it in the circle; and the party taking it is obliged, for his own safety, to include in the price of what he gives for it, sufficient to cover the difference between it and specie, and the risk of further depreciation while it may remain in his hands. Still, however, an amount of credit, to the value of what has been given for the notes, in the first instance, is put into circulation, and an amount continued in circulation, to the value always of what they are exchangeable for at the time; the holders of them always remaining creditors of the issuer, to the extent of the whole sum which the notes profess to pay. A currency of this description, however, is inapplicable as a measure of value, and therefore unfit to be employed as a circulating medium. And as to the other object, intended by its issuers to supply an amount of funds to the state; the depreciation with which it must be issued at first, and the loss to be sustained from taking it back again at par, render it an expensive means of borrowing.

With regard to obligations payable at a future date, which constitutes the second branch of private credit, and which we are next to consider, the credit founded on them is circulated, either in the transfers of the ordinary capital in sales, as when the credit of indorsed bills is employed to purchase goods, or in the transfers of the banking capital in loans, as when the credit of indorsed bills is employed to borrow money; the transfer under the latter, when the bill is exchanged for money, being often a further circulation of a credit previously circulated under the former, when the bill was exchanged for goods.

A fictitious bill, that is, an acceptance given without value, vests in the person in whose favor it is drawn a sum of transferable credit not less than would have been the case if it had been the document of a sale, or loan of property. Mr. Thornton, in his treatise on Paper Credit, established the doctrine, till then disputed, that the credit of a bill does not rest upon the nature of the transaction in which it has originated, but upon the conceived ability of the obligants to discharge the debt. The being able to embody in bills every sum of credit, has furnished the means of employing, with incalculable advantage to commerce, a portion of the capital of the country, which otherwise, it is probable, would have remained inactive. The security they afford for the repayment, at a stipulated period, of the sums lent upon them, furnishes the means of an interim employment of money held for after occasions, which the party would not otherwise venture to lend out; of money which formerly lay idle in the hands of parties unacquainted with any safe means of using it; and of the money which traders are daily receiving in the course of their business, but which they do not immediately require. These different sums collected in the hands of a banker, form what is called the banking capital of the country; and which, lent out upon such securities, produces not only a profit to him, but interest to the parties who have placed them at his disposal. The importance of this intermediary fund in the transactions of the country is such, that when, from distrust, at any time, these deposits are withheld or withdrawn from the bankers, the mercantile body is convulsed throughout.

We now come to the second division of credit, that circulated by sale; the documents of the first branch of which are, the negotiable obligations of government, as exchequer bills, navy bills, etc., and the whole of the public funds, constituting what is termed the credit of state. When capital is to be competed for, this credit has an advantage in the market over the former. Its price rises according to the demand; and by that means it is enabled to secure whatever share it may require of the supply. This is not the case with the credit circulated by transfers of capital upon loan, the price or stipulated rent of which can not, whatever may be the demand, rise beyond a prescribed limit. It has the effect, in these circumstances, to force the capital applicable to this part of the circulation to seek the employment of the other; so that the inconvenience produced by an interruption of circulation from a diminution of the general capital, falls entirely upon the circulation of bill credit, the supply for the circulation of the credit transferable by sale being kept full, at the expense of that applicable to the circulation of credit transferable by loan.

The transferable shares of public stock companies, from being occasionally a means of temporary investment of capital, have by some been considered as forming a part of the circulating credit of the country. But this is not the case. The stocks of these companies form a part of the ordinary circulating capital; and of consequence, the transfers of their shares are not operations of credit, but exchanges of capital between the buying and selling parties. The transfers of the premiums, however, paid in the purchase of this description of stock, which, although no part of the capital, form an immediate part of the price, may be fairly considered as a circulation of credit, to be added to the amount of the circulating credit of the country. The mode of circulating this credit being the same with that of the public funds, and its market value rising or falling with the general abundance or scarcity of capital, its circulation, when capital is scarce, immediately interferes with the circulation of credit by simple borrowing.—E. B. See also " Hooper on *Currency*, Boston, 1856. *Bankers' Magazine*, N. Y., 1855–1856. See Hunt's *Mer. Mag.* (C. F. Adams), ii. p. 185. *Democratic Rev.*, ii. p. 167; iii. p. 195; v. p. 147. *Encyclopedia Amer.*

Credit Mobilier. The Crédit Mobilier Bank, according to the provisions of its charter, is a joint-stock company, organized at Paris, for the purpose of developing works of public improvement by consolidating the securities of various enterprises into one common fund. Its capital stock is fixed at 60,000,000 francs, divided into shares of 500 francs each, payable to bearer. It is authorized to subscribe for or acquire public funds, the shares or bonds of any joint-stock company, and more particularly of railways, canals, mining, and other public works, now existing, or hereafter to exist; also to bid for any loan, or for the stock of any kind of public works, and to dispose of and realize the same. It is also authorized to issue its own bonds for an amount equal to its subscriptions and purchases; such bonds may be issued to the extent of ten times its capital (that is, 600,000,000), but they shall not have less than forty-five days to run. This privilege has not yet been availed of, the Government having requested them to postpone the proposed issue of 240,000 bonds (120,000,000 francs) in 1855, in order not to interfere with the forthcoming State loans, as well as to guard against increased embarrassment in the money market. The aggregate amount of money received in account current, and of bonds issued having less than a year to run, can not exceed twice the amount of capital paid in (that is, not over 120,000,000 francs). The company has authority to sell or hypothecate its securities, and to exchange the same for others. It can loan on public funds, shares and bonds, and open credit in account current on the various securities; it can take charge of all collections for account of joint-stock companies, pay their coupons and dividends, and make other disbursements for them. *It is*, however, *expressly understood* (so runs the statute) *that it shall not sell "short" or buy on time.* (*Il est expressément entendu que la société ne fera jamais de ventes à découvert, ni d'achats à prime.*)

The company, which was created in November, 1852, has, thus far, issued but three very condensed and incomplete reports, and extensive as are its operations thus far, it states that from its inability to issue bonds at present, it has not yet been able to show the world the full merits of its working. The reports refer to the operations of the calendar years of 1853, 1854, and 1855, and bear date April, 1854, 1855, 1856.

	1853.	1854.	1855.
	Francs.	Francs.	Francs.
Capital paid in, Dec. 31.........	56,500,000	60,000,000	60,000,000
Accounts current.	65,800,000	64,900,000	103,180,000
Total.........	122,300,000	124,900,000	163,180,000
Invested (together with profits);			
Stocks and Bonds on hand, Dec. 31.	37,260,000	57,460,000	132,000,000
Less Installments not due........	....	....	31,000,000
			101,000,000
Treasury, City of Paris, and other notes...........	20,700,000	29,100,000	14,000,000
Railroad and other Bonds........	17,100,000	17,200,000	32,500,000
Stock contracts...	28,000,000	21,000,000	37,800,000
Total.........	103,060,000	124,760,000	185,300,000
Total purchases through the year	146,000,000	164,000,000	323,000,000
Total sales through the year........	111,000,000	110,000,000	217,000,000

The particular nature of the purchases and sales is not made public. We do not find in the papers before us any reference to the dividends or total profits, except for the year 1855. But the profits or investments and stock transactions at the Bourse alone, amounted to 3,618,000 francs in 1853, and to 6,207,000 francs in 1854; and the profits of all kinds to 26,000,000 francs in 1855. The profits on the "*quick terms*" at the Bourse are set down at 2,000,000 francs in 1853, and

3,400,000 in 1854; there is no means of ascertaining those of 1855, the report being silent on the subject. Full particulars are wanting as to the various transactions of the company relating to subscriptions to the capital stock of new companies, to loans to companies already established, and to the negotiations in which the company, without engaging its fund, acts simply as sponsor and intermediary. But the following comprise the chief transactions which have contributed to give *éclât* to this active corporation: In 1853 it confined itself to previously existing corporations. In 1854 it created the company of the Grand Hotel du Louvre, in the Rue de Rivoli, with a capital of 24,000,000 francs; the Maritime Company (of clippers), with 30,000,000 francs capital; and the Austrian Railway Company, with a capital of 200,000,000 francs, the shares of which were issued in the beginning of 1855. In 1855 it subscribed for a large portion of the new stock of the Saint Rambert Railway, the Western Railroad of France (*Ouest*), and the Central Railroad of Switzerland, and the Elro Canal Company—amounts not mentioned.

In 1853 it took a large amount of the Crédit Foncier bonds, and 30,000,000 francs of the Grand Central Railroad bonds, and 6,000,000 francs of the Viéille Montagne (Zinc) Company's bonds. In the same year it sold out all the Crédit Foncier bonds, and most of the Viéille Montagne; the Grand Central bonds were, most of them, still unsold at the beginning of 1855. In 1854 it took about 5,500,000 francs of the Eastern Railroad (*Est*) bonds, and purchased sixteen thousand bonds of the Dole and Salins Railroad bonds; the amount of these bonds is not mentioned, probably 500 francs each. In 1855 it guarantied the sales of 18,000,000 francs of the Western Railroad stock (*Ouest*), and of 100,000 bonds of the Southern railroads (*Midi*), representing 28,000,000 francs; and it took charge of the loan of 82,000,000 francs for the Austrian Railway Co., which passed rapidly and almost wholly into the hands of German capitalists.

The company acted as sponsor or agent in 1854, for the re-formation of the mines of the Loire, and for the fusion of the several omnibus companies in Paris into one joint concern; and in 1855 for the consolidation of the various Parisian gas companies. It has, moreover, been preparing for two years past the consolidation of the Eastern and Southern Salt Works. It put in a bid for the last government loan of 780,000,000 in behalf of itself and its correspondents, for no less a sum than 625,000,000; but its share was reduced when the bids were adjudicated to 1,281,000 francs of the 3 per cent. rentes. At the close of last year it embarked in grand speculations, which remained unsettled at the date of the last balance-sheet, but they appear there as yielding an estimated loss of 500,000 francs. The amounts received in account current are mostly from large companies, and can only be withdrawn, according to express stipulation, to be expended on their respective works. Individuals are also allowed to make deposits, the company agreeing to take charge of their investment and stock speculation.

In order to fully appreciate the power of this vast machine as a speculative agent, it must be borne in mind that the managers and leading depositors are men in the enjoyment of extraordinary resources of wealth and position, and that in their speculative operations at the Bourse, they and the company all act in concert, thus acquiring a power over the market which nothing, in the absence of extraordinary circumstances, can hope to resist. This power is made the greater from the large amounts employed by the company in carrying stocks for brokers and outside speculators, in the shape of stock contracts, or as the French call them, *reports*, which contracts mostly mature on the same day in each month. The company are thus enabled to depress the Bourse when they wish to buy, by refusing to make new contracts when settlement-day comes, thereby forcing sales on a tight money market; and to promote a rise when they wish to sell, by granting a great increase of facilities to other dealers in stocks.—*N. Y. Times.* See *Bankers' Magazine*, N. Y.: July 1855, July 1856.

Creek (Saxon *crecca*, said to be derived from the Latin *crepido*) is a shore or bank on which the water beats, running in a small channel from any part of the sea. It is also applied to any part of a large river which is resorted to as a harbor or landing-place by small craft. In the United States, the term creek is used as synonymous with the English words brook and rivulet.

Creole. (In Spanish *Criollo.*) A name given to the descendants of whites born in Mexico, South America, and the West Indies; in whom the European blood has been unmixed with that of other races. The various jargons spoken in the West India islands by slaves, etc., are called Creole dialects.

Creosote, or the *flesh-preserver*, from κρεας and σωζω, is the most important of the five new chemical products obtained from wood tar by Dr. Reichenbach. The other four, *paraffine*, *eupione*, *picamar*, and *pittacal*, have hitherto been applied to no use in the arts, and may be regarded at present as mere analytical curiosities. Creosote may be prepared either from tar or from crude pyroligneous acid. The tar must be distilled till it acquires the consistence of pitch, and at the utmost till it begins to exhale the white vapors of paraffine. The liquor which passes into the receiver divides itself into three strata, a watery one in the middle, placed between a heavy and a light oil. The lower stratum alone is adapted to the preparation of creosote. Creosote exists in the tar of beech-word, to the amount of from 20 to 25 per cent., and in crude pyroligneous acid, to that of 1½. It ought to be kept in well-stoppered bottles, because when left open it becomes progressively yellow, brown, and thick. Creosote has considerable power upon the nervous system, and has been applied to the teeth with advantage in odontalgia, as well as to the skin in recent scalds. But its medicinal and surgical virtues have been much exaggerated. Its flesh-preserving quality is rendered of little use, from the difficulty of removing the rank flavor which it imparts.

Cresset, a great light set on a beacon, lighthouse, or watch tower. It also signifies a lamp or torch; a large light or lantern fixed on a pole. Minshen derives the word from the Dutch *keerse*, *kandela*; but it is more probably from the French *croisset*, a little cross—that symbol having been usually placed upon beacons.

Crew, the company of sailors belonging to any ship or vessel. Ready obedience to the lawful orders of their superiors, ability to discharge their duties, and alacrity in their performance, at all times and under the most perilous circumstances, are the distinguishing characteristics of good seamen.—See SEAMEN. See KENT'S *Com. Manual for Consuls.* PARSONS' *Mercantile Law.*

Crimea, a peninsula in the Black Sea, forming part of the Russian government of Taurida, with the mainland of which it is connected by the isthmus of Perekop. It is situate between 44° and 46° N. lat., and 32° and 37° E. long. It is of an irregular square, or rhomboid form, measuring diagonally about 190 miles from east to west, and 123 from north to south, and containing an area of about 8,000 square miles. Its south-eastern, western, and north-western coasts, are washed by the Black Sea, and the eastern by a shallow lagoon, called the *Sivash*, or Putrid Sea, which is connected with the Sea of Azoff by a very narrow strait, and separated from it by a tongue of land, consisting of sand and broken shells, about 70 miles in length, and 1 to 1½ in breadth. The eastern part of the Crimea forms a minor peninsula.

stretching eastward to the strait of Kertsh or Caffa, or Jenikaleh, the ancient Cimmerian Bosphorus, which forms the communication between the Black Sea and the Sea of Azoff, but it is not navigable by large or deeply-laden vessels. The most valuable commercial production is salt, which, as already mentioned, is obtained in very large quantities from *tuzlas*, or salt lakes, near Perekop, Kozlov, Kaffa, and Kertsh. It is a government monopoly, and yields a considerable revenue. The other principle articles of commerce and exports are wine, honey, wax, leather, hides, wool, and lambskins; of the last of which, called *shumski*, great quantities are exported yearly to Poland and other neighboring countries. The only manufacture worth notice is what is called morocco leather, which is produced of good quality. The mountains contain masses of red and white marbles, full of cracks and fissures, which make them well adapted for quarrying, if there were a demand.

Criminals. By the laws of the United States, consular officers are required, in cases of the intended shipment of paupers, or pardoned criminals, to the United States, to give timely notice of the fact, both to the Department of State and to the collector of customs of the port to which the vessel having them on board may be bound; furnishing the names of the parties, a description of their persons, the name of the vessel, and the date of sailing, in order that proper steps may be taken for the enforcement of such police regulations as may have been adopted by the several States upon the subject.—*Manual for Consuls.*

Crockery. In use, and made mention of as produced by the Egyptians and Greeks, so early as 1390 B.C. The Romans excelled in this kind of ware, many of their domestic articles being of earthen manufacture. Crockery, of a fine kind, in various household utensils, was made at Faenza, in Italy, about A.D. 1310; and is still called *fayence* in French. Earthenware vessels were in use among the most ancient nations. Various domestic articles were made by the Romans, 715 B.C. The art was revived and improved in Italy, A.D. 1310. Wedgewood's patent ware was first made in 1762. His pottery in Staffordshire was extended to a variety of curious compositions, subservient not only to the ordinary purposes of life, but to the arts, antiquity, history, etc., and thereby rendered a very important branch of commerce, both foreign and domestic.

Cronstadt, or **Kronstadt**, a strongly-fortified seaport town of Russia, and the great naval station of the Russian fleet in the northern seas, is situated on the island of Kotline (frequently also called Cronstadt, from the town), at the head of the Gulf of Finland, 20 miles west of St. Petersburg, in N. lat. 59° 59′ 26″; E. long. 29° 46′ 30″. The population in 1849 was 25,120; but it varies considerably at different times of the year, and in summer generally amounts to about 50,000. The island of Kotline is in general outline an acute triangle, 7 miles in length by about 1 in breadth, with its base toward St. Petersburg, and its apex extending obliquely seaward. The eastern or broad end is occupied by the town of Cronstadt; and 1½ miles from the western point of the island is the lighthouse of *Tolboochin* or Tolbeacon. The streets are regular, and in general well paved; but the houses, with the exception of those belonging to government, are chiefly of one story. The town was originally built of wood, and wooden structures are still numerous; but such buildings are now forbidden by law, and the majority of the houses are now built of brick, and plastered. Cronstadt is divided into two parts—the *Morskaia chast*, sea district, and the *Koopacheskaia chast*, or commercial district—and into four subdivisions. Of the two canals which traverse the town, that of St. Peter, constructed of granite, is 2,160 feet long, by about 30 yards wide. It commences between the Merchant and Middle Harbors, and is in the form of a cross, of which one arm communicates with a dock, where ten ships of the line can be repaired at once. The Catherine canal, 1,880 fathoms in length, communicates with the Merchant Harbor, and thus enables vessels to take their stores, munitions, etc., directly from the store-houses. Between the two canals stood the old Italian palace of Prince Menschikoff, the site of which is now occupied by a large building used as a school for pilots, and educating above 300 pupils. On the northern side of the island the passage is impracticable, except for very small craft, being obstructed by rows of piles and large masses of stone, extending from the island to Lisi Noss, on the mainland. The southern channel is the only practicable passage from the Gulf of Finland to St. Petersburg, and it is strongly defended on both sides by forts and batteries. The principal of these are Forts Alexander, Risbank, Peter, Cronslott, and that of Menschikoff, already mentioned. The Great Road is commanded by Forts Alexander and Risbank, about 1,600 yards apart. The former, on the left side of the passage, consists of a front with 4 tiers of embrasures, and two flanks of 3 tiers each, and a rear wall mounted with guns *en barbette.* It is built of blocks of granite on a foundation of piles in 18 feet of water, and commands the road by 116 8 and 10-inch guns, all in casemates. Fort Risbank, which was not finished last year (1853), on the opposite side, is also of granite, resting on a foundation of piles, in 16 feet of water, and is armed with tiers of guns of the heaviest calibre. Further eastward, on the left, is Fort Peter, or Citadel Fort, with 3 towers or bastions joined by 2 curtains; the first commanding the approach to the rear of Fort Alexander, while the second and third sweep the main channel. These bastions have 28 guns in casemates, and 28 guns above *en barbette:* the curtains have no casemates, but mount 20 guns *en barbette.* To the right of the Little Road is Cronslott, an irregular pentagon, originally built by Peter the Great. It presents to the sea a low line of timber casemates, forming a battery of 40 guns placed *à fleur d'eau*, and disposed in the half of each of two bastions with a connecting curtain. All this work, however, has been destroyed, and last year (1853) the piles had been driven on which a granite fort was to be built, which by this time (October, 1854) is probably complete. The mole forming the western flank of the Merchant Harbor mounts 70 guns, besides 12 mortars; and the channel, between Cronslott and the mole, is only 250 yards wide. Almost all vessels bound for St. Petersburg touch at Cronstadt, and those drawing more than 7 feet of water load and unload here—the goods being conveyed to and from the city in lighters. Vessels of 10 feet draught have, however, been known to go up with high water. The port is ice-bound during the winter, from November to April. Cronstadt was founded by Peter the Great, 1703.—E. B.

Cronstadt is the port through which the foreign commerce of St. Petersburg is principally conducted. The number of vessels cleared in 1848–49, was as follows:

Years.	Entered.	Cleared.
1848........	1,515	1,470
1849........	1,570	1,550

In these figures Great Britain held the first rank. The number of British vessels entered and cleared was 920, measuring an aggregate of 209,318 tons. Under the French flag there entered and cleared 58 vessels, of 8,598 tons. The total value of French cargoes imported in 1849, reached about $5,000,000, against $1,000,000 of exports direct to France. Official returns for 1853 exhibit a total of 1,898 vessels, under all flags, having entered during that year; and the following table gives the nationality and number of these arrivals from each nation:

Countries.	No. of vessels.	Countries.	No. of vessels.
England......	684	Hanover.......	45
Holland.......	234	Oldenburg.....	42
Denmark.....	199	United States...	41
Sweden......	136	France.........	41
Prussia.......	116	Naples.........	22
Norway	97	Bremen........	8
Lubec.......	89	Hamburg......	8
Russia.......	88	Greece.........	1
Mecklenburg..	52		

Cross-trees, in a ship, pieces of oak timber, supported by the cheeks and trestle-trees, at the upper ends of the lower and top-masts to sustain the frame of the tops in the one, and to extend the top-gallant shrouds on the other.

Croton Oil is expressed from the seeds of an euphorbiaceous shrub, the *Croton tiglium*, a native of Hindostan and of the warmer parts of Asia. The fruit is about the size of a hazel-nut, of an ovate triangular shape, and containing three ovate seeds, about the size of a pea. The kernels of these yield, on pressure, about 50 per cent. of oil, which is of a pale amber color, and a thickish consistence, like castor oil. It has no odor, but has a peculiar acrid taste, which is felt most strongly in the back of the palate and throat. Croton oil is a speedy, powerful, and sure cathartic, in small doses, of one to three drops; and it possesses two valuable properties: 1st, that however active and powerful the purgative action may be, it soon ceases, and leaves no debility; and, 2d, that it excites the biliary secretion, more powerfully than any known medicine. In consequence of one or two drops being a dose, and its action commencing very shortly after its administration, it is invaluable in impending apoplexy, and in almost all diseases in which torpor or paralysis exists. In hydrocephalus, even when effusion of water on the brain appears to have taken place, the late Dr. Abercrombie stated that it would often bring about the recovery of the patient. It is a medicine which deserves far more attention than it has yet received.—E. B.

Crown, in *Commerce*, a common name for coins of several nations, which are about the value of a dollar. See COINS, TABLE OF.

Crown Glass, the best kind of window-glass. The hardest and most colorless, is made almost entirely of sand and alkali, and a little lime, without lead or any metallic oxyd, except a very small quantity of manganese, and sometimes cobalt. Crown glass is used in connection with flint glass for dioptric instruments, in order to destroy the disagreeable effect of the aberration of colors. Both kinds of glass are now made in the highest perfection, in Benedictebura, where Riechenbach's famous manufactory of optical instruments is situated.

Crucibles (*Creusets*, Fr.; *Schmelztiegel*, Germ.) are small conical vessels, narrower at the bottom than the mouth, for reducing ores in docimasy by the dry analysis; for fusing mixtures of earthy and other substances; for melting metals, and compounding metallic alloys. They ought to be refractory in the strongest heats, not readily acted upon by the substances ignited in them, not porous to liquids, and capable of bearing considerable alterations of temperature without cracking; on which account they should not be made too thick. The best crucibles are formed from a pure fire-clay, mixed with finely-ground *cement* of old crucibles, and a portion of black-lead or graphite. Some pounded coke may be mixed with the plumbago. The clay should be prepared in a similar way as for making pottery ware; the vessels after being formed must be slowly dried, and then properly baked in the kiln. Platina crucibles are not fusible, but are too costly for general use.

Cruise. (Germ., *kreutzen, to cross.*) A voyage within certain limits, for the purpose of meeting with enemy's ships, pirates, etc., or for mere exercise, or for the relief of vessels in distress.

Cruisers, in naval affairs, vessels, as the name imports, employed on a cruise. The name is commonly given to small men of war, made use of to secure merchant ships and vessels from the enemy's small frigates and privateers. They are generally formed for fast sailing, and well-manned.

Cuba, the largest and richest of the West India islands, and the most important colony of Spain, was discovered by Columbus on the 28th October, 1492, during his first voyage. It was first called *Juana* in honor of Prince John, son of Ferdinand and Isabella; but after Ferdinand's death it received the name of *Fernandina*. It was subsequently designated *Santiago*, from the patron saint of Spain; and still later Ave Maria, in honor of the Virgin. Its present name is that by which it was known among the natives at the time of its discovery. It was then divided into nine independent principalities, under as many *caciques*.

The island of Cuba is long and narrow, somewhat in the form of an irregular crescent, with its convex side toward the north. It divides the entrance to the Gulf of Mexico into two passages: that to the N.W. being 32½ leagues wide at the narrowest part, between the points of Hicacos in Cuba, and Tancha on the Florida coast; and the S.W. passage 38 leagues wide between the Cabo de San Antonio of Cuba, and the Cabo de Catoche, the most salient extremity of the peninsula of Yucatan. Cuba lies between 74° and 85° W. long., and 19° and 23° N. lat. Its length, following a curved line through its centre, is 790 miles, and its greatest breadth (from Cape Maternillos to Mota Cove) is 107 miles. The area is estimated at 31,468 square miles, or, including the other small islands attached to it, 32,807 square miles. The coast of Cuba is generally low and flat, and is surrounded by numerous islands and reefs, which render the approach both difficult and dangerous to those not acquainted with the proper channels. The low nature of the coast subjects it to frequent floods and inundations; and especially on the north side of the island, there are many large lagoons from which a considerable quantity of salt is obtained. No island, however, in proportion to its size, has a greater number of excellent harbors, many of them accessible even to ships of the line. A range of mountains extends from one end of the island to the other, dividing it into two unequal portions, of which the northern is generally the narrower. The highest are those at the S.E. extremity of the island, to the N.W. of Santiago de Cuba, and have, according to Humboldt, an elevation of 1,200 toises, or 7,673 English feet. This Cordillera is one great calcareous mass, resting on a schistose formation. The summits are for the most part rocky and naked, occasionally interrupted by more gentle undulations. The central and western parts of the island contain two formations of compact limestone, one of clayey sandstone, and another of gypsum. The limestone formations abound in caverns. The secondary formations, east of Havana, are pierced by syenitic and euphotide rocks united in groups. The syenite strata are intercalated with serpentine, and inclined to the N.W. In some places petroleum runs out of rents in the serpentine; and abundant springs of this fluid are also found in the eastern part of the island. The rivers in general are necessarily short, and flow toward the north and south. The largest is the Cauto, rising in the Sierra del Cobre, and falling into the bay of Buena Esperanza on the southern coast, after a course of 50 leagues, for 20 of which it is navigable, though at low water obstructed by bars. The Sagua le Grande rises in the Sierra del Escambray, passes Santo Domingo, and falls into the sea in front of the Boca de Maravillas, being navigable for five leagues. The principal of the other rivers are the Sagua la Chica, the North and South Iatibonica the Cayaguateje, Sasa, Agobama, and the Hanabana. On some of the rivers are beautiful cascades, while several of them flow, during part of their courses, under ground.

The mineral riches of the island have not yet been explored to any considerable extent. Though gold and silver have undoubtedly been found on the island, the quantity has never been sufficient to repay the labor of search. Gold was sent to Spain from this island by the early settlers, but it was more probably the accumulated wealth of the aborigines in previous centuries, wrested from them by tyranny and rapine at the period of the conquest, than the product of honest labor on the part of the colonists. Traces of auriferous sand are found in the rivers Holguin, Escawbray, etc. Some specimens of the finest gold have been obtained in recent times from the workings of Agabama and Sagua la Grande, but at an expense of time and labor that could not remunerate the parties engaged in it. In 1827, silver and copper were discovered in the jurisdiction of Villa Clara, and the first ores gave no less than 7 oz. of pure silver to the quintal (= 107¾ lbs.) of ore; but they have become less productive, probably from not being properly worked. The copper mines near Santiago, in the eastern part of the island, are of great extent, and very rich, employing nearly 900 persons, and yielding an ordinary average of about 27 per cent. of pure metal. They were wrought with some success during the 17th century, but had been abandoned for more than 100 years. About the year 1830, Mr. Hardy, a landed proprietor in the island, happened, when on a visit to that part, to carry off some of the refuse of the old workings in order to subject them to analysis, the result of which was, that the metal was found so rich as amply to repay the expense of sending it to England for smelting. Several other mining companies have since been established; and the amount of copper ore exported in 1850 was 552,288 quintals, or nearly 25,100 tons. Of the 35,683 tons of copper ore imported in 1851 into the United Kingdom, 20,825 tons came from Cuba. Coal of a highly bituminous character, affording a strong heat, and leaving very little solid residue in the form of ashes or cinders, is very abundant. In some places it degenerates into a form resembling asphaltum, and near the coast it is often found in a semi-liquid state like petroleum or naphtha. In the quarries near Havana a thick slate is found, fit for floors and pavements. Marbles and jaspers of various colors, and susceptible of a high polish, are found in many parts of the island, and particularly in the Isle of Pines. It is generally believed that iron exists in various parts of Cuba; and many parts of the great Cordillera undoubtedly contain rocks of a ferruginous nature; but from the difficulty of access, the scarcity of fuel, and the want of capital, no extensive mining operations have been engaged in. Native loadstone, however, has been found in various parts, and chalybeate springs are numerous.

The circulating medium of Cuba, was until lately composed entirely of the precious metals; paper money is now issued by the bank which has just gone into operation. The coins in use are the Spanish doublon, or *onza de oro*, which is a legal tender for 17 hard dollars, and at the ordinary rate of exchange of 8 4-37 per cent., is worth £3 10s. 10d. sterling; and the subdivisions of the doblon, the half, the quarter, the eighth, and the sixteenth—the last being equivalent to a dollar and half a real. The Mexican, Colombian, and other South American doblons are a legal tender for 16 hard dollars, equal to £3 6s. 8d. sterling, and are sometimes in demand for exportation at a premium: their divisions are worth, 8, 4, 2, and 1 dollar respectively. Of silver coins, the Spanish dollar and its divisions, and also Mexican, United States, and South American dollars, are legal tenders at their nominal value.

The principal port is Havana, or Havannah, on the north coast of the island of Cuba, of which it is the capital, the Moro castle being, according to Humboldt, in lat. 23° 8′ 15″ N., long. 82° 22′ 45″ W. The population of the city and suburbs was said to be, in 1851, about 200,000. In 1827, the resident population amounted to 94,023; viz., 46,621 whites, 8,215 free colored, 15,347 free blacks, 1,010 colored slaves, and 22,830 black slaves. The port of Havana is the finest in the West Indies, or perhaps in the world. The entrance is narrow, but the water is deep, without bar or obstruction of any sort, and within it expands into a magnificent bay, capable of accommodating 1,000 large ships—vessels of the greatest draught of water coming close to the quays. The city lies along the entrance to, and on the west side of, the bay. From its position, which commands both inlets to the gulf of Mexico, its great strength and excellent harbor, Havana is, in a political point of view, by far the most important maritime station in the West Indies. As a commercial city it also ranks in the first class. The ports of the island licensed for foreign trade are Havana, Santiago, Puerto Prince, Matanzas, Trinidad, Baracoa, Gibara, Cienfuegos, and Manzanilla. A bank has been recently established in Cuba, under a royal charter.

It is impossible, from the conflicting accounts of the different writers upon the subject, to arrive at any thing like certainty as to the number of inhabitants on the island at the time of its conquest; but it may be estimated at probably from 300,000 to 400,000. There is little doubt, however, that before 1560 the whole of this population had disappeared from the island. The first census of Cuba was taken in 1775, when the population was 170,862. In 1791 it was 272,140. The following table gives the population since that period:

Year.	Whites.	Free Blacks.	Slaves.	Total.
1811	274,000	114,000	212,000	600,000
1817	290.021	115,691	225,268	630,980
1827	311,051	106,494	286,942	704,487
1841	418,291	152,838	436,495	1,007,624
1846	425,769	149,226	323,759	898,752
1849	457,133	164,410	323,897	945,440
1850	605,560	205,570	436,100	1,247,230

Neither of the last two censuses include the garrison, crews of vessels, or the floating population.

The following is a more minute classification of the people of the island, according to the census of 1850:

Creole whites	520,000
Spaniards	30,000
Troops and marines	28,000
Foreigners	10.560
Floating population	17,000
Total whites, 605,560	
Free mulattoes	118,200
Free blacks	87,370
Total free colored population, 205,570	
Slaves, mulattoes	11,100
Slaves, blacks	425,000
Total slaves, 436,100.	
Grand total	1,247,230

The present population, adding garrison and floating population, is nearly 1,400,000. The census of 1846 gives the population of the principal towns as follows: Havana, 106,968; Puerto Prince, 19,168; Santiago de Cuba, 24,005; Matanzas, 16,986; Trinidad, 13,222. The population of Havana, in 1849, is given at 142,002, and in 1850, at 150,561.

The chief agricultural products of Cuba are sugar, coffee, and tobacco. The cultivation of these has advanced with great rapidity since 1809, when the ports of the island were more freely opened to foreigners. The cultivation of coffee advanced for a time with equal or even greater rapidity than that of sugar; but latterly, from the low prices of coffee, the cultivation of sugar has become the more profitable, and in a great measure supplanted coffee. Among the other productions are Indian corn, rice, beans, plantains, cotton, cocoa, pine-apples, lemons, oranges, limes, figs, melons, etc. Of the manufactures, the principal are the making of sugar, molasses, rum, and segars, and the preparation of coffee and wax.

The latest and most reliable statistics of the island present the following divisions of agricultural industry, viz.: sugar estates, 1,442; coffee estates, 1,618; tobacco estates, 9,102; and grazing farms, 9,930, on which are reared about 898,199 head of cattle. Besides these, large herds of cattle are also reared on the extensive and fertile prairies of the uncultivated portion of the island.—E. B.

Politically, the island of Cuba is divided into three departments: the Oriental, the Central, and the Occidental; and these are again subdivided into a number of governments, sub-governments, and colonies. The Central and Occidental departments form the civil province of Havana, and the Oriental the civil province of Cuba.

In 1809, the restrictions imposed upon Cuba, of trading to no foreign country whatever, were removed; and from that period to the present, official returns of the population, agriculture, commerce, and revenue of the island have been annually prepared, and, apparently, with great care. These reports, or "Balanzas Generales," exhibit a regular and marked progress in the industrial and commercial movements of Cuba, from the period above specified—its trade with foreign nations steadily advancing, and the supplies of its more prominent staples regularly keeping pace with the increased demands of an enlarged and comparatively emancipated commerce. In 1775, the entire population of the island was 170,370. In 1850, it had risen to 1,247,230, showing an increase during the intervening 75 years of 1,076,860, or about 700 per cent.

Commerce with Cuba.—The increase of the trade of the United States with the port of Havana over that of all other nations, notwithstanding the bad feeling that has existed between the two countries, is truly wonderful. The Havana *Mercantile Report* of the 7th of August, 1855, gives a statement of the number of vessels, their tonnage, and the nations to which they belong, which entered the port of Havana during the first 6 months of the 10 years last past. The increase in the total tonnage for the first 6 months of the year, from 1846 to 1855, is a trifle more than 100 per cent. While the American tonnage has increased more than 200 per cent., the Spanish and British are nearly stationary. For the first 6 months in 1846, the American tonnage employed in this trade was 71,722; the Spanish, 55,528; and the British, 32,969. The total number of vessels which entered that port during the 6 months ending July 1st, 1855, was 1,080, of a tonnage of 364,933; and of these, 570, of a tonnage of 231,484, were American; 58,338 Spanish; 32,165 British. The French tonnage has increased from 1,761, in the first 6 months of 1846, to 8,269, for the same period of 1854, and 23,283, more than two thirds of the British, in 1855. In the tonnage of other nations, Belgian, Dutch, Danish, Bremen, Hamburg, and others, there has been no material increase. Prior to the removal of the restrictions on foreign commerce, there was some trade carried on between the United States and Cuba, by virtue of Spanish grants and occasional relaxations of the law; but it was generally limited to the importation of articles necessary to supply the people of the island with the means of subsistence.

The wars between the mother country and the Spanish American republics having driven the Spanish flag from the ocean, the laws of differential duties remained in abeyance, and the commerce of Cuba, existing chiefly with the United States, was carried on in American bottoms, which even extended their services to Spain, bringing the oil and wine of the Peninsula to the colonists. The gradual settlement of the difficulties with the revolted provinces enabled the flag of Spain again to come upon the sea, and her mercantile marine received a new impulse. During the period that had elapsed since the opening of the ports, the natural increase of the wants of the colonists, attendant upon an exchange of their products with those of foreign countries, opened a market in Cuba for many of the products of mechanical industry, which found their way there through the ports of the United States; so that, at the close of this era, in the year 1830, the foreign commerce of the island was confined almost exclusively to our marts, to which she looked even for those articles which were not produced in this country. This was the season of the most prosperous commerce between Cuba and the United States. The re-birth of the Spanish merchant-marine brought with it clamors for protection, and the tariff of Cuba was altered, imposing a differential duty upon goods imported in foreign bottoms. The object of this duty was to encourage the employment of national vessels in the trade of the island with this country. Spanish ships very soon made their appearance in American ports, and were rapidly obtaining a large share of the carrying trade, which had, before that period, been enjoyed exclusively by American vessels.

About this time, repeated but unavailing representations had been made to the Spanish government of the injustice of its course in imposing such discriminating duties both on the navigation and commerce of foreign countries, and in favor of Spanish bottoms. Negotiations having proved abortive, a system of defensive or retaliatory measures was recommended, as the only means of self-protection, in an elaborate report made by the Committee on Commerce of the House of Representatives, in May, 1834, which concludes thus: "Your committee, therefore, from a view of all the circumstances, have deemed it their duty to report a bill, authorizing the Secretary of the Treasury to collect such additional tonnage duties upon Spanish vessels entering the ports of the United States from Cuba and Porto Rico as shall be equivalent to the discriminating duty that would have been imposed upon the cargoes of such vessels, respectively, if the same had been exported from Havana in American bottoms; and also upon Spanish vessels clearing out from the ports of the United States, such additional tonnage duty as would be equivalent to the discriminating duty payable upon their cargoes, respectively, if imported into Havana in American bottoms."

The bill reported became a law in June, 1834, and conformably to its provisions, the Secretary of the Treasury, in February, 1835, issued to the collectors of the customs his circular, in the following words: "I have to call the attention of the officers of the customs to the accompanying copy of the act of Congress concerning tonnage duty on Spanish vessels, approved the 30th June last, and which goes into operation on the 1st day of March next. Tabular statements are annexed, showing the rate of duty to be levied, in the nature of tonnage duty, on the arrival of Spanish vessels at any port in the United States, coming from the islands of Cuba or Porto Rico, either directly or after touching at any port or place, laden with merchandise subject to discriminating duty when exported from the port of Havana in American bottoms, together with the rate of duty to be exacted from the aforesaid vessels departing from a port of the United States, with a cargo destined, directly or indirectly, to either of the islands before described."

The above extract from the circular contains, in substance, the first 3 sections of the act of 1834. The 5th section shows the purport and scope of the act, and that it was designed by the committee from which it emanated, as well as by Congress in its adoption, to force the government of Spain into a more liberal and just course of legislation in regard to the commerce between the United States and this island, by placing Spanish vessels, with their cargoes, coming into or departing from the United States, in the same condition, as to imposts of all kinds, that American vessels are subjected to in the colonies of Spain. This equality was demanded as imperatively in behalf of the interests of Cuba and Porto Rico, as in vindication of our commercial rights; and the 5th section expressly limits its continuance and restricts its application to the accomplishment of that end. This section is in these words:

"*And be it further enacted*, That whenever the President of the United States shall be satisfied that the discriminating duties in favor of Spanish bottoms levied upon the cargoes of American vessels in the ports of Cuba and Porto Rico have been abolished, or whenever, in his opinion, a satisfactory arrangement upon the subject of the said duties shall have been made between the United States and Spain, the President is hereby authorized to declare the same by proclamation, and thereupon this act shall cease to have any further force or effect."

In 1849 the Treasury Department ascertained that certain privileges had been accorded on the part of the Spanish government to vessels of the United States entering and departing from ports in the island of Cuba. A circular was immediately issued from that department, which, after citing the provisions of the acts of 1832 and 1834, and specifying the privileges alluded to, says: "It consequently follows, that where no tonnage duty or discriminating duty on the cargoes of American vessels entering or departing from ports or places in the island of Cuba is imposed and collected thereat, Spanish vessels coming from such ports or places are to be similarly treated, as regards tonnage duty, in the ports of the United States. The collectors of the customs are, therefore, instructed to abstain from the exaction of any tonnage duty on Sanish vessels coming from ports or places in the island of Cuba, in ballast, or when laden with cargoes of molasses taken in at either of said ports."

In 1852 a similar circular was issued to collectors, instructing them to admit Spanish vessels arriving from Spanish or any other foreign ports, those of Cuba and Porto Rico excepted [the royal decree of 3d January, 1852, excepted Cuba and Porto Rico from the privileges thus reciprocated], to entry on the same footing as American vessels, as regarded tonnage duty, light-money, and all other dues to the United States, so far as respects vessels. These acts (of 1832–34) have been in force now during a period of 22 years, and, with the exception of the slight privileges which called for the circulars already referred to, have failed to produce the effect contemplated by their enactment. The commerce between the United States and these islands, in the aggregate, has not fallen off; but the increase has not been such as should be expected from the great expansion of our general commerce, and the increased development of the agricultural and industrial resources of Cuba, since that period. The most obvious effect has been to exclude Spanish ships from our ports, and to destroy, in a measure, all that portion of the carrying trade hence to Cuba which comprised articles of foreign product; for the Spanish vessels, no longer permitted to engage in the carrying trade between the United States and Cuba, on more favorable terms than American vessels, were soon driven from our ports, and supplied the wants of the island from the countries where the articles were produced; and thus the hardware, glass, delf, and drygoods of England, that had been previously brought to the United States in American packet-ships, principally, from London and Liverpool to New York, were now directly imported into Cuba; and the same result has attended the carrying trade from France in her silks and fancy wares, and Germany in her cottons, linens, and hosiery.

The following table exhibits the number and nationality of vessels employed in the trade of Cuba during the three years 1826, 1829, and 1834:

ENTERED.			
	1826.	1829.	1834.
Spanish	188	396	797
United States	1,106	969	945
All other	365	337	294
Total	1,659	1,702	2,036
CLEARED.			
	1826.	1829.	1834.
Spanish	127	366	717
United States	914	890	910
All other	247	314	290
Total	1,288	1,570	1,917

An analysis of the preceding figures will show an aggregate increase in the number of vessels entered from 1826 to 1829, of 43; and to 1834, of 377; and in vessels cleared, an increase, for the first period, of 282, and for the second, of 629. The increase in Spanish vessels entered from 1826 to 1829 was 208, and to 1834, 609 vessels. The decrease from 1826 to 1829 in the United States vessels was 137, and to 1834, 161; and the decrease in vessels from all other nations, for the first period, was 28, and to 1834, 71 vessels.

TABLE EXHIBITING THE VALUE OF IMPORTS INTO CUBA DURING THE THREE YEARS 1826, 1829, 1834.

	1826.	1829.	1834.
NATIONAL COMMERCE.			
National vessels	$409,352	$1,460,041	$3,412,487
Foreign vessels	2,449,440	3,501,002	
Deposit	1,759,621	2,521,442	1,134,407
FOREIGN COMMERCE.			
National vessels	314,683	844,826	4,970,013
From United States	5,632,808	5,734,765	3,690,101
From France	1,169,451	1,245,947	906.414
From England	1,323,627	1,837,775	1,676,918
From Hanse Towns	1,293,989	1,005,749	562,690
From Italy, Holland, Portugal, Denmark, and East Indies	572,783	544,309	2,210,270
Total	$14,925,754	$18,695,856	$18,563,300

The preceding tables show an increase in the aggregate value of imports into the island in 1829 over 1826 of $3,770,102; while, during the second period, from 1829 to 1834, this trade remained stationary. A minute analysis of the figures, however, will show the significant fact that, while the carrying trade in Spanish bottoms has risen from $844,826 in 1829 to $4,970,013 in 1834, the imports from the United States, during the same period, fell from $5,734,765 to $3,690,101. During the three years compared, the imports into the United States from Cuba remained stationary, being in 1826 $3,894,597; in 1829, $3,191,535; and in 1834, $3,824,724.

Imports of Flour.—During the periods under review—indeed, at all times—provisions form the largest item in the imports from the United States. The enormous discrimination in favor of the national flag on flour has always had the effect of restricting almost exclusively to national vessels the trade in this article. Thus, in 1829 the value of flour imported into Cuba, in Spanish vessels, was $1,582,768, while from the United States it amounted only to $345,335, and from all other places to $13,662; and in 1849, or twenty years after, the value of flour imported in Spanish bottoms was $2,675,262; from the United States, $9,334; and from all other places, $1,725. The acts of 1832 and 1834 can, unquestionably, be traced in this great falling off in the article of flour; but, that other causes also contributed in securing for the Spanish flag so complete a monopoly of the trade in this article is demonstrated by the fact that, while the value of flour imported from all other places (than the United States) in 1829 amounted to $13,662, representing 1,093 barrels, we find this figure in 1849 dwindled down to $1,725, representing only 138 barrels. That the repeal of these acts would largely augment the export as well as the import trade of the United States with Cuba, there can be no question; but, until the discriminations in favor of the national flag are modified or removed, the carrying trade between the United

States and that island would, under their unequal and unjust operation, be almost exclusively monopolized by Spanish bottoms.

Commercial Policy of Spain.—The restrictive policy of Spain, especially as regards the trade of her colonies, is adhered to to-day, in Cuba and Porto Rico, almost as rigorously as when she was mistress of nearly the entire southern portion of this continent; and the stationary condition of the trade between the United States and these islands since 1834 would seem to indicate the fruitlessness of any efforts to force her from this line of policy by measures of retaliation or countervailing acts. So long as the system itself shall continue to be the colonial policy of Spain but little modification in its details need be looked for, whether the influence to that end be countervailing acts or diplomacy. "Be careful," says the instructions of the king and Council of the Indies to Luis de Velasco, viceroy of New Spain, early in the sixteenth century, "Be careful not to foster manufactures, nor to allow the cultivation of vines, inasmuch as there was always ample provision of these things, and the commerce of the kingdom should not be impaired by such colonial products;" and in the year 1610 these royal instructions were repeated, with the addition of the following emphatic language: "Inasmuch as you understand perfectly how much the observance of these rules is necessary for the dependence of the colonies, we charge and command you to see to their faithful execution." The same spirit that dictated this protection for the wine and oil of Spain, and for the exclusive trade in these articles to her American colonies, in 1610, remains unchanged in any degree (because there is no practical distinction between prohibitive discriminations and positive prohibitions) in the commercial policy, which, in 1856, two centuries and a half later, virtually excludes American flour, and many other staples, for which the inhabitants of Cuba must necessarily look to a foreign market.

Until the system itself is abolished, and Spain adopts the more liberal commercial policy which characterizes the present enlightened age; until she follows the example of Great Britain, Belgium, Holland, and other neighboring countries, in removing all unnecessary shackles from commercial enterprise, the commerce of Cuba, not only with the mother country, but with the United States, and all foreign nations, must remain as it has during the past quarter of a century—crippled, restricted, and struggling; incompetent as a source of revenue to the home government —inadequate to meet the expenses of the colonial, and almost powerless, from the restrictions with which it is burdened, in developing the exhaustless resources of the island, or even in supplying the necessary means of comfortable subsistence to the great bulk of its inhabitants, unless at prices far above their scanty means.

If the government of Spain could be induced to propose, or to agree, to a similar commercial reciprocity with the United States to that now existing between the latter country and the British North American provinces, it would not only supersede countervailing acts and retaliatory measures, by establishing the commercial relations between them on a basis of just and liberal reciprocity; but, it is believed that, while in a very short period it would make the island of Cuba the richest in wealth, as it is in natural resources, of any island of the same size in the world, it would also eminently contribute to cement more strongly, if not render indissoluble, the bonds of union between it and the mother country.

IMPORTS OF TOBACCO INTO THE UNITED STATES FROM CUBA, FOR THE YEARS ENDING JUNE 30TH, 1853, 1854, 1855.

	Unmanufactured.		Segars.	
	Pounds.	Value.	M.	Value.
1853	4,295,530	$764,529	177,944	$2,896,620
1854	4,552,187	700,371	171,822	2,760,229
1855	3,718,986	528,112	157,807	2,531,458

The following table exhibits the value of exports from the United States to Cuba during two periods, embracing three years each:

Years.	Value.	Quantity of Flour.	Value.
1834	$8,690,101		
1835	5,406,919		
1836	6,553,281		
1853	6,287,959	1,537 bbls.	$7,730
1854	8,551,752	11,593	82,489
1855	8,004,582	3,425	33,176

It will be seen from this table that the export trade of the United States to Cuba in 1853 is less than it was in 1836, while the increase in 1854 and 1855 is by no means proportionate to the rapid increase of our general commerce, and of the agricultural products of Cuba. Were the discriminations removed, flour would unquestionably become our leading staple export to Cuba. The importations of this article into Cuba in 1847, were 235,243 barrels, of which 175,870 barrels were from Spain, and 59,373 barrels from the United States. In 1848 the number of barrels imported fell to 231,119, of which only 18,175 barrels were from the United States. The most moderate estimate puts the consumption of flour in Cuba, were it admitted at reasonable duties, at from 800,000 to 900,000 barrels. That this trade would be enjoyed almost exclusively by the United States is evident from the fact that flour is among our heaviest articles of export, and European competition with a country within a few days' sail of the island would be out of the question.

The balance of trade between the United States and Cuba is enormously against the former. In 1853, this balance amounted to $12,297,796; in 1855 it was $10,620,757. The value of 500,000 barrels of flour, fixing the price at $5 per barrel, would be $2,500,000; or one fifth of the balance against the United States would be realized on the single article of flour alone. The increased quantities of bacon, pork, lard, and provisions generally, of domestic manufactures, etc., would render the commerce between this country and Cuba more equal, as well as more just; while the exports from Cuba to the United States would be proportionably augmented. One year's trade, if conducted on principles of reciprocity, would be sufficient to demonstrate the advantages which would result to both countries from the adoption of a policy commended alike by the products and wants of each, respectively, and by every principle of commercial economy.

Great as is the productiveness of Cuba at present, some writers assert that under a good government it would be increared fivefold; its mineral resources would then be fully developed, and it would be able fully to take advantage of its admirable position to develop its trade. The continuance of the present line of policy in reference to Cuba must in time lead to a revolution which Spain will be unable to quell.

Since the adoption of the Spanish tariff of the year 1830, in Cuba, several revisions have been made, and the rates of duty from time to time have been materially diminished, to the eminent advantage of the revenue; but there has still been retained, and in many instances increased, the differential duties in favor of Spanish products and national bottoms. The following instances of the operation of these differential duties will sufficiently exhibit their general character.

Lard.—An article of great consumption in Cuba, imported almost exclusively from the United States, is subject to a duty of 4½ cents per pound when brought from this country in American bottoms; the coarser qualities of oil (olive), which are imported for the same purposes, are delivered with a duty of 2 4-5 cents per pound; and the result is, that 10,000,000 pounds of lard, being a vastly superior article, are imported, while 8,500,000 pounds of oil from other countries, far inferior to lard, are enabled to compete with it in the markets of Cuba, because of the difference in price, in its favor, produced by the duty.

Productions.—Aguardiente (tafia, or rum) is distilled from molasses and the refuse of sugar-works. It is sold per pipe of 125 gallons, with or without cask, according to agreement; good tafia is of not less than 20 degrees, clear and transparent, slightly brown in color, and smooth taste. The exports of this article for the year 1856 were about 15,473 pipes, of which 7535 went to Spain; 150 to the United States; 294 to Great Britain; 2091 to Cowes, or Falmouth and a market; 640 to Hamburg and Bremen; 2637 to France; 583 to Trieste and Venice; 1379 to South America and Mexico; and the balance to Italy, Gibraltar, and a market. The exports of 1855 very considerably exceed any previous year, and from the number of extensive distilleries recently established, the article is likely to form a considerable item of exportation in future. It has commanded the last year as high as $45 and $48 per pipe during a portion of it; at the termination of the year it was quoted at $40 to $42, brisk. The number of pipes shipped were 21,102, of which 840 went to the United States; 3499 to Great Britain; 798 to Germany; 2114 to France; 12,787 to Spain; 809 to South America and Mexico; and the balance to Italy and other countries.

Leaf Tobacco.—Tobacco is one of the most important articles of production in the island of Cuba. The planters commence to plant in August or September, after the heavy rains are over, and when the northers may be looked for, which generally come accompanied by a drizzling rain that is favorable to the plant. In February or March, and as late as April, the tobacco is cut and taken to a house or shed, erected for the purpose of affording shade, and at the same time a free circulation of air; it is placed on *cujes* (poles), laid horizontally at some distance from the ground, where it is allowed to become perfectly dry until the spring rains commence, when the humidity seizes the leaf, causes it to swell, and to take the silky appearance peculiar to it. It is then taken from the poles and laid in a heap on the ground, the leaves being slightly sprinkled with water; in this state it undergoes a species of fermentation. After this operation is gone through, the leaves are placed in *manojos* (hands); afterward it is a very common practice to take a quantity of refuse leaves and infuse them in a certain quantity of water, and, in some instances, wine, and even alcohol, or, rather, tafia is used when the tobacco is light colored and weak, and it is desired to give it increased strength. This infusion undergoes a state of fermentation, after which the refuse leaves deposit themselves at the bottom. The tobacco is dipped into this preparation before being hung up in a room almost air-tight, where it undergoes the sweating, to which the name of *calentura* (fever) is given; the process of dipping is performed as many times as the tobacco may require. I am under the impression that this process might be used to great advantage with the Connecticut tobacco. The qualities of Cuba tobacco vary according to the section or district in which it is produced: that grown on the western end of the island is the celebrated Vuelta Abajo tobacco; that raised in other parts of the island, which is very inferior in quality, is known under the name of Vuelta Arriba. There is another class, called *Yara*, from which Puerto Principe cigars are made.

The best Vuelta Abajo tobacco is grown on the margins of certain rivers, which are periodically overflown, and is called *tobacco de rio*, distinguished from other tobacco by a fine sand found in the creases of the leaves. Good tobacco is aromatic, of a rich brown color (this color is preferred by those who are fond of a strong cigar, but there is many a light-colored leaf that is quite as strong), without stains, and the leaf thin and elastic, burns well without bitter or biting taste. There is probably no production of the earth that offers so many disappointments; the raising of it is subjected to many *contretemps*. If I am not mistaken, only one good crop is made in three years on an average. Tobacco is usually divided into five classes, to wit:

Calidad or Libra: this is the best tobacco; the bales always contain 60 hands or *manojos*, of 4 gavillas or fingers, of about 25 leaves each, and marked £60. The strongest cigar is made with this leaf. Infuriado Principal or Primera (firsts): has less flavor than Libra, and is generally of lighter color. The leaves should be whole and elastic; 80 hands, of 4 gavillas (of 30 leaves), are in each bale, which is marked B 80. Segundas (seconds): many good wrappers in these; but the majority of the leaves are stained, have a bad color, or have been slightly touched by the worm. This wrapper is weaker than the firsts. This class is put up in bales of 80 manojos, of 4 gavillas, each of these of 35 to 40 leaves, and marked Y 2 *a* 80. Terceras, or thirds, constitute the best fillers, and some wrappers are found among them, especially if the tobacco is new. The bales have 80 manojos, of 4 gavillas, having upward of 40 leaves each; the bales are marked 3 *a* 80. Cuartas, or fourths: the most inferior class, fit only for fillers. The bales contain 80 manojos, of 4 gavillas; no determined number of leaves in the gavillas; marked 4 *a* 80. Vuelta Arriba tobacco is put up in the same, or a similar, manner.

It would be difficult, indeed, for any one to attempt to fix prices for tobacco; they vary from, say $10 to $170 generally, but occasionally fabulous prices are paid for that which is very good in quality, and which offers a fair prospect of yielding a large number of cigars. I have it from a very reliable source, that a little over a month since, the celebrated factory of *La Hija de Cabañas y Carbajal* paid the sum of $10,000 cash for a lot of only 45 bales, none of which exceeded 100 lbs. in weight. By the following quotations, given by our latest price-current, it will be perceived how varied the prices are for tobacco:

$120 to $140	for firsts, seconds, and thirds.	
60 to 80	for fourths.	According to quality, selection, and renown; all is Vuelta Abajo.
40 to 50	for fifths.	
20 to 30	for sixths.	
17 to 20	for sevenths and Capadura.	

When tobacco is shipped, it is generally covered with crash.

Cigars are made of all classes of tobacco, and of various sizes and shapes, and therefore of various values. There is probably no manufactured article so difficult to estimate the true value of as cigars; there are certain well-known brands that can command almost any price; they have a fixed value; such, for instance, as those of *La Hija de Cabañas y Carbajal*, *Cabargas*, *Patargas*, *La Higuera*, etc., and even among those of high reputation, and having apparently fixed prices, cigars are delivered at lower rates than those appearing in the bill of rates to persons that advance them large sums of money for the purchase of tobacco, and receive in payment large quantities of these cigars per month. These celebrated brands are known to be the purchasers of the best and highest priced tobacco; at the same time, it is well known that they purchase cigars from smaller factories, make selections with great care, pack them in their own boxes with their own brands, and obtain for these the same prices as for the cigars made at their own manufactories; and just as good an article may be procured elsewhere for half the price. But very few of the cigars proceeding from those celebrated factories are consumed on the island; and there are even some, but comparatively few of whose cigars are sent to the United States, and there are many whose works all go to the States. I mean, in the above remarks, in the way of trade. It would be quite impossible to give any positive figures in regard to the extent of manufacture of cigars in this island; notwithstanding all my diligence in procuring information, and the various modes employed for the purpose, my efforts have failed. The only mode I could find to make an approximating estimate of the quantity manufactured is by estimating first the number of smokers in the island. And here I met one great stumbling-block—"What is the population of Cuba?" It is calculated as low as under one million and as high as one million and a half.

It must be borne in mind that almost every man, and a very large portion of women, in the island smoke cigars; and although it is very true that a large number use the cigarritos or paper cigars, still, it is known that a very large portion of these also consume the other kind, or *puros*. My object has been to ascertain, in the first place, the home consumption. In my efforts to estimate the number of smokers by inquiries from both Spaniards and Germans, I find the estimate varying between 300,000 and 1,000,000. Ten cigars per day is considered about the average quantity consumed by each person. As my basis of calculation, I have put down the number at 400,000. This would give for the consumption of the island the almost incredible amount of 1460 millions of cigars per annum, equal to 1,460,000 boxes of 1000 each. Calculating each thousand to weigh 12 lbs., each smoker consumes 44 lbs. per annum. This, taken in connection with the amount of exports from all parts of the island, that can not be less than the consumption, swells the figures to an extent that is startling, and makes me doubt the basis of my calculation. And yet I am told by many that I am rather under than over the number of smokers, and the quantity they consume per day.—*Consular Report to the Department of State, United States.*

Sugar.—This is considered the greatest staple of the island of Cuba. The grinding of the cane generally commences in the month of December, and the sugars are brought to market from January, and sometimes as early as the middle of December, until July; the greatest quantities come in March, April, and May. There are two kinds made, known as "clayed" and "Muscovado;" the greatest quantity by far is clayed. Of this, the principal division is: Florete, white, yellow, brown, and Cogucho. It is packed on the plantations. The clayed is put in boxes, weighing from 450 to 500 pounds gross; the tare usually is 47 pounds. A merchantable box of sugar must weigh 16 arrobas (of 25 lbs.) net; if a little under, a deduction of 50 cents per box is made; and if much under, the sugar is rejected, as the export duty is upon the box, and it would not be for the interest of the shipper or exporter to accept any box weighing less than 16 arrobas. Muscovado is put in casks, weighing from 1200 to 1500 pounds gross; tare, 10 per cent. Clayed sugar is usually sold in lots, assorted half whites and half yellow or browns, per sample, by licensed brokers; it is examined before received, and that which is not equal to sample rejected. When sugar remains long in store it becomes moist and loses its grain.

The export of sugar from Havana, according to Humboldt, amounted, in the four years, 1760–'63, every year only to about 13,000 boxes. Nine years, 1770–'78, every year only to about 50,000 boxes.

The great increase in the production of sugar in this island commenced about the year 1820, when steam was substituted upon plantations for ox or mule power. Nearly two-thirds of the quantity exported is from Havana, and the largest portion on American bottoms. The official returns of exports can not be considered as correct; for many a vessel has been cleared as laden with a full cargo of molasses when she carried a full cargo of sugars, and thereby not only defrauded the royal revenue of the export duty upon the sugar, but had her tonnage duty not levied or returned to her, and in former years many vessels having a full load of sugars cleared in ballast; but even supposing that they gave the true quantity exported, they certainly give no idea of the extent of the crop. The consumption on the island it is impossible to estimate; the quantity is almost incredible. No country in the world consumes so much sugar as the people of this island in proportion to the population. Rich and poor, every table—almost without exception, exclusive of the negroes upon plantations—is furnished, more or less, with the preserved fruits of the country, and the quantity of preserved fruits sent to all parts of the world is very great. And then is to be considered the sugar that is consumed in a country where every white inhabitant, and a large portion of the colored population also, take coffee three or four times a day. The prospects of the present crop, from all parts of the island, were never more flattering. It is probable that there will be a large increase over the last year's crop. Contracts have already been entered into, paying as high as $22 per box. The boxes and casks are paid for separately, as will be exhibited in the *pro forma* invoices given in continuation. The brokerage upon sugar is 1 per cent., of which the purchaser pays a half per cent. and the seller the other half per cent.—*Consular Returns, United States*, 1854–'55.

Coffee.—The production of this article has rapidly diminished during the last 14 or 15 years on the north part of Cuba, owing to the low prices, scarcity of laborers, and consequent high rates of wages, and the larger profits in the cultivation of the sugar-cane. The berry begins to ripen about August, when the picking is commenced, and continued until December or January next. It begins to flower in February, March, April, or May; the third flower gives the best coffee; the article is brought to market throughout the year; but in December, January, and February, and even as late as March, it comes in greatest quantities. The packing in sacks of from 6 to 8 arrobas of 25 pounds is effected on the plantations; the tare of a sack is 2 pounds. Coffee is sold by regular licensed brokers by sample, and before being received is examined, and if not equal to the sample is rejected. It is usually classed into five grades: Superior, First, Second, Third, and Tréache. There is a class called *Caracolillo*, a round bean, the produce of the first bearing year, when the pods have only one kernel; after the first year the pods have two kernels. Coffee, when a long time in store, loses its aroma, and fades in color; when good, the berries are smooth, equal, and unbroken, free from stones or unpleasant smell, and of a fresh green color. The cultivation of coffee was introduced in the island of Cuba in 1797–'98 by the French emigrants from Hayti. In 1804 the exports were 50,000 arrobas; in 1809, 320,000 arrobas.

It will be observed how sadly the production of coffee has decreased within the last few years. The time is now fast approaching when none will be raised on this side of Cuba, and then the inhabitants will have to depend upon the coffee raised in the district of St. Jago de Cuba, which is still quite large in quantity; and were it not for the immense quantity of beans, corn, and other grain that are roasted and mixed with the real coffee, the quantity of the latter would scarcely suffice for the consumption of a country where it is used in such great quantities. It is believed by many that the time will arrive when the island of Cuba will have to import coffee for the consumption of her inhabitants.—*Consular Returns, United States.*

Custom-house.—Business transacted at the custom-house in Havana is all done in writing, and pretty much all upon stamped paper, mostly at 50 cents a sheet, excepting that for outward register, called *papel de ilustres*, costing $8 the sheet. Vessels that go to outports to load have to pay anchorage and other small fees, averaging some $15 or $16 each. At Cienfuegos every vessel pays the health commissioner $2, and as much more if ordered to quarantine. At Matanzas, besides the charges recovered as here, the government exacts $4, and the royal exchequer $4. At Sagua an extra fee is exacted of $4 if she enters in ballast and leaves with cargo, and $8 if she brings cargo and carries away cargo.

Commerce of the United States with Cuba, from October 1, 1820, to July 1, 1856.

Years ending September 30.	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
1821......	$2,950,055	$1,590,625	$4,540,680	$6,584,849	$265,162	$1,163,253	103.822	3,632
1822......	3,201,045	1,069,573	4,270,618	6,967,054	221,551	590,169	99,838	6,986
1823......	3,271,270	2,134,095	5,405,365	6,952,381	353,406	271,764	105.836	4,756
1824......	3,611,693	2,195,840	5,807,533	7,899,326	262.098	1,102,746	124,388	4,845
1825......	3,276,556	1,844,146	5,120,702	7,556,412	147.515	545,164	111,203	1.212
1826......	3,749,658	2,382,774	6,132,432	7,658,759	408.928	410,506	121,754	2,134
1827......	4,160,747	2,655,341	6,816,088	7,241,849	876.168	478,590	139,381	3,548
1828......	3,912,997	2,490,994	6,403,991	6,123,135	787.010	579,228	130,618	3.909
1829......	3,719,263	1,859,626	5,578,889	4,866,524	532,144	363,920	114,599	8,120
1830......	3,439,060	1,477,675	4,916,735	5,577,230	275,687	362,084	114,054	11,356
Total...	$35,292,344	$19,700,689	$54,993,033	$67,427,519	$4,129,969	$5,867,424	1,165,493	50,498
1831......	$3,634,144	$1,259,698	$4,893,842	$8,371,797	$300,500	$181,774	132,222	17,816
1832......	3,681,397	1,630,754	5,312,151	7,068,857	189,152	91,065	123,588	25,632
1833......	3,966,113	1,706,587	5,672,700	9,754,787	458.228	99,858	133.698	31,081
1834......	3,692,980	1,659,455	5,352,435	9,096,002	143,469	606,665	129,524	29,954
1835......	3,917,436	1,589,372	5,506,808	11.346,615	345,175	266,256	151,313	26,783
1836......	4,601,717	1,803,772	6,405,489	12,734,875	516,142	122,518	166.460	8,329
1837......	4,303,783	2,063,820	6,367,603	12,447,922	507,147	1,648,110	175,796	13,194
1838......	4,721,433	1,454,325	6,175,758	11,694,812	235,280	410,794	193,746	10.618
1839......	5,025,626	1,091,205	6,116,831	12,599,843	178,497	321,314	194,578	12.805
1840......	5,331,471	979,044	6,310,515	9,835,477	149,570	548,163	192,548	15,679
Total...	$42,876,100	$15,238,032	$58,114,132	$104,950,987	$3,023,160	$4,296,517	1,593,473	191,891
1841......	$5,107,011	$632,071	$5,739,082	$11,567,027	$156,461	$134,909	194,001	14,168
1842......	4,197,468	572,981	4,770,449	7,650,429	100,102	235,940	182,456	9,719
1843*.....	2,926,922	399,875	3,326,797	5,015,933	128,495	655,205	136,338	4,897
1844......	4,304,062	934,533	5,238,595	9,930,421	573,910	170,927	224,618	7,588
1845......	6,203,808	360,946	6,564,754	6,804,414	13,699	528,168	171,892	16,193
1846......	4,713,966	773.170	5,487,136	8,159,632	329,801	509,991	177,580	12,338
1847......	6,005,617	972,089	6,977,706	12,394,867	615,774	381,757	243,515	18,493
1848......	6,432,380	464.333	6,896,713	12,853,472	110,049	768,289	281,251	13,435
1849......	4,641,145	668,068	5,309,213	10,659,956	318,800	442,593	284,568	19,564
1850......	4,530,256	460,041	4,990,297	10,292,398	177.355	286,011	254,018	29,703
Total...	$49,062,635	$6,238,107	$55,300,742	$95,328,549	$2,524,446	$4,113,790	2,150,237	146,098
1851......	$5,239,276	$1,284,847	$6,524,123	$17,046,931	$1,034,064	$339,018	361,732	29,942
1852......	5,803,196	714,355	6,517,551	17,861,728	371,657	276,112	370,608	22,780
1853......	5,773,419	514,540	6,287,959	18,585,755	128,830	38,092	365,392	22,730
1854......	8,228,116	323.636	8,551,752	17,124,339	61,736	126,558	398,049	25,188
1855......	7,607,119	397,463	8,004,582	18,625,339	49,372	183,487	481,545	31,190
1856......	7,199,035	610,228	7,809,263	24,435,693	384,062	23,945	488,796	13,386

* 9 months to June 30, and fiscal year begins July 1.

The following table will show the values of lard and oil imported into Cuba, in 1851, 1852, and 1853:

1851	Lard......	$891,743	Olive oil........	$477,259
1852	"	883,775	"	485,264
1853	"	861,036	"	472,783

Meats.—The existence of a differential duty on meats imported in Spanish bottoms, draws the supply of this article in the markets of Cuba from Buenos Ayres to the extent of 30,000,000 pounds annually; while from the United States it comes to a very limited extent, notwithstanding the quality of the article imported from the United States is far superior to that from South America.

The following table exhibits the quantity of jerked beef imported into Cuba during the years, 1850, 1851, 1852, and 1853, and the countries whence exported. The arroba equals about 25½ lbs.

Years.	From the United States.		From Spain, Central and South America.	
	Arrobas.	Dollars.	Arrobas.	Dollars.
1850	5,244	8,860	1,208,016	1,633.101
1851	5.377	7,862	1,376,552	1,673,910
1852	4,419	6,236	1,163,231	1,607,322
1853	674	1,058	1,016,695	1,367,140

The following table shows the exports of sugar from Havana and Matanzas, for the years 1853, 1854, and 1855:

Export of Sugar in Boxes from Havana and Matanzas.

To	1853.	1854.	1855.
United States............	149,574	154,386	197,179
Great Britain............	14,358	67,410	42,053
Cowes, and a market.....	225.513	274,872	213,230
Baltic..................	39,885	15,486	28,968
Hamburg and Bremen...	15,171	44,277	83.683
Holland..................	3,826	7,930	10,992
Belgium	11,626	24,903	25.317
Spain..................	81,750	81,380	196,348
France..................	50.630	67,580	118,803
Trieste and Venice.......	29,682	41,866	19,785
Leghorn and Genoa......	7,507	3,428	5,568
Other Ports..............	5,839	4,737	15,256
Total boxes.........	685,361	787,755	908,177

Table exhibiting the value of Flour imported into Cuba from 1847 to 1853, digested from the "Balanzas Generales" of that Island.

Years.	From Spain.	From the United States.	From England.	From other countries.
1847	$2,137,976	$528,655	$63,684	$14,547
1848	2,650,623	174,405	9,711	25,650
1849	2,672,500	9,332	5,362	125
1850	3,204,928	6,665	1,250	....
1851	3,081.525	26,281	650	....
1852	3,971,909	91,664	2,725	....
1853	2,677,791	29,830	30,149	25

The duty in Cuba on flour imported from Spain is $2 50; on that imported from the United States, in American or other foreign bottoms, is $10 81; the effect of which is to drive the American article entirely from the Cuban market, except at such times as when scarcity may have carried it up to famine point. The tonnage duty that exists on Spanish bottoms is 62½ cents per ton, and on foreign shipping $1 50 per ton, contributing, in combination with other differential duties and restrictions, to the Spanish flag, advantages in the carrying trade of the products of that island to the northern European ports.

The imports of flour into Cuba from the United States, from 1853 to 1856 inclusive, are shown in the following table:

Year ending June 30.	Barrels.	Value.
1853	1,537	$7,730
1854	11,593	82,459
1855	3,428	83,176
1856	8,806	80,066

Board of Trade.—The annual report of the Board of Trade of the island, to the superintendent of the royal treasury, of the general navigation and commercial movements of the island, in the year 1850, sets forth these facts in a manner worthy attention. It shows that in 1850 there had been an increase over the last year of $2,088,226 in the value of goods imported in national vessels, but that the importation in foreign vessels had only increased $574,540; a result to be ascribed to the protective and differential system which favors Spanish over foreign shipping, and on which the present tariff is based. In regard to exportation, exactly the contrary state of facts will appear. In 1850 the exports in foreign vessels increased $2,748,287, while the increase in national bottoms was only $447,104. These different results are traceable to two causes, namely: as to imports, to the discriminations, both in respect of tonnage and tariff duties, in favor of the national flag; and as to exports, to the advantages which foreign vessels, exporting the products of the island, enjoy as national vessels in the countries to which they respectively belong—advantages which, in general, more than countervail the discriminating export duty in Cuba in favor of the national flag.

In the year 1849 the value of importation was $26,320,460, an increase over the previous year of $885,892—an amount much less, however, than had been expected from the steady progress of the island; and in the same time the importation diminished, as it appears, in many articles of provision. Foreign flour, preserved meats, cod-fish, bacon, jerked beef, lard, butter, and foreign wine (although the national wine increased to an amount, in value, $200,000), fell in the scale of quantity, and the article of rice increased more than 8,000 arrobas over the importation of the last year, in consequence of the cargoes of that article from Manilla; so that had it not been for this, and the increased amount of some other provisions imported, articles of manufacture and coin, the yearly account would have exhibited a still more considerable diminution. This state of things was considered by the Board* to be the result of some evident causes, such as the extreme drought, which affected the crops of the season, and the prevalence of cholera in the ports of Europe and the United States, rendering sanitary measures necessary, which interfered with the natural flow of commerce. But, be these causes what they may, a result of the year was an amount of carrying trade under the Spanish flag to the island, of more than $1,000,000 in the value of effects imported; and if the produce of the Peninsula, brought in national vessels, be taken into account, the increase of this branch of business reached, in twelve months, near $700,000, which was considered to be the result of the differential duties existing.

VALUE OF THE IMPORTATION OF RICE INTO CUBA, IN THE YEARS 1848 AND 1849.

From	1848.	1849.
Spain and her colonies........	$228,943	$146,925
Spanish American republics...	101,664	51,418
United States..................	701,118	799,499
Other countries................	15,521	41,234
Total	$1,047,246	$1,039,076

From earlier tables, it appears that in the year 1826 the value of Spanish produce, arriving at Cuba in Spanish ships, amounted to only $409,352; in the year 1830 it reached $3,000,000; it exceeded $5,000,000 in 1840, and at the close of 1848 had risen to more than $7,000,000. Foreign produce brought in national vessels in 1825 amounted to $2,449,440, exceeded $5,000,000 in 1840, and reached near $8,000,000 in 1848, when the Spanish flag, in both commercial movements, came to float a value of $14,936,811. The duties arising on importations in the year 1849, were $5,844,783; on exportations, $584,477; making a total of $6,429,260, diminishing, when compared with the preceding year, in the one instance $436,621, and in the other, $124,836; making a total of $561,457. Foreign flours fell off 16,654 barrels, although the Spanish increased 1,121 barrels; and a general increase of importations of national produce had ensued, and a lessening of foreign, which tended greatly to decrease the amount of duties. The commercial action of 1848 and 1849, and of succeeding years, is illustrated by the following tables, made up from the official exhibits compiled, annually, for the government:

COMMERCE OF CUBA WITH FOREIGN NATIONS, FROM 1848 TO 1854. [FROM THE "BALANZAS GENERALES."]

Countries.	1848.		1849.		1850.		1851.		1852.		1853.		1854.	
	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
Spain..............	$7,088,750	$3,927,007	$7,682,757	$3,113,070	$8,640,625	$3,071,084	$8,500,258	$2,836,328	$10,200,429	$3,882,634	$7,756,905	$3,298,871	$9,057,428	$3,615,692
United States.......	6,933,538	8,285,828	6,578,295	6,301,657	6,653,360	8,359,252	8,148,077	13,222,844	6,552,585	12,076,408	6,799,732	12,131,095	7,867,680	11,641,848
England...........	4,974,545	7,064,798	5,810,670	7,127,420	6,117,669	7,061,056	7,374,958	7,159,896	5,638,824	5,486,677	6,195,921	8,822,835	6,610,909	11,119,526
France.............	1,349,683	1,184,201	1,252,466	1,212,909	1,747,580	1,862,596	1,738,368	1,463,168	2,203,354	1,513,368	2,177,222	3,293,389	2,558,198	1,921,567
Germany..........	1,483,439	3,918,806	1,223,681	1,712,067	2,107,293	1,871,620	1,852,576	2,242,220	1,102,002	1,690,165	1,115,940	1,474,018	1,420,639	1,824,074
Belgium...........	67,385	503,456	402,785	673,562	318,881	963,393	412,283	519,982	493,908	321,260	998,511	466,306	635,866	811,880
Spanish America....	2,166,278	356,774	2,197,630	872,083	2,001,664	578,237	2,759,797	748,068	2,144,618	801,160	1,677,476	514,831	2,145,370	671,380
Portugal and Brazil..	199,027	31,834	12,849	14,720	33,882	....	61,365	....	....	....	....	....	16,245	14,186
Holland	108,035	364,680	194,147	301,365	190,479	554,450	240,875	530,981	243,386	297,152	88,876	246,661	194,390	251,482
Denmark..........	476,750	109,331	357,134	230,754	520,200	279,937	596,010	256,809	657,554	864,366	485,422	403,085	588,824	309,949
Russia.............	....	76,418	....	638,702	....	446,770	....	1,766,482	....	483,218	....	253,688	....	....
Sweden and Norway	....	23,409	....	36,150	....	11,262	27,998	94,369	27,783	15,489	47,756	16,309	14,076	23,694
Austria....	....	....	....	16,964	....	....	....	19,880	....	241,458	....	138,036	....	168,453
Italy...............	17,766	198,722	27,313	185,128	13,297	572,286	27,148	481,151	32,309	380,586	69,022	651,275	24,082	313,779
Deposit............	570,364	....	580,608	....	638,291	....	570,712	....	483,486	....	877,011	....	310,865	....
Total	$25,435,565	$26,077,068*	$26,320,460†	$22,436,556	$28,983,227	$25,681,948	$32,311,430	$31,341,683	$29,780,242	$27,453,936	$27,789,800	$31,210,405	$31,394,578	$32,683,731‡

NOTE.—The totals in these tables, in some instances, differ from the actual amounts of the sums given; but as the fractional parts of the dollar are omitted, and as it is more likely that typographical errors have occurred in the hands of the printer than in the calculations at the Havana custom-house, the figures found in the Balanzas are in no instance departed from.

* To make this total, add for Prussia, $36,800.

† To make this total, add for Prussia, $120.

‡ To make this total, add for Prussia, $5,258.

---

* Balanza General del Comercio de la Isla de Cuba, 1849.

STATEMENT OF THE QUANTITIES OR VALUES OF THE PRINCIPAL ARTICLES OF SUBSISTENCE IMPORTED INTO CUBA, DURING THE YEARS 1848 TO 1854.

Yrs.	Rice.	Codfish.	Spanish Flour.	Foreign Flour.	Beef.	Pork.	Ham.	Lard.	Butter.	Cheese.	Jerked Beef.	Bacon.	Spanish Wines.	Foreign Wines.
	Arrobas.	Arrobas.	Barrels.	Barrels.	Pounds.	Pounds.	Pounds.	Arrobas.	Pounds.	Pounds.	Arrobas.	Pounds.	Dollars.	Dollars.
1848	864,278	883,069	212,944	18,176	819,200	1,113,100	2,529,525	373,706	693,473	1,667,270	1,270,677	658,680	1,248,492	103,340
1849	872,806	577,465	214,240	1,597	326,225	763,400	1,776,038	365,024	763,941	1,306,114	1,184,096	525,209	1,474,105	101.348
1850	917,863	445,695	256,606	845	363,040	910,908	1,837,382	294,391	598,633	1,426,406	1,213,260	353,301	1,700,162	75,371
1851	29,069	524,924	246,697	2,326	439,042	624,200	1,655,500	298,401	594,194	1,422,511	1,381,930	349.223	1,530,330	99,260
1852	837,687	541,742	320,922	7,028	775,350	436,787	776.968	294,509	460,419	1,595,670	1,263,613	457,245	1,681,994	173,403
1853	1,168,672	533,535	214,466	5,100	516,050	623,225	1,122,550	286,680	509,140	794,931	1,017,369	497,105	1,542,795	164,692
1854	1,070,240	621,301	281,397	7,237	769,100	687,495	1,562,652	374,817	462,265	1,250,634	1,376,875	636,925	1,265,068	313,866

STATEMENT OF THE QUANTITIES OR VALUES OF THE PRINCIPAL ARTICLES OF SUBSISTENCE EXPORTED FROM CUBA DURING THE YEARS 1848 TO 1854.

Years.	Aguardiente. (Rum.)	Cotton.	Sugar.	Coffee.	Beeswax.	Woods.	Honey.	Molasses.	Copper ore.	Leaf tobacco.	Segars.
	Pipes.	Pounds.	Boxes.	Arrobas.	Arrobas.	Dollars.	Dollars.	Hhds.	Quintals.	Pounds.	M.
1848	16,339	28,590	1,228,718	694.137	50,110	350,205	56,523	228,726	656,191	6,275,630	161,480
1849	11,640	73,655	1,099,884	877,636	35,691	317,894	48,103	246,570	583,310	4,019,133	123,720
1850	4,825	83,475	1,249,613	520,134	58,194	359,128	55,132	269,044	552,288	7,978,148	212,640
1851	9,221	13,045	1,539,994	575,119	57,453	398,811	69,625	318,428	432,882	9,436,591	270,313
1852	11,359	12,009	1,409,012	739.326	58,591	458,945	78,638	262,593	381,470	9,737,443	142.567
1853	14,294	138,625	1,657,192	442,730	45,946	448,433	85.959	303.331		8,039,797	237,350
1854	25,272	37.262	1,685,751	511.493	71,334	547,818	104,312	261,815	549,553	9,809,150	251,313

STATEMENT OF THE QUANTITIES OR VALUES OF THE PRINCIPAL ARTICLES EXPORTED FROM CUBA, 1848—1854.

[MADE UP FROM THE "BALANZAS GENERALES."]

Articles.	1848.	1849.	1850.	1851.	1852.	1853.	1854.
Coffee ....arrobas	694,137	877,636	520,134	575,119	739,326	442,730	511.493
Cotton.............. do.	1,143	2,946	8,339	521	12,009	5,545	1,490
Cacao.............. do.	3,485	2,170	7,768	7,039	38,614	37,857	18,650
Majaque (cut)...... dollars	7,857	3,368	11,076	28,179	1,458	1,021	59
Beeswax (brown)...arrobas	15,566	16,532	18,234	13,449	27,310	26,406	29,042
Beeswax (white) ... do.	34,544	19,158	39,960	44,004	31.281	19,540	42,292
Tobacco, leaf.......pounds	6,275,630	4,019,133	7,978,148	9,436,591	9,737,443	8,039,797	9,809,150
Turtle-shell........ do.	2,395	3,678	4,884	30,140	3,343	4,363	2,730
Sugar.............. boxes	1,228,718	1,099,884	1,249,613	1,539,994	1,409,012	1,657,192	1,685,751
Molasses........... hhds.	228,726	246,570	269,044	318,428	262,593	303,331	261,815
Copper ore........quintals	656,491	583,310	552,288	432,882	381,470	345,080	549.553
Guano (palm leaf)..seroons	26,044	36,038	53,831	47,361	42,851	4,283	10,411
Aguardiente .... pipes	16,336	11,640	11,825	9,221	11,359	14,294	25,272
Segars...........thousands	161,480	123,720	208,212	270.313	180,610	237,350	251.313
Cigarillos & picado. dollars	110,096	39,110	77,299	105,445	64,796	84,595	178,825
Honey.............. do.	56,523	48.103	55,132	69,625	78,638	85,959	104,312
Fruits, etc .... do.	37,267	24,619	54,547	82,044	83,476	63,106	82,628
Woods.............. do.	350,205	317,894	359,128	898,811	458,945	448,433	547,818
Metals (old)........ do.	102,638	36,592	84.889	62,254	80,126	193,100	99.138
Mats................ do.	48,483	7,692	6,774	7,138	8,008	50,624	12.693
Manufactures .... do.	70,143	47,332	41,037	49,837	236,630	151,522	99,186
Liquids & provisions do.	96,284	106,613	131,093	142,058	107.510	88,456	124,277
Hides.............. do.	7,983	8,150	9,655	5,849	25,548	21.162	21,185
All other articles... do.	174,372	349,492	231,772	260,333	434,376	395,028	130,724
Total value of *all* exports	$26,077,067	$22,436,556	$25,631,948	$31,341,683	$27,453,936	$31,210,405	$32,683,731

STATEMENT OF THE VALUES OF THE PRINCIPAL ARTICLES IMPORTED INTO CUBA, FROM 1848 TO 1854.

[FROM THE "BALANZAS GENERALES."]

Articles.	1848.	1849.	1850.	1851.	1852.	1853.	1854.
Articles of subsistence.							
Olive oil..................	$563,717	$567,440	$707,974	$477,259	$485 264	$472,783	$488.162
Liquids..................	2,042,042	2,164,920	2,448,561	2,347,786	2,563,303	2.359,058	2,736,874
Meats	2,075,129	1,971,262	1,978,011	1,985,423	1,909,393	1,625.657	2,215,029
Spices..................	58.434	62,934	66,558	86,442	92,065	81,146	97.514
Fruits, nuts, preserves.....	240,304	271,017	259,445	287.586	305.374	275,340	275,742
Rice..................	1,075,636	1.092,597	1,138,744	1,159,656	1,046,604	1,072,685	1,000,221
Cereals, flour, pulse, cacao..	3,220,682	3,067,544	3,410,938	3,644,154	4,404,497	3,127,293	4,388,846
Lard and butter...........	1,176,084	1,200,755	968,072	974,781	948 143	941.408	1,197,643
Cheese..................	100,338	149,751	167,924	171,662	186,245	89,416	158,135
Fish..................	723,602	653,680	521,348	619,205	668,424	599,285	878,323
Ice..................	....	189,753	201,837	199,842	72,717	97,942	119,985
Dry goods.							
Cottons..................	2.177.716	2,487,205	2,595,909	3,021,009	2,661,567	3,080,874	2,595,098
Woolens..................	405,851	497.888	522,422	431,702	359,060	487,187	424,673
Linens..................	2,028,350	2,840.982	3,151,798	3,528,084	2,431,564	2,198,592	2,425,195
Silks..................	486,672	330,943	427,967	529,812	598,747	583,165	654,837
Other manufactures.							
Skins and peltries.........	475,152	433,710	476,801	589,457	635,874	703,802	864.825
Wood	2,312,733	1,721,299	1,885,375	2,211,229	2,042,186	1,868,960	2,402,807
Metal..................	188,084	213,266	230,749	280,209	156.985	106,460	167,172
Glass..................	72,284	64,450	95,583	104,504	176,797	217,258	141,510
Iron-ware..................	1,061,893	993,044	1,098,313	1,186,579	1,329,695	1,634,535	1,578,945
Soap..................	420,432	518,315	479,525	515.139	581,067	518,220	529.130
Medicines	99.441	96,430	144,007	168.925	137,136	150,423	142,960
Furniture..................	120,091	94,106	107,932	157,628	131.200	162,963	164.984
Perfumery..................	27,982	43,219	50,478	65,141	103,944	171,646	115,338
Candles, sperm, lard.......	123,882	134,672	178,826	183,901	140,344	171,247	127,871
Tobacco of all kinds.......	22,729	22,676	13,223	20,769	27,672	17,852	20,825
Coin.							
Gold and silver	759,191	858,634	1,361,058	2,511.408	989,424	479,560	238,987
Total value of *all* imports	$25,435,565	$26,320,460	$28,983,227	$32,311,430	$29,780,242	$27,789,800	$31,394,578

In 1851 Cuba imported to the amount of $32,311,430, being an increase over the year 1850 of $3,328,203, which exceeded the importations of 1849 nearly two millions of dollars. The only articles that had suffered diminution were liquids, woolens, and materials for railroad cars.

Under the national flag..................	$19,899,176
Under foreign flags......................	12,412,254
Total importations in 1851, $32,311,430	

NUMBER OF VESSELS ENTERING THE PORTS OF CUBA FROM 1848 TO 1854.

Nation.	1848.	1849.	1850.	1851.	1852.	1853.	1854.
Spanish	875	877	878	883	947	901	928
United States	1,733	1,639	1,596	2,014	1,886	2,307	2,130
English	670	451	498	570	476	368	467
French	85	67	125	116	82	126	100
German	72	58	70	74	60	57	67
Danish	20	11	24	35	32	20	29
Dutch	21	24	20	25	36	24	25
Belgian	23	24	49	61	27	45	24
Span. American	15	9	7	13	11	13	16
Swed. & Norweg.	16	12	25	27	11	17	16
Russian	7	15	22	14	8	7	1
Prussian	2	13	9	7	27	17	4
Sardinian	6	9	11	....	....	....	....
Brazilian	2	3	2	3	2	2	....
Austrian	1	1	18	23	2	8	....
Italian	....	....	2	4	5	6	4
Total	3,548	3,213	3,356	3,869	3,612	3,918	3,811

The imports under the Spanish flag exceeded those of 1850 by $1,444,104—a result that was considered chiefly attributable to the system of duties in force; under foreign flags, the importations, which for several years had rarely exceeded eleven millions of dollars, increased in 1851 to the amount of $1,884,098 over the previous year. The merchandise brought from Spanish ports amounted to more than eight and a half millions of dollars, being $352,181 more than the total imports from the United States; $1,225,300 more than those from Great Britain; $5,740,461 more than those from the former Spanish possessions, and nearly 25 per cent. on the total amount of imports from all countries.

The exports of 1851 exceeded those of 1850 by $5,709,735, which was an increase over 1849 of more than three millions of dollars. The following will show the relative proportion of the exports in Spanish and foreign bottoms in 1851:

	Imports.	Exports.
In national vessels	$19,899,176	$6,204,653
In foreign vessels	12,412,254	25,137,029
Total in 1851	$32,311,430	$31,341,682

Of the exports this was an increase over 1850 of $184,013 in national ships, and $5,525,721 in foreign ships; which was nearly equal to the value of the increased production and exports of the island over the preceding year. The quantity of sugar exported from the island in 1851 was 281,381 boxes over 1850, which exceeded the previous year nearly 150,000 boxes. The increase of the important staples of molasses, coffee, and tobacco (raw and manufactured), though not so great, was highly important. These facts are significant of the force of foreign reciprocal duties, and forcibly demonstrate that any discriminating export or tonnage duty on foreign vessels, sufficiently effective to give this outward movement to the Spanish flag, must fatally injure the productiveness, national commerce, and industry of the island.

The amount of shipping which entered the ports of Cuba during 1850 and 1851, was as follows:

	1850.	1851.	
Under the national flag	24,112	270,176	tons.
Under foreign flags	99,864	727,814	"
Total	123,976	997,990	"

A comparison of the returns for the year 1845 with those for the year under review gives to the Spanish flag an increase, during that period, of nearly one hundred per cent.

The value of the importations diminished in the year 1852 $2,531,188, and the exportations $3,887,746, below those of the previous year. The falling off in imports was on the articles rice, 91,382 arrobas; pork, 187,413 pounds; hams, 878,532 pounds; lard, 3,891 arrobas; butter, 133,775 pounds; jerked beef, 118,317 arrobas; and in exports, on cotton, 1,036 pounds; sugar, 130,982 boxes; molasses, 55,834 hogsheads; copper, 51,412 quintals; segars, 127,746,000. The great falling off in the item of sugar could not have failed to act in a corresponding manner on the amount of tonnage, and measurably, on the value of imports. The importations in 1853 reached an aggregate value of $27,789,800—an amount exceeded, the preceding year, by $1,990,441. The articles which suffered the greatest diminution were codfish, flour, beef, lard, cheese, jerked beef, bacon, Spanish and foreign wines. While thus the value of imports diminished, that of exports considerably increased. The total increase over 1852 amounted to $3,756,468.

The United States exported to Cuba in 1856 goods to the value of $7,809,263, being a decrease on the exportations of the preceding year of $195,319; and imported to the value of $24,435,693, showing an increase of $5,810,254. The total trade between Cuba and the United States is usually about the third part, or 33⅓ per cent., of the total imports and exports of the island. The total number of vessels entering the ports of Cuba in 1853 was 3,918; total number cleared, 3,827. The following table exhibits the nationality of these vessels:

Nationality.	Entered.	Cleared.
Spanish	901	882
United States	2,307	2,173
British	368	461
French	126	121
Belgian	45	26
Dutch	24	18
German	57	67
Danish	20	23
Swedish	17	22
Russian	7	11
Prussian	17	7
Spanish American	13	11
Italian	6	5
Brazilian	2	....
Austrian	8	....
Total	3,918	3,827

In 1854 the total trade of Cuba ascended to $64,078,309, viz.: imports to $31,394, 578, and exports to $32,683,731. This movement exhibited the following result, when compared with the trade of the preceding year:

	Imports.	Exports.
1854	$31,394,578	$32,683,731
1853	27,789,800	31,210,405

An analysis of the returns from which the preceding figures are derived exhibits the following details: Of imports, the increase is perceived especially on the articles codfish, flour (national and foreign), pork, beef, hams, lard, cheese, jerked beef, bacon, and foregn wine; while there was a slight decrease on the articles rice, butter, and Spanish wine. Of exports, the increase fell, chiefly, on rum, sugar, coffee, wax, woods, honey, copper ore, leaf tobacco, and segars; while the articles raw cotton and molasses show a slight falling off. Under the national flag, the increase of importations over those of 1853, was, in value, $2,254,524; in foreign bottoms there was a similar increase of $1,350,453. The increase in exports, under the Spanish flag, was $1,232,759; under foreign flags, $240,566. The exports from Cuba to the United States, during this year, amounted in value to $11,641,813, or more than one third of the exports of the island to all countries; the imports into Cuba from the United States, during the same period, reached, in value, $7,867,680, or over one fourth of the total imports from all countries. Of the imports into Cuba from the United States, only $19,755, in value, was carried in Spanish vessels; while the value of such imports, under foreign flags, reached as high as $7,847,925. The exports from Cuba to the United States were exclusively borne in foreign bottoms—two arrivals, one from Havana, carrying a value of $219; the other from Gibara, with freight amounting to $540: in all, $759—being too insignificant to constitute a noticeable exception.

The following "statements" of revenue collected by the maritime and terrestrial custom-houses of that island in the year 1855, compared with the preceding year, published in the government Gazette, by order of the superintendent-general of the royal exchequer, indicate increased activity of trade; the excess of revenue collected in December, 1855, over the same month in 1854, being nearly $254,000, and the excess for the whole of 1855 over the whole of 1854 amounting to $350,428 43¾.

STATEMENT OF REVENUE COLLECTED IN CUBA IN 1855 AND 1854, COMPARED.

Administrations.	In the year 1855.		In the year 1854.		Increase in 1855.		Decrease in 1855.	
	Maritime.	Terrestrial.	Maritime.	Terrestrial.	Maritime.	Terrestrial.	Maritime.	Terrestrial.
Havana..........	$6,456,359	$2,094,971	$6,416,416	$2,033,226	$39,943	$61,745	....	....
Matanzas.........	869,011	230,900	918,509	205,651	....	25,248	$49,498	....
Cardenas.........	315,560	86,782	329,954	58,943	....	27,839	14,393	....
Trinidad.........	260,561	78,719	216,233	63,903	44,328	14,815	....	....
Villa-Clara.......	....	68,534	....	63,608	....	4,925	....	....
Sto. Espiritu.....	....	83,584	30,114	69,010	....	14,573	30,114	....
Sagua la Grande..	132,511	31,865	115,878	29,010	16,633	2,854	....	....
Cienfuegos.......	354,272	84.429	359,891	59,650	....	24,779	....	....
Remedios.........	58,715	37,269	48,322	41,301	10,392	....	....	$4,031
Cuba	626,699	364.520	674,362	296,378	....	68,142	47,663	....
Manzanillo.......	62,148	34,709	75,585	30,834	....	3,874	13,437	....
Gibara...........	42,710	7,578	40,170	8,111	2,540	....	....	532
Bayamo..........	....	50,092	....	37,539	....	12,552	....	....
Holguin..........	....	30,876	....	24,712	....	6,163	....	....
Baracoa..........	3,498	11,043	22,910	7,267	....	3,776	14,411	....
Nuevitas.........	74,451	9,921	95,654	9,818	....	102	21.503	....
Sta. Cruz.........	10,600	630	17,950	635	....	....	7,350	5
Guantanamo.....	16,961	14,529	12,936	8,525	4,025	6,003	....	....
Pto. Principe.....	....	183,950	....	177,159	....	6,791	....	....
Lottery departm..	....	1,096,429	....	939,492	....	156,937	....	....
Total.........	$9,288,761*	$4,601,338	$9,374,891	$4,164,779	$117,863	$441,127	$203,992†	$4,569

Revenue collected in 1855, $13,890,100,‡ and in 1854, $13,539,671, an increase in 1855 of $350,428.

* Error in original: the figures should be 9,284,061. † Error of $5,618—excess. ‡ Error of $4,700—excess.

It may be proper to remark in this place, that the *Balanzas Generales*, from which the preceding and subsequent tables are derived, are not to be considered as giving the precise quantities and values of the commercial exchanges of the island of Cuba with foreign nations. They, doubtless, present the minimum amounts of each, as it would seem to be the policy of the custom-house officials, by whom these annual reports are prepared, to undervalue the foreign trade of the island. As far back as the year 1825, the unreliability of these Balanzas, as authority in statistical compilations, requiring precise accuracy, was noticed by Baron Humboldt, in that portion of his "Personal Narrative" which relates to the island of Cuba. Alluding to them, he observes: "I have examined, in another work, fifteen years since, the basis upon which are founded the tables published under the fallacious title of 'Balanzas de Comerico.'" Since that period, it would seem that but little improvement has been made in the preparation of these annual exhibits of trade; for the Department is officially advised, as late as 1853, that, in respect of values, the amounts stated in the Balanzas are fully one fourth less than the real market value both of imports and exports. However this may be, the statements and tables given are all which are accessible; none other being published or prepared; and for all useful purposes, they will serve the statistician as well as if the greatest accuracy had been attained.

The commerce of Cuba with foreign nations for the year 1854, is fully set forth in the annexed statements, taken from the "Balanzas Generales" for that year. It is followed by two other tables, made up from the Balanzas, designed to illustrate the commercial movements of Cuba during a period of twenty-nine years, from 1826 to 1854, both inclusive; while a third table exhibits a comparative view of the foreign commerce of Cuba and Porto Rico, with the duties received, and the number of vessels entered and cleared, during a period of seven years, from 1848 to 1854.

COMMERCE OF CUBA WITH FOREIGN NATIONS FROM 1826 TO 1840. [MADE UP FROM THE "BALANZAS GENERALES."]

IMPORTS.

Years.	National commerce.	In national vessels.	United States.	England.	Spanish American ports.	France.	Hanse Towns and Netherlands.	Ports of the Baltic.	Italy and Portugal.	Deposit.	Total.
	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.
1826	2,858,793	314.683	5.632,808	1,323,627	....	1,169,451	1,631,125	16,849	218,794	1,759,621	14,925,754
1827	2,541,322	349.728	7,162,695	1,618,371	....	1,472,204	1,640,011	192,826	309,047	2,066,646	17,352,854
1828	4.523,302	431,553	6,599,096	1,770,085	....	1,635,855	2,082.906	176.027	282,584	2,033,508	19,534,922
1829	4,961,043	844,826	5,734,765	1,837,775	....	1,245,947	1,346,875	87.886	115,293	2.521.442	18,695,856
1830	4,739,776	1,051,538	4,791,544	1,745,388	....	721,648	1,701,358	81,958	102,116	1,236,283	16,171,562
1831	4,121,829	1,825,890	4,690,308	1,465.983	....	669,604	1,808,899	20,632	50,582	895,061	15,548,791
1832	3,576,707	3,178.596	3,542,936	1,257,964	....	805,824	1,918,197	33.843	87,884	796,512	15,198,465
1833	3,185,781	4,777,580	4,461,472	1,625,173	1,371,786	927,491	1,145,967	90,931	96,754	828,193	18,511,132
1834	3,412,487	4,970,013	3,690,101	1,676,918	1,747,224	906,414	855,363	19,215	151,151	1,134,407	18,563,800
1835	3,508,349	5,200,955	5,406,919	1,689,465	2,084,552	904.140	619,211	55,687	145,443	1,107,345	20,722,072
1836	4,470,725	5,680,070	6,553,281	1,522,429	1,579,588	817,445	766,959	59,068	92,628	1,009,771	22,551,969
1837	4,659,153	4,966,191	6,548,957	1,373,964	1,099,367	861,360	565,048	28,341	95,450	2,639,521	22,940,357
1838	4,460,987	6,163,152	6,202,002	1,439,300	1,713,650	816,954	916.498	79,193	64,593	2,873.545	24.729.878
1839	5,320,515	7,108,704	6,132,794	1,770,499	1,467,125	714,664	552,078	124,405	36,099	2.087.911	25,217,796
1840	5,295,261	6,634,718	5,654,125	1,437,199	915,541	618,461	1,010,291	47,914	29,492	3,357,172	24,700,189

EXPORTS.

Years.	National commerce.	In national vessels.	United States.	England.	Spanish American ports.	France.	Hanse Towns and Netherlands.	Ports of the Baltic.	Italy and Portugal.	Deposit.	Total.
1826	1,992.689	186,878	3.894.597	1,583,474	....	1,162,218	2,998,154	478,223	200,761	1,312,839	13,809,888
1827	2,284,250	184.059	4.107.449	1,605,073	....	1,043,618	2,651,083	487,288	439,402	1,483,966	14,286,192
1828	1.556,224	711.479	3,176,964	1,611,820	....	754,812	2,809,229	783,521	237,289	1.473,020	13,114,362
1829	2,292.580	562.653	3.191,535	1,729,404	....	907.808	2,406,813	904,920	303,540	1,653.247	13,952,405
1830	3.740.747	543.267	4,266,782	1,223,594	....	757,736	2,448,290	1,035,268	334,137	1,521,144	15,870.968
1831	2,193,761	727,338	3,921,592	1,567,720	....	441,058	2,188,299	544,839	443,466	890,644	12,918,711
1832	2,173,537	993.404	3,108.466	2,101,686	....	360,999	2,590,813	1,135,525	393,574	737,009	13,595,017
1833	1,854,714	1,274,040	4,386,885	910.981	19,678	531,321	1,771,881	1,137,774	250,511	858,813	13,996,100
1834	2,074,592	1,401,568	3,824,724	2,080,387	16,214	667,431	2,289,782	1,081,284	101,443	954,615	14,487,955
1835	1,801,092	1,114.695	4,365,569	1,754,676	10,275	603,985	2,076,001	994,771	158,926	1,179,252	14,059,246
1836	2,348,453	917,783	5,513,924	1,700,115	36,185	489,654	1,934,935	1,029,570	264,730	1,132,942	15,398,245
1837	2,919,474	1.294,282	5,792,623	2,990,466	248,323	1,344,608	2,713,586	644,018	528,106	1,875,918	20,346,407
1838	2,692,159	1,532,840	5,574,591	3,083,328	30,562	771,572	2,698,163	1,646,953	366,643	1,674,287	20,471,102
1839	2,719,792	1,951,785	5,528,045	5,141,098	70,985	845,906	2,054,088	266,401	424,905	2,478,848	21,481,848
1840	3,473,630	2,044,441	5,660,739	6,749,438	37,219	908,605	2,835,620	924,398	319,941	2,987,745	25,941,783

COMMERCE OF CUBA WITH FOREIGN NATIONS, 1854.

EXPORTATION.

Ports.	Spain.	United States.	Great Britain.	France.	Germany.	Belgium.	Brazil.	Spanish America.	Denmark.	Holland.	Italy.	Sweden and Norway.	Portugal.	Austria.	Deposit.	Total.
	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.
IN SPANISH VESSELS.																
Havana	2,668,190	219	2,425,414	43,483	368,378	878,064	5,636	482,049	....	....	233,664	....	....	....	....	6,605,099
Matanzas	299,288	....	199,379	4,330	48,580	31,538	....	45,229	....	31,831	....	....	....	14,849	....	675,028
Cardenas	21,090	....	17,656	....	....	....	....	....	....	....	....	....	....	....	....	38,746
Trinidad	82,411	....	52,163	6,874	....	....	....	....	....	2,809	....	....	....	....	....	144,258
Cienfuegos	112,259	....	28,016	6,820	....	....	....	....	....	....	....	....	....	....	....	145,096
Nuevitas	84,021	....	12,948	....	....	....	....	....	....	....	....	....	....	....	....	96,969
Sagua la Grande	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
St. Jago de Cuba	253,576	....	53,934	88,357	189,363	....	....	59	963	14,206	....	...	....	....	....	600,460
Gibara	88,449	540	....	....	42,243	....	....	....	....	....	....	....	....	....	....	131,233
Manzanillo	6,405	....	11,171	4,108	5,387	....	....	....	....	12,571	....	....	....	....	....	39,598
Baracoa	....	....	....	....	30,121	....	....	....	....	....	....	....	....	....	....	30,121
Total	3,615,692	759	2,798,684	153,972	684,024	409,602	5,636	527,338	963	61,418	233,664	....	....	14,849	...	8,506,607
IN FOREIGN VESSELS.																
Havana	....	2,829,159	3,688,261	1,099,809	470,092	359,418	....	144,009	299,977	170,892	80,115	28,694	8,550	....	....	9,179,238*
Matanzas	....	2,177,500	2,041,317	250,549	223,551	33,194	....	....	....	14,000	....	....	....	153,604	....	4,893,716
Cardenas	....	1,911,191	124,032	....	....	....	....	....	....	....	....	....	....	....	....	2,035,223
Trinidad	....	566,808	310,019	....	142,793	....	....	....	....	1,877	....	....	....	....	....	1,027,497
Cienfuegos	....	1,770,841	304,115	76,349	6,107	....	....	....	....	....	....	....	....	....	....	2,157,413
Nuevitas	....	219,278	18,962	....	....	....	....	....	....	....	....	....	....	....	....	238,241
Sagua la Grande	....	1,097,093	164,785	....	....	....	....	....	....	....	....	....	....	....	....	1,261,879
Remedios	....	333,757	78,818	....	....	....	....	....	....	....	....	....	....	....	....	412,575
Santa Cruz	....	37,526	33,745	....	10,739	9,665	....	....	....	1,630	....	....	....	....	....	93,306
Santo Espiritu	....	88,036	103,472	....	12,232	....	....	....	....	....	....	....	....	....	....	203,741
St. Jago de Cuba	....	374,771	1,321,356	306,955	142,054	....	....	32	....	1,664	....	....	....	....	....	2,146,834
Gibara	....	14,078	3,913	....	72,375	....	....	....	....	....	....	....	....	....	....	90,367
Manzanillo	....	95,264	88,066	....	60,105	....	....	....	....	....	....	....	....	....	....	243,436
Baracoa	....	87,008	....	....	....	....	....	....	....	....	....	....	....	....	....	87,008
Guantanamo,	....	38,738	39,975	33,931	....	....	....	....	....	....	....	....	....	....	....	112,644
Total	....	11,641,054	8,320,842	1,767,594	1,140,050	402,277	....	144,041	299,977	190,064	80,115	28,694	8,550	153,604	....	24,177,123
Total of exports	3,615,692	11,641,813	11,119,526	1,921,567	1,824,074	811,880	5,636	671,380	309,949	251,482	313,779	28,694	8,550	168,453	....	32,683,731

	IMPORTATION.				EXPORTATION.			
	1854.	1853.	Increase.	Decrease.	1854.	1853.	Increase.	Decrease.
	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.
National flag	20,675,948	18,421,624	2,254,524	....	8,506,607	7,273,847	1,232,759	....
Foreign flag	10,718,629	9,368,175	1,350,453	....	24,177,123	23,936,557	240,566	....
Total	31,394,578	27,789,800	3,604,777	....	32,683,731	31,210,405	1,473,325	....

	DEPOSIT.			
	1854.	1853.	Increase.	Decrease.
	Pesos.	Pesos.	Pesos.	Pesos.
Importation	706,871	961,715	....	254,844
Exportation	703,229	500,072	203,156	....
Taken out for consumption	291,259	375,603	....	84,344

* In this sum 5,258 pesos are added for Prussia, omitted in the list.

COMPARATIVE SUMMARY OF THE COMMERCE OF CUBA, FROM 1841 TO 1854. [FROM THE "BALANZAS GENERALES."]

Years.	VALUE OF IMPORTATION.			VALUE OF EXPORTATION.			EXPORTATION OF THE PRINCIPAL PRODUCTIONS OF THE ISLAND.						
	In national vessels.	In foreign vessels.	Total.*	In national vessels.	In foreign vessels.	Total.	Sugar.	Molasses	Brandy.	Coffee.	Copper ore.	Tobacco, raw.	Tobacco Manuf'd
	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Pesos.	Boxes.	Hhds.‡	Pipes.	Arrobas.§	Quintals.	Pounds.	SegarsM
1841	14,113,783	10,967,625	25,081,408	7,148,674	79,625,940	26,774,614	829,432	131,390	11,302	1,235,006	693,060	5,757,577	170,171
1842	14,387,736	10,249,791	24,637,527	6,976,584	19,708,117	26,684,701	817,643	119,138	10,227	1,998,846	783,971	5,942,833	150,289
1843	13,363,741	10,058,354	23,422,096	6,950,888	18,078,903	25,029,712	889,103	191,093	13,810	1,631,782	768,650	7,208,238	257,997
1844	13,218,858	11,837,377	25,056,231	5,552,746	19,873,845	25,426,591	1,009,565	172,431	6,326	1,240,032	2,003,587	4,633,768	128,505
1845*	16,969.796	11,037,764	28,007,560	6,708,501	12,084,310	18,792,872	475,286	121,322	4,120	559,322	869,922	6,674,873	158,581
1846	13,651,329	8,974,069	22,625,399	5,818,881	16,181,707	22,000,568	987,742	203,597	9,032	817,662	635,654	8,826,047	153,356
1847	15,648,870	16,740,248	32,389,119	6,549,357	21,449,413	27,998,770	1,274,811	252,840	19,732	932,154	565,495	9,309,506	244,812
1848	15,222,318	10,213,247	25,435,565	5,045,093	20,031,974	26,077,098	1,228,718	228,726	16,339	694,137	656,491	6,275,630	161,480
1849	16,366,844	9,953,615	26,320,460	5,573,535	16,863,021	22,436,556	1,099,884	246,570	11,640	877,137	583,310	4.019,133	123,720
1850	18,455,071	10,528,155	28,983,227	6,020,639	19,611,308	25,631,948	1,249,613	269,044	4,825	520,134	552,288	7,978,148	212,640
1851	19,899,176	12,412,254	32,311,430	6,204,653	25,137,029	31,341,683	1,539,994	318,428	9,221	575,119	432,882	9,436,591	270,313
1852	20,325,751	9,454,490	29.780,242	7,018,017	20,435,918	27,453,936	1,409,012	262,593	11,359	739.326	381,470	9,737,443	180,610
1853	18,421,624	9,368,175	27,789,800	7,273,847	23,936,557	31,210,405	1,657,192	303,331	14,294	442,730	345,080	8,039,797	237,350
1854	20,675,948	10,718,629	31,394,578	8,506,607	24,177,123	31,683,731	1,685,751	261,815	25,272	511,493	549,553	9,809,150	251,313

Years.	NUMBER OF VESSELS WHICH ENTERED THE PORTS OF THE ISLAND.				AMOUNT OF DUTIES RECEIVED IN THE COMMERCIAL MOVEMENT.		
	National vessels.	Foreign vessels.	Totals.	Tonnage.†	Duties on importation.	Duties on exportation.	Total.
					Pesos.	Pesos.	Pesos.
1841	1,053	1,981	3,034	467.839	5.943,819	1,322,644	7,266,464
1842	884	1.773	2,657	472.106	6,005,632	1,377,714	7,383,346
1843	815	1,770	2,585	477,792	5,396,339	1,590,677	6,987,017
1844	855	2,380	3.235	597.920	6,020,403	1,140,228	7,160,631
1845*	917	1.715	2.632	473,015	5.396.416	574,331	5.970,748
1846	847	2.244	8.091	550,158	5,413,422	739,379	6,152,802
1847	819	2,922	3,741	689,770	6.601,233	893.097	7,494,331
1848	875	2.673	3,548	728.285	6,174,533	709,325	6,883,858
1849	877	2,336	3,213	712.572	5,844,783	584,477	6,429,260
1850	878	2,478	3,356	874.014	5,964,147	757,103	6,721,250
1851	883	2,986	3.869	997,990	6,668,842	1,793,992	8,462,834
1852	947	2,665	3.612	622,016	7,225,784	1,647,302	8,873,086
1853	902	3,014	3,916	713,340	7,013,534	1,816,782	8,830,317
1854	928	2,884	3,812	742,794	7,796,652	1,947,043	9,743,696

* From 1841 to 1845, these totals include the value of goods placed on deposit, as well as of those actually imported or exported, and are thus considerably augmented. Prior to 1845, no distinct column was devoted to deposit in the Balanza General; but since that year such distinction has been observed, and the result is perceived in the diminution of the amounts of values.

† Prior to 1845, but one column was devoted to tonnage, no distinction being made between the tonnage of national and foreign vessels in the Balanza; but since that year such distinction has been made, though it is not regarded in this statement.

‡ Of 36 gallons.

§ Arroba=25½ pounds.

GENERAL COMPARATIVE STATEMENT OF THE AMOUNT AND CHARACTER OF THE COMMERCE OF CUBA AND PORTO RICO FROM 1848 TO 1854, WITH THE AMOUNTS OF DUTIES RECEIVED, AND THE NUMBERS OF VESSELS ENTERED AND CLEARED, AND THE RESPECTIVE TONNAGE OF THE SAME.

[FROM THE "BALANZAS GENERALES."]

CUBA.

Years.	IMPORTATION INTO CUBA.				EXPORTATION FROM CUBA.				DUTIES RECEIVED.	NO. OF VESSELS & TONNAGE.			
	NATIONAL PRODUCTS.	FOREIGN PRODUCTS.		TOTAL IMPORTS.	FOR THE NATIONAL TRADE.	FOR THE FOREIGN TRADE.		TOTAL EXPORTS.		ENTERED.		CLEARED.	
	In Spanish vessels generally.	In Spanish vessels.	In foreign vessels.		In Spanish vessels generally.	In Spanish vessels.	In foreign vessels.			No.	Tonnage.	No.	Tonnage.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.				
1848	7,088,750	8,133,567	10,213,247	25,435,565	3,927,007	2,118,086	20,031,974	26,077,068	6,883,858	3,548	728,285	2,949	No data.
1849	7,682,757	8,691,714	9,945,988	26,320,460	3,113,070	2,460,464	16,863,021	22,436,556	6,429,260	3,213	712,572	2,899	Do.
1850	8,640,625	9,824,259	10,518,341	28,983,227	3,071,084	2,957,783	19,603,080	25,631,948	6,721,250	3,356	874,014	3,151	Do.
1851	8,500,258	11,413,927	12,397,245	32,311,430	2,836,328	3,382,787	25,122,567	31,341,683	8,462,834	3,865	997,990	3,733	Do.
1852	10.200,429	10,199.731	9,380.082	29,780,242	3,882,634	3,135,383	20,435,918	27,453,936	8,873,086	3,617	622,016	3,274	Do.
1853	7,756,905	10,791,648	9,241,247	27,789,800	3,298,871	3,974,976	23,936,557	31,210,405	8,830,317	3,916	713.340	3,827	Do.
1854	9,057,428	11,631,852	10,705,298	31,394,578	3,615,693	4,890,914	24,177,123	32,683,731	9,743,696	3,812	742,794	3,667	Do.
	PORTO RICO.												
1848	1,148,079	1,793,370	1,528,301	4,469,751	660,820	238,816	4,695,500	5,595,136	1,034.239	1,056	118,910	1.129	123,250
1849	1,011,000	2,319,032	1,651,550	4,981,583	464,128	237.823	4,700,419	5,402,371	1,082.307	1,095	124,851	1,126	129.573
1850	1,356,961	1,879,488	1,985,579	5,222,029	283,916	271,860	5,321,542	5,877,319	1,189,001	1,206	132,040	1,179	131,767
1851	1,542,717	2.210,062	2,321,089	6,073,870	562,451	280,840	4,918,682	5,761,974	1,069,418	1,324	160,586	1.209	154,042
1852	2,030,947	2,122,784	2,144,663	6,298,395	409,618	349,718	3,893,002	4,652,339	1,259,173	1,452	175,836	1,352	168,766
1853	1,411,004	2,194,375	1,730,530	5,335,910	440,406	335,090	4,523,881	5,299,327	1,051,887	1,338	151,663	1,225	154,867

General Port Regulations. 1. Ships leaving with a full cargo of molasses are free of tonnage duties.

2. Ships arriving in ballast, and leaving in the same state, pay no tonnage duty; but if they should take return cargoes of the fruits, or other articles of the island (entire cargoes of molasses only excepted), they pay the regular duty.

3. Ships arriving in distress for water, or other necessaries, are free from tonnage duty; but when they discharge the whole or part of their cargo (unless every part is again taken in, and *no more*), or load with produce, foreign or native (molasses excepted), they are subjected to the entire tonnage duty.

4. Vessels, foreign or national, which have left a port of the island, having paid the proper tonnage duty, and which enter any port of the island to repair damages they may have sustained at sea, by reason of storm or other casualty, are exempt from further tonnage duty.

5. Vessels entering the ports of the island with mineral coal, in equal or greater quantity than the number of tons per their register, pay only 50 cents per ton for tonnage duty, even if they bring other merchandise besides. They are also exempt from all other local charges (excepting captain of the port's fees), such as ponton and health dues, custom-house visits, entry and clearance fees, wharfage, stage-hire, etc. Such as bring coal, solely, in less quantity than their tonnage measure, pay 50 cents per ton upon the portion occupied by coal; and the difference between this portion and the number of tons that the vessel may prove to have, by Spanish measurement, will be subjected to the payment of the full tonnage duty; but these vessels are allowed the exemption from all other charges except captain of the port's fees.

Vessels having on board, besides coal in less quantity than their measurement, other cargo, are in the same case respecting the tonnage dues, but are subject to the ponton, health visits, registering and other usual dues. Mail steamers, recognized as such, are permitted to bring and carry 3 tons of cargo without paying tonnage dues. If the cargo discharged exceeds 3 tons, they pay duty on such excess over and above the 3 tons. Vessels going from one port to another of the island, carry a sea-letter of introduction to the custom-house of the other port, stating that the regular charges have been paid. This letter costs $4. By order of November 4, 1854, all vessels having to perform quarantine must go either to Havana or to St. Jago de Cuba for that purpose. Quarantine fee, $1 per day. Besides the foregoing general regulations, which are in force at all the ports of the island, there are others of a more local character, applicable to some, and not to others. These relate more especially to tonnage and port duties, and other charges.

The tonnage duties and other charges at the principal ports are subjoined:

AT HAVANA.

Nature of charges.	Foreign vessels pay	Spanish vessels pay
Health visit, per ton*	$0 03	$0 03
Government interpreter	2 00	....
Captain of the port's fees: on entering	8 00	3 00
on clearing	3 00	3 00
Translation of manifest	4 00	....
Tonnage duty, per ton†	1 50	0 62½
Light dues, per ton	0·06¼	0 03⅛
Ponton dues, per ton	0 21⅞	0 21⅞
Wharfage dues, per ton	0 01¼	0 01¼
Custom-house fees: Inward visit	5 50	5 50
Outward visit	5 50	5 50
Annotation fee	2 00	2 00
Extract of Manifest, from	4—6 00	4—6 00
Register dues (for each daily return of cargo discharged, whether one or one thousand packages)	5 50	5 50
For outward register and stamp paper	8 25	8 25
Bill of health, over 150 tons	6 00	6 00
under 150 tons	4 00	4 00

* This fee is received by the boarding physician, and is applied to the general board of health. He receives the bill of health, which must be authenticated by the Spanish consul at the port of departure, under a penalty of being sent to quarantine for seven days, and a fine of fifty dollars.

† Per Spanish measurement; in addition to this duty, one per cent. balanza upon the result of the tons, multiplied by 1¼, is charged.

Pilotage. It is optional for a vessel to take a pilot, unless she goes into the inner harbor beyond the shoals; in which case, whether she takes one or not, she has to pay $10 coming in as far as the inner harbor, $10 going out, and $10 from any part of the outer harbor into the inner. Foreign men-of-war pay no port charges. If a pilot is taken, the rate charged is the same as paid by Spanish men-of-war.—$7 in, and the same out.

AT BARACOA.

Nature of Charges.	Foreign vessels pay
Tonnage duty	$1 50
Anchorage	12 00
Free pass at the fort	3 00
Health officers' fee for boarding vessels	8 00
Custom-house interpreter's fee	5 00
Custom-house officer's fee to visit on board, to seal and unseal, so long as the vessel is discharging	5 00
Opening vessel's register	8 00
Register of despatch	8 00

AT SAINT JAGO.

Nature of charges.	Foreign vessels pay	Spanish vessels pay
Health visit, per ton	$0 03⅛	$0 01½
Government interpreter	2 00	....
Custom-house interpreter	4 00	....
" inward visit	5 50	5 50
" outward visit	5 50	5 50
Extract of manifest	0 50	0 50
Custom-house officer, per diem, while vessel is discharging	5 50	5 50
On aggregate amount of tonnage duty, per cent	1 00	1 00
Light-house dues, per ton	0 06¼	0 03⅛
Captain of port's fee	12 50	12 50
Fort pass	0 50	0 50
Pilotage	4 00	4 00
Wharfage per diem, on 100 tons	1 50	0 75
Wharfinger	1 50	1 50
Stamped paper	10 00	10 00
Clearance	8 50	8 50
Telegraph	4 00	4 00
Duty per ton	1 50	0 62½

AT TRINIDAD, MATANZAS, AND CARDENAS.

Nature of charges.	FOREIGN VESSELS PAY		
	At Trinidad.	At Matanzas.	At Cardenas.
On aggregate amount of tonnage duty	One per cent.	....	....
Light dues, per ton	$0 06¼	$0 06¼	....
Pilotage for schooner, in and out	22 00	Entering and leaving with or without pilot, $12 00..	When drawing 7 to 10 feet, $12. Each additional foot, $2.
" brig, "	29 00		
" bark or ship, "	34 00		
Entering in ballast, per day	3 25	....	....
" with cargo, while discharging, per day	5 50	Whole expense, $28	Anchorage, $6 00.
Clearing in ballast	2 75	Opening register and clearing, $27......	....
" with cargo	21 50		....
Governor's fee	8 00	$1 00	....
Health visit, per ton	0 03	0 03	....
Captain of the port	10 00	6 00	....
Fort pass	1 00	$2 50 (and stamps)..	....
Mud-machine duty, per ton	0 21⅞	....	....
Look-out man	1 00	....	....

Mode of Collecting Duties. The collection of the duties is made in a very simple manner. The island of Cuba is divided into customs intendencies, of which Havana is the principal. The intendency is organized into seven branches, viz.: the intendant, the superior counsel of the hacienda, the tribunal of accounts, the accountant-general, the treasurer-general, the administration of the customs, and the administration of the internal revenue. The administration of the customs is comprised of the administrator or collector, the accountant, and the treasurer. When a vessel arrives at the Havana, she is first boarded by the health officer, after whom comes the revenue officer and the smuggling-preventive service. A copy of the custom-house regulations, in Spanish, French, and English, is handed to the captain, and a manifest required of him of all the particulars of his vessel and cargo. Every article on board the vessel, omitted in the manifest, is subject to confiscation. Within forty-eight hours after the entry of the vessel, every consignee must deliver detailed statements of the articles coming to him, with their quantities, weights, and measures, all reduced to the legal standard.

All the documents and papers relating to a vessel, are stitched together in a book, with the signatures and seals of all the government officers, through whose hands the several documents pass. A copy of this book is made for the use of the inspectors and appraisers; the latter function being restrained within very narrow limits, by a printed tariff of all articles of import, with a valuation to each, which valuation, in a great degree, defines the duties of the *ad valorem* character. As fast as the inspection and appraisement take place, the consignee is permitted to remove the goods, by procuring the signature of some responsible person to the words inscribed in the book, "I make myself answerable for the duties." The inspection and appraisement being concluded, the book is returned to the accountant's office, where the liquidation of the duties is forthwith made. The payment is then proceeded with. These payments are mostly cash; that is to say, on some articles, whatever may be the amount, cash is required; upon other articles, the duties are cash under $1,000.

If the amount is greater, a credit of one fourth is given for sixty days, and one fourth payable at the end of each succeeding month—making five months' credit in all. The security for this credit consists simply in the promissory note of the consignee, without indorsement, with the power, in case of a failure, to convert every other note of the same individual into a cash debt; the individual to be forever after incapacitated to enter goods, except for cash.

This system has been in force many years, and under it no loss whatever has been sustained by the government.

Formerly, the same credits required the endorsement of a holder of real estate; but this was abandoned on account of its insecurity.—MACGREGOR'S *Statistics; U. S. Com. Dig.* For further information, refer to *Am. Quar. Rev.*, vii. xi., 230; HUNT'S *Mag.*, vi., vii., xvii.-xxi., 519; *North. Am. Rev.*, xxix.; DE BOW'S *Rev.*, viii., p. 313, ix., 164; *Ch. Examr.*, vi., 259, xxiii., 82; FRASER'S *Mag.*, xii.; LITTELL'S *Living Age*, xxii.; *Foreign Quar.*, iii., p. 400; BLACKWOOD, xl.; *Southern Quarterly*, iv., xxi.

Cubebs (German *Kubeben;* French, *Cubebes;* Italian, *Cubebi;* Spanish, *Cubebas;* Russian, *Kubebii;* Latin, *Piper Cubeba;* Arab, *Kebàbeh;* Javanese, *Kumunkus;* Hindostan, *Cubab-chinie*), the produce of a vine or climber extensively grown in Java. It is a small dried fruit, like a pepper-corn, but somewhat longer. Cubebs have a hot, pungent, aromatic, slightly bitter taste; and a fragrant, agreeable odor. They should be chosen large, fresh, sound, and the heaviest that can be procured.

Cubit. This was a measure of the ancients, and is the first measure we read of; the ark of Noah was made and measured by cubits.—HOLDEN. The Hebrew sacred cubit was two English feet, and the great cubit eleven English feet. Originally it was the distance from the elbow, bending inwards to the extremity of the middle finger.—CALMET.

Cucumber, a tropical plant, of which there are many varieties, largely cultivated in hot-houses in England.

Cucumber-tree. *Magnolia acuminata.* In all parts of the United States where this tree is found, it is known only by the name of *cucumber-tree.* It is a beautiful vegetable, equal in height and diameter to the big laurel. The most northern point at which this tree grows, is near the falls of Niagara, in latitude 43°. It abounds along the whole tract of the Alleghanies, to their termination, in Georgia, over a distance of 900 miles. It is also found on the Cumberland Mountains. The situations peculiarly adapted to its growth are the declivities of mountains, narrow valleys, and the banks of torrents, where the air is constantly moist, and where the soil is deep and fertile. At the distance of forty or fifty miles from the mountains, either way, this tree is met with only accidentally upon the steep banks of rivers, where the atmosphere is constantly refreshed by the evaporation from their surface. We may conclude, then, that this tree is a stranger to all parts north of the river Hudson, and to all the Atlantic parts of the United States, to the distance of 100, 150, and 200 miles from the sea; the nature of the soil, and the extreme heat of the climate in summer, being utterly uncongenial to its growth. It is also rare in the parts of Kentucky and West Tennessee which are most remote from the mountains, where the face of the country is less uneven. The cucumber-tree sometimes exceeds 80 feet in height, with a diameter of 3 or 4 feet. The trunk is perfectly straight, of a uniform size, and often destitute of branches for two thirds of its length. The summit is ample and regularly shaped, and the tree is one of the finest in the American forests. The leaves are 6 or 7 inches long, and three or four inches broad, upon old trees; upon saplings growing in moist places, they are sometimes twice as large.

On old stocks the bark of this tree is grayish, and deeply furrowed. The perfect wood is soft, and of a yellowish brown. It is fine-grained, and susceptible of a brilliant polish.

Being a rare tree, it is only accidentally employed in the arts. Sawn into boards, it serves in joinery for the interior of wooden houses, and for its size and lightness, it is selected for large canoes. Most of the inhabitants of the country bordering on the Alleghanies, gather the cones of this tree about midsummer, when they are half ripe, and steep them in whisky; a glass or two of this liquor, which is extremely bitter, they habitually take in the morning, as a preservative against autumnal fevers.—BROWNE'S *Sylva Americana.*

Cudbear, a purple or violet-colored powder, used in dyeing violet, purple, and crimson, prepared from a species of lichen (*Lichen tartareus* Lin.), or crustaceous moss, growing commonly on limestone rocks in Sweden, Scotland, the north of England, etc. About 130 tons of this lichen are annually exported from Sweden. It commonly sells in the port of London for about 20*l.* per ton; but to prepare it for use it must be washed and dried; and by these operations the weight is commonly diminished a half, and the price, in effect, doubled. Though possessing great beauty and lustre at first, the colors obtained from cudbear are so very fugaceous, that they ought never to be employed but in aid of some more permanent dye, to which they may give body and vivacity. In this country it is chiefly used to give strength and brilliancy to the blues dyed with indigo, and to produce a saving in that article; it is also used as a *ground* for madder reds, which commonly incline too much to yellow, and are made *rosy* by this addition. The name cudbear was given to this powder by Dr. Cuthbert Gordon, who, having obtained a patent for the preparation, chose in this way to connect it with his own name.—BANCROFT, *Philosophy of Colors.*

Culeus, in *Roman Antiquity*, the largest measure of capacity for things liquid, containing twenty amphoræ or 40 urnæ; equivalent to 115 gallons, 1·6 pints English. Culeus also denoted a sack or bag. Parricides were punished at Rome by being thrown into the Tiber in a sack, along with a cock, an ape, and a viper.

Culm (Welsh *cwlm*), a variety of coal. It is difficult of ignition, but burns for a long time, without flame or smoke, but emitting a disagreeable smell. It does not cake, and it leaves but few ashes. Culm is the *bitumen oxygenatum* of Linnæus, and the *glanz kohle* of Werner. It is otherwise known as *anthracite.*—See *Coal.*

Culna, in Hindostan, a town in the British district of Burdwan, presidency of Bengal, on the right bank of the river Hooghly, on the route from Cutwa to the town of Hooghly, 26 miles east of the city of Burdwan. It is the port of the district, and has long been noted for its trade in rice, grain, silk, and cotton. Of late years the traffic of the place has greatly increased, in consequence of its being found a convenient station for steamers plying between Calcutta and the upper provinces. The bazaar consists of 1000 shops, and the population of the town has been stated at 60,000. Lat. 23° 14′; long. 88° 20′.

Culpee, a town of Bengal, district of Hooghly, on the eastern bank of the river Hooghly. It stands 33 miles below Calcutta, at the mouth of a creek that gives shelter to boats from the impetuosity of the tide, which runs there with great violence. Opposite the town is the place of anchorage for large ships which can not get higher up the river. The shores here are a bed of mud, and the banks of the river are covered with thick jungle. Culpee is considered extremely unhealthy, on account of the swamps and woods by which it is surrounded. E. long. 88° 18′; N. lat. 22° 6′.

Cumberland river, a large river of Kentucky and Tennessee, which flows through Kentucky and falls into the Ohio. Its entire length is about 600 miles, and navigable for large steamboats to Nashville, 203 miles, and for boats of 15 tons, 300 miles. Large quantities of cotton, corn, and tobacco, are transported by flat-boats and steamboats from numerous counties on this river, to New Orleans.

Cummin-seed (Ger. *Kumin;* Fr. *Cumin;* It. *Comino, Cumino;* Sp. *Comino;* Arab. *Kemun*), the seeds of an annual plant (*Cuminium cyminum*, Lin.), a native of Egypt, but extensively cultivated in Sicily and Malta. They have a strong, peculiar, heavy odor, and a warm, bitterish, disagreeable taste. They are long and slender.

Cumnock, or **Old Cumnock,** a village of Ayrshire, in Scotland, on the Lugar Water, 12 miles east of Ayr. It is noted for the manufacture of snuff-boxes, similar to those of Laurencekirk, the peculiarity of which is the "invisible wooden hinge." See article *Snuff-boxes.*

Cupel, a shallow earthen vessel, somewhat of a *cup* shape, generally made of bone earth. It is used in the assays of the precious metals, which are fused upon a cupel with lead. Cupellation means the refining of gold or silver upon a *cupel.*

Cupellation is a mode of analyzing gold, silver, palladium, and platinum, by adding to small portions of alloys, containing these metals, a bit of lead, fusing the mixture in a little *cup* of bone earth called a *cupel,* then by the joint action of heat and air, oxydizing the copper, tin, etc., present in the precious metals. The oxyds thus produced are dissolved and carried down into the porous *cupel* in a liquid state, by the vitrified oxyd of lead. See *Assay, Gold,* and *Silver.*

Curacoa. This island is situated in the Caribbean Sea, near the coast of Venezuela, and is about 42 miles long, and from 10 to 15 miles broad. The chief staples are tobacco, sugar, indigo, and maize. There are numerous harbors, but that of Santa Anna is considered the best and safest. The principal merchandise exchanged in the coasting-trade of Curaçoa consists of hides, goat-skins, dye-woods, corn, cochineal, sugar, indigo, and hats. The chief article of internal trade is salt, this being the only article manufactured for export. The following table exhibits, in one view, the general commerce of the island with the United States during three years, ending with 1853. It will be seen that the export trade to the United States is yearly increasing, and that in 1853 the increase over 1851 is nearly 100 per cent.

TABULAR STATEMENT OF SHIPMENTS FROM THE ISLAND OF CURACOA TO THE UNITED STATES DURING THE THREE YEARS ENDING JUNE 30TH, 1853. [MADE UP FROM CONSULAR RETURNS TO THE DEPARTMENT OF STATE, WASHINGTON.]

Denomination of merchandise.	1851.			1852.			1853.		
	Number, weight, or measure.		Value.	Number, weight, or measure.		Value.	Number, weight, or measure.		Value.
Aloes	pounds	20,208	$1,429	pounds	11,351	$742	pounds	13.345	$887
Arrow-root		....	....	"	2,084	197		....	....
Balsam		....	....		....	....	pounds	1,710	320
Bay water	dozen	6	14		....	....	puncheon	1	23
Barilla	barrels	400	622		....	....		....	....
Cochineal	pounds	4,352	3,298	pounds	9,746	8,801	pounds	1,285	1,324
Copper	"	9,725	1,495		....	....		....	....
Cotton		....	....	pounds	8,740	982	pounds	108	10
Divi Divi	bags	1.204	1,545	bags	2.231	1,706	bags	921	764
Goat-skins	number	237,000	89,934	number	242.887	95,169	number	247,685	101,599
Guano		....	....		....	....	barrels	27	101
Hats	dozen	1,723	11,461	dozen	5,237	33,928	dozen	15,912	107,373
Hides	number	22,621	89,164	number	20,752	38,894	number	17.521	39,600
Iron		....	....		....	....	pounds	9,200	28
Ivory nuts		....	....		....	....	"	52,315	1,181
Linseed	kegs	3	4		....	....		....	....
Mahogany		....	....	logs	161	875		....	....
Old copper		....	....	pounds	52,012	4,722	pounds	34.110	6.060
Orange peel		....	....		....	....	"	1,600	150
Ox horns	number	9,006	330	number	1,292	24		....	....
Palm leaf	packages	150	11		....	....	bunches	200	112
Peanuts	barrels	11	14		....	....		....	....
Pimento		....	....	bags	104	669	bags	39	212
Rum		...	....	puncheons	120	2,547		....	....
Salt	barrels	19,982	5,372	barrels	11,011	3,105	barrels	43,434	18,185
Segars	boxes	232	1,286	M.	140	562	M.	230	996
Sugar		....	....	pounds	243,856	5,606	pounds	294.247	7.556
Sirup		....	....		....	....	gallons	973	360
Tobacco	pounds	8,127	439		....	....	pounds	24,494	1,892
Tortoise-shell		....	....		....	....	"	114	513
Wood	tons	608	6,582	tons	757	9,046	tons	613	9,846
Wool	pounds	7,429	662	pounds	24,270	1,784	pounds	12,745	1,084
			$163,668			$208,866			$300,136

Curacoa, a liqueur which derives its name from the island of Curaçoa. It is prepared in great perfection by the Dutch. It derives its flavor from Seville orange peel, with a small quantity of cinnamon and mace.

Curmi (*κοῦρμι*), in *Antiquity,* a sort of malt liquor or ale, made of barley, and which, according to Dioscorides, was used by many nations instead of wine. That writer also relates that in the western part of Iberia, and in Britain, a similar beverage was in his time prepared from wheat.

Currants (Fr. *Raisins de Corinthe;* Ger. *Korinthen;* It. *Uve passe di Corinto;* Lat. *Passulæ Corinthiacæ;* Rus. *Korinka, Opock;* Sp. *Pasas de Corinto*), a small species of grape, largely cultivated in Zante, Cephalonia, and Ithica, of which islands they form the staple produce; and in the Morea, in the vicinity of Patras. The plant is delicate; and as 6 or 7 years must elapse, after a plantation has been formed, before it begins to produce, its cultivation requires a considerable outlay of capital. The crop is particularly liable to injury from rains in harvest, and is altogether of a very precarious description. After being dried in the sun, the currants are exported packed in large butts. They are in extensive demand in Europe and the United States, and, when mixed with flour and suet, make a dish that is peculiarly acceptable to the lower classes.

Current (Lat. *currens,* from *curro,* to run, to flow), literally signifies running, flowing, passing. Hence, passing from person to person, or from hand to hand; circulating, as current opinions, current coin. In commerce it is applied in an analogous sense to the price of any commodity: as current value—that is, the ordinary or present value. As applied to time, it is equivalent to now present or passing: as the current month or year. It is applied chiefly to the progressive movement of fluids, especially of air, electricity, and water.

Currents in the ocean arise from various causes, either occasional or constant. They may be occasioned by an external impulsion, for example, a gale of wind; from a difference in the temperature of different parts of the sea; from the inequality of evaporation, the melting of the polar ice, or in short any cause tending to disturb the hydrostatic equilibrium. It is difficult in many cases to trace their causes, or to give any satisfactory theory of their existence; but on account of their importance to navigation they have been observed, especially of late years, with great care. Among those which have a permanent or general character, there are two which are very remarkable. The first is that of the tropical waters westward round the globe, and the second that which constantly flows from each pole toward the equator. The tropical or westerly current is chiefly confined within the zone, extending to about 30° on each side of the equator, and its velocity is estimated by Humboldt at about 9 or 10 miles a day. In the Atlantic it separates into two branches, one of which forms the *Gulf Stream;* and the other flows along the coast of Brazil, and passes through the Straits of Magellan. The Gulf Stream flows northward through the middle of the Atlantic, till it reaches the Cape Verd Islands; it then passes through the Caribbean Sea, between Cuba and the peninsula of Yucatan, sweeps round the Gulf of Mexico, and rushes out by the Bahama Channel; then, spreading out to a greater breadth, it continues its course along the shores of the United States to Newfoundland, where it is deflected eastward by a current setting in from Baffin's Bay; and, passing the Azores and Canary Islands, returns in a great measure into itself. Its breadth is 51 leagues in the Bahama Channel, and velocity from 3 to 5 miles an hour. (MURRAY'S *Geography*, p. 186.) The polar currents flow constantly from the poles toward the equator, though it is evident that their sources must be supplied by currents in a contrary direction. Their existence is proved by the great masses of ice which are carried every year from the polar seas to tropical latitudes. Oceanic currents, by carrying with them the temperature of the regions whence they flow, contribute in no small degree to modify the temperature of the atmosphere, and give a character to the climate of the countries to which they are contiguous. On the parallel of New York, Humboldt found the temperature of the Gulf Stream 72° of Fahrenheit, while out of the current, the heat of the ocean at the surface was only 63°. The current which flows along the eastern coast of Africa, and doubles the Cape of Good Hope in a stream 130 miles broad, is from 7° to 8° warmer than the contiguous sea. See *Gulf Stream.*

Currents of water, like currents of air, meeting from various directions, create gyrations, which in some parts of the sea, as on the coast of Norway, assume the appearance of whirlpools, as though the water were drawn into a chasm below. The celebrated Maelstrom is caused by such a conflict of tidal or other streams. Admiral Beechey, R.N., has given diagrams illustrative of many "rotatory streams in the English Channel, a number of which occur between the outer extremities of the Channel tide and the stream of the oceanic or parent wave." "They are clearly to be accounted for," says he, "by the streams acting obliquely upon each other." It is not necessary to associate with oceanic currents the idea that they must of necessity, as on land, run from a higher to a lower level. So far from this being the case, some currents of the sea actually run up hill, while others run on a level. The Gulf Stream is of this class. The currents which run from the Atlantic into the Mediterranean, and from the Indian Ocean into the Red Sea, are the reverse of this. Here the bottom of the current is probably a water level, and the top an inclined plane, running *down hill.* Take the Red Sea current as an illustration. That Sea lies, for the most part, within a rainless and riverless district. It may be compared to a long and narrow trough. Being in a rainless district, the evaporation from it is immense; none of the water thus taken up is returned to it either by rivers or rains. It is about 1,000 miles long; it lies nearly north and south, and extends from latitude 13° to the parallel of 30° north.

Mediterranean Currents.—With regard to an under current from the Mediterranean, we may remark that there is a current always setting in at the surface from the Atlantic, and that this is a salt-water current, which carries an immense amount of salt into that sea. We know, moreover, that that sea is not salting up; we might infer the existence of an undercurrent, through which this salt finds its way out into the broad ocean again.

The Currents of the Indian Ocean.—By carefully examining the physical features of this sea, and studying its conditions, we are led to look for warm currents that have their genesis in this ocean, and that carry from it volumes of overheated water, probably exceeding in quantity many times that which is discharged by the Gulf Stream from its fountains. The Atlantic Ocean is open at the north, but tropical countries bound the Indian Ocean in that direction. The waters of this ocean are hotter than those of the Caribbean Sea, and the evaporating force there is much greater. That it is greater, we might, without observation, infer from the fact of a higher temperature and a greater amount of precipitation on the neighboring shores. These two facts, taken together, tend, it would seem, to show that large currents of warm water have their genesis in the Indian Ocean. One of them is the well-known Mozambique current, called at the Cape of Good Hope the Lagullas current. Another of these currents makes its escape through the Straits of Malacca, and, being joined by other warm streams from the Java and China Seas, flows out into the Pacific, like another Gulf Stream, between the Philippines and the shores of Asia. Thence it attempts the great circle route for the Aleutian Islands, tempering climates, and losing itself in the sea on its route toward the north-west coast of America. Between the physical features of this current and the Gulf Stream of the Atlantic, there are several points of resemblance. Sumatra and Malacca correspond to Florida and Cuba; Borneo to the Bahamas, with the Old Providence Channel to the south, and the Florida Pass to the west. The coasts of China answer to those of the United States, the Philippines to the Bermudas, the Japan Islands to Newfoundland. As with the Gulf Stream, so also here with this China Current, there is a counter current of cold water between it and the shore. The climates of the Asiatic coast correspond with those of America along the Atlantic, and those of Columbia, Washington, and Vancouver are duplicates of those of Western Europe and the British Islands; the climate of California (State) resembling that of Spain; the sandy plains and rainless regions of Lower California reminding one of Africa, with its deserts between the same parallels, etc. Moreover, the North Pacific, like the North Atlantic, is enveloped, where these warm waters go, with mists and fogs, and streaked with *lightning.* The Aleutian Islands are almost as renowned for fogs and mists as are the Grand Banks of Newfoundland. A surface current flows north through Behring's Straits into the Arctic Sea; but in the Atlantic the current is from, not into the Arctic Sea: it flows south on the surface, north below; Behring's Straits being too shallow to admit of mighty under currents, or to permit the introduction from the polar basin of any large icebergs into the Pacific.

The Currents of the Pacific.—The contrast has been drawn between the China or "Gulf Stream" of the North Pacific, and the Gulf Stream of the North Atlantic. The course of the China Stream has never been satisfactorily traced out. There is along the coast of California and Mexico, a southwardly movement of waters, as there is along the west coast of Africa toward the Cape de Verd Islands. In the open space west of this, southwardly set along the African coast, there is the famous Sargasso Sea, which is the general receptacle of the drift-wood and seaweed of the Atlantic. So, in like manner, to the west from California of this other southwardly set, lies the pool into which the drift-wood and sea-weed of the North Pacific are generally gathered, but in small quantities. The natives of the Aleutian Islands, where no trees grow, depend upon the drift-wood cast ashore there for all the timber used in the construction of their boats, fishing-tackle, and household gear. Among this timber, the camphor-tree, and other woods of China and Japan, are said to be often recognized. In this fact we have additional evidence touching this China Stream, as to which, but little, at best, is known. "The Japanese," says Lieutenant Bent, in a paper read before the American Geographical Society, January, 1856, "are well aware of its existence, and have given it the name of 'Kuro-Siwo,' or Black Stream, which is undoubtedly derived from the deep blue color of its water, when compared with that of the adjacent ocean." From this we may infer that the blue waters of this China Stream also contain more salt than the neighboring waters of the sea.

The Cold Current of Okotsk.—Inshore of, but counter to the China Current, along the eastern shores of Asia, is found a streak or layer, or current of cold water answering to that between the Gulf Stream and the American coast. This current, like its fellow in the Atlantic, is not strong enough at all times sensibly to affect the course of navigation; but, like that in the Atlantic, it is the nursery of most valuable fisheries. The fisheries of Japan are quite as extensive as those of Newfoundland, and the people of each country are indebted for their valuable supplies of excellent fish to the cold waters which the currents of the sea bring down to their shores.

Humboldt's Current.—The currents of the Pacific are but little understood. Among those about which most is thought to be known, is the Humboldt Current of Peru, which the great and good man whose name it bears, was the first to discover. This current is felt as far as the equator, mitigating the rainless climate of Peru as it goes, and making it delightful. The Andes, with their snow-caps, on one side of the narrow Pacific slopes of this inter-tropical republic, and the current from the Antarctic regions on the other, make its climate one of the most remarkable in the world; for, though torrid as to latitude, it is such as to temperature that cloth clothes are seldom felt as oppressive during any time of the year, especially after nightfall.

Currents of the Atlantic.—The principal currents of the Atlantic will be described in the article on the Gulf Stream. Besides these, its offsets are the Equatorial Current and the St. Roque or Brazil Current. Their fountain-head is the same. It is in the warm waters about the equator, between Africa and America. The former, receiving the Amazon and the Oronoco as tributaries by the way, flows into the Caribbean Sea, and becomes, with the waters in which the vapors of the trade-winds leave their salts, the feeder of the Gulf Stream. The Brazil Current, coming from the same fountain, is supposed to be divided by Cape St. Roque, one branch going to the south under this name, the other to the westward. This last has been a great bugbear to navigators, principally on account of the difficulties which a few dull vessels falling to leeward of St. Roque have found in beating up against it. It was said to have caused the loss of some English transports in the last century, which fell to leeward of the Cape on a voyage to the other hemisphere; and navigators, accordingly, were advised to shun it as a danger. This current has been an object of special investigation during my researches connected with the Wind and Current Charts, and the result has satisfied me that it is neither a dangerous nor a constant current, notwithstanding older writers. Horsburgh, in his East India Directory, cautions navigators against it; and Keith Johnston, in his grand physical Atlas, published in 1848, thus speaks of it: "This current greatly impedes the progress of those vessels which cross the equator west of 23° west longitude, impelling them beyond Cape St. Roque, when they are drawn toward the northern coast of Brazil, and can not regain their course till after weeks or months of delay and exertion." So far from this being the case, my researches abundantly prove that vessels which cross the equator five hundred miles to the west of longitude 23° have no difficulty on account of this current in clearing that Cape. I receive almost daily the abstract logs of vessels that cross the equator west of 30° west, and in three days from that crossing they are generally clear of that Cape. A few of them report the current in their favor; most of them experience no current at all; but, now and then, some do find a current setting to the northward and the westward, and operating against them at the rate of twenty miles a day. The inter-tropical regions of the Atlantic, like those of the other oceans, abound with conflicting currents, which no researches yet have enabled the mariner to unravel so that he may at all times know where they are and tell how they run, in order that he may be certain of their help when favorable, or sure of avoiding them if adverse.

Under Currents.—Lieutenant J. C. Walsh, in the U. S. schooner *Taney*, and Lieutenant S. P. Lee, in the U. S. brig *Dolphin*, both, while they were carrying on a system of observations in connection with the Wind and Current Charts, had their attention directed to the subject of submarine currents. They made some interesting experiments upon the subject. A block of wood was loaded to sinking, and, by means of a fishing-line or a bit of twine, let down to the depth of one hundred or five hundred fathoms, at the will of the experimenter. A small barrel as a float, just sufficient to keep the block from sinking further, was then tied to the line, and the whole let go from the boat. To use their own expressions, "It was wonderful, indeed, to see this *barrega* move off, against wind, and sea, and surface current, at the rate of over one knot an hour, as was generally the case, and on one occasion as much as 1¾ knots. The men in the boat could not repress exclamations of surprise, for it really appeared as if some monster of the deep had hold of the weight below, and was walking off with it." Both officers and men were amazed at the sight. The experiments in deep-sea soundings have also thrown much light upon the subject of under currents. There is reason to believe that they exist in all, or almost all parts of the deep sea, for never in any instance yet has the deep-sea line ceased to run out, even after the plummet had reached the bottom. If the line be held fast in the boat, it invariably parts, showing, when two or three miles of it are out, that the under currents are sweeping against the bight of it with what seamen call a *swigging force*, that no sounding twine has yet proved strong enough to withstand. Lieutenant J. P. Parker, of the United States' frigate *Congress*, attempted, in 1852, a deep-sea sounding off the coast of South America. He was engaged with the experiment eight or nine hours, during which time a line nearly ten miles long was paid out. Night coming on, he had to part the line (which he did simply by attempting to haul it in) and return on board. Examination proved that the ocean there, instead of being over ten miles in depth was not over three, and that the line was swept out by the force of one or more under currents.—MAURY'S *Physical Geography.*

Currency. (Lat. *curro*, I run.) In Political Economy, a term sometimes used to express the collective amount of the money, and of the bills, checks, and other substitutes for money, employed in selling or buying, or in the distribution of the commodities and services among the different ranks and orders of the community.—See *Articles* BANKS, COINAGE, CREDIT, *and* GOLD.

Currencies in United States. The Treasury Department of the United States issued, on the 19th of September, 1851, the following instructions to collectors and officers of the customs: "In view of the embarrassments existing at some of the principal ports, and the want of uniformity in the practice of assessing duties upon merchandise invoiced in depreciated foreign currencies, it is deemed proper to establish some uniform regulations on the subject, for the future government of officers of the customs. The law requires invoices of all imported merchandise subject to an *ad valorem* duty to be made out in the currency of the country or place where the importation is made. The basis of value upon which the duties are to be assessed is the true market value in the principal markets of the country at the period of exportation to the United States, exhibited in such foreign currency at its intrinsic value, and converted into money of the United States according to the rates of value at which said currency may have been determined agreeably to law. Congress has fixed the value of some of the foreign currencies at specific rates; but where the invoice cost of goods, wares, or merchandise is exhibited in a depreciated currency issued and circulated under the authority of any foreign government, the President of the United States is duly authorized by law to cause to be established 'fit and proper regulations' for estimating the duties on any such goods, wares, and merchandise. In all cases, therefore, where the foreign currency is depreciated, its value in money of the United States is to be ascertained in the mode prescribed by the circular instructions issued by the Department, by direction of the President, under the dates of the 14th of May and the 16th of August, 1831, and the 16th of October, 1832. Although the consular certificate, required by said instructions, of the value in United States' money of any foreign depreciated currency is ordinarily to be received and taken as evidence of such value, yet it is not to be deemed conclusive in cases where facts or circumstances may exist, producing a rational belief that manifest error attaches to such certificate. Where Congress has fixed the value in American money of any foreign currency, it is to be understood that the value is to attach in all cases in estimating that duty; and, should any of the said currencies become depreciated, either by the issue of government paper money or otherwise, the collectors nevertheless will make no alteration in the value in estimating duties, without the previous authority of the Department, which authority will be promptly given in all cases, so soon as the fact of such depreciation is authentically brought to his knowledge. Such information has been received as regards the Austrian florin, which, until further instructions on the subject, the collectors will consider as depreciated currency, and levy the duty accordingly on invoices stated in it. The foreign currencies alluded to above, the value of which is fixed by various acts of Congress, are noted at foot, for your information and government.

"It frequently happens that invoices stated in the currency of the country of shipment have expressed on the face of them, in the currency of another country, the amount for which bills of exchange may have been drawn in payment of the goods, or for other causes. In cases where both currencies have a specie basis, any difference which may exist between the two amounts thus exhibited is presumed to arise from the interest on the sight of the bill, or a regular difference of exchange between the two points; and where the currency of the country of shipment is depreciated, a similar difference may exist between the specie value of the foreign currency thus expressed on the face of the invoice, and the consular certified specie value of the local depreciated currency in which the invoice is stated. As the law provides that the duties shall be estimated on the specie value of the currency of the country whence the shipment is made, that mode, as a general rule, will therefore be adopted; yet where the difference between the value of two currencies, expressed upon the face of the invoice, is so great as to excite a well-founded belief that either deception or error exists, the appraisers are required to investigate the facts, and if they ascertain that there has been error, either in the consular certificate in giving the specie value of a depreciated currrency, or that otherwise the true specie value in currency of the United States has not been correctly set forth, it will become their duty to correct said error by advancing the cost or value given in the invoice or on the entry, either in the price of the goods or the estimated specie value of the depreciated currency."

Curricle (Lat. *curriculum*, a chariot), a carriage with two wheels, drawn by two horses abreast, and supported by a pole connected with a bar across the horses' backs.

Currying of Leather (*Corroyer*, French; *Zurichten*, German) is the art of dressing skins after they are tanned, for the purposes of the shoemaker, coach, and harnessmaker, etc., or of giving them the necessary smoothness, lustre, color, and suppleness. The currier's shop has no resemblance to the tanner's premises, having a quite different set of tools and manipulations. Every kind of tanned leather not intended for soles or such coarse purposes, is generally curried before being delivered to the workmen who fashion it, such as shoemakers, coachmakers, saddlers, etc. The chief operations of the currier are four: 1. Dipping the leather, which consists in moistening it with water, and beating it with the *mace*, or a mallet, upon the hurdle. He next applies the *cleaners*, both blunt and sharp, as well as the head-knife, to remove or thin down all inequalities. After the leather is shaved, it is thrown once more into water, and well scoured by rubbing the grain side with pumice-stone, or a piece of slaty grit, whereby it parts with the bloom, a whitish matter, derived from the oak bark in the tan-pit. 2. Applying the pommel to give the leather a granular appearance, and correspondent flexibility. The leather is first folded with its grain side in contact, and rubbed strongly with the pommel, then rubbed simply upon its grain side; whereby it becomes extremely flexible. 3. Scraping the leather. This makes it of uniform thickness. The workman holds the tool nearly perpendicular upon the leather, and forcibly scrapes the thick places with both his hands. 4. Dressing it by the round-knife. For this purpose he stretches the leather upon the wooden cylinder, lays hold of the pendent under edge, with the pincers attached to his girdle, and then with both hands applies the edge of the knife to the surface of the leather, slantingly from above downward, and thus pares off the coarser fleshy parts of the skin. This operation requires great experience and dexterity; and when well performed, improves greatly the look of the leather.

The hide or skin, being rendered flexible and uniform, is conveyed to the shed or drying-house, where the greasy substances are applied, which is called dubbing (daubing) or stuffing. The oil used for this purpose is prepared by boiling sheepskins or doeskins in cod oil. This application of grease is often made before the graining-board or pommel is employed. Before waxing, the leather is commonly colored by rubbing it with a brush dipped into a composition of oil and lampblack on the flesh side, till it be thoroughly black; it is then black-sized with a brush or sponge, dried, tallowed with the proper cloth, and slicked upon the flesh with a broad, smooth lump of glass; sized again with a sponge; and when dry, again curried as above described. Currying leather on the hair or grain side, termed black on the grain, is the same in the first operation with that dressed on the flesh, till it is scoured.

Then the first black is applied to it while wet, by a solution of copperas put upon the grain, after this has been rubbed with a stone; a brush dipped in stale urine is next rubbed on, then an iron slicker is used to make the grain come out as fine as possible. It is now stuffed with oil. When dry, it is seasoned; that is, rubbed over with a brush dipped in copperas-water, on the grain, till it be perfectly black. It is next slicked with a good grit-stone, to take out the wrinkles, and smooth the coarse grain. The grain is finally raised with the pommel or graining-board, by applying it to the leather in different directions. When thoroughly dry, it is grained again in two or three ways. Hides intended for covering coaches are shaved nearly as thin as shoe hides, and blacked upon the grain.

Curtains. Window-curtains are now made in great variety, both of materials and manufacture, the principal difference being as to the former, which consist chiefly of 3—silk, wool, and cotton. Silk is employed in *damasks* and *tabarets*, mixed with wool, the former being a flowery pattern of silk on a woolen foundation, whilst the latter is a satin stripe arranged in the same way as regards the composing materials. A species of *terry-velvet* is also now used in which the two materials are blended, and which makes a rich and elegant curtain; this is made also in wool without silk, and then called *repp*. When wool is used by itself, it then forms a *broad-cloth* suited to dining-rooms, or a damask, which is not so beautiful to the eye as the *silk damask*, but still sufficiently so for common purposes, or else *a moreen*, either plain or watered, or a *challi*, which is a thin trill material, printed with chintz patterns. Cotton is made into a plain article, without any thing but a mere web and woof, which, when printed and glazed, is called chintz.

Customs are duties charged upon commodities on their being imported into or exported from a country. They were collected upon merchandise in England, under Ethelred II., in 979. The king's claim to them by grant of Parliament was established 3 Edward I., 1274. [This is questionable.] The customs were farmed to Mr. Thomas Smith, for £20,000 for several years, in the reign of Elizabeth.—Stowe. They were farmed by Charles II. for £390,000 in the year 1666. —Davenant. The duties collected in England were,

In 1530.....	£14,000	In 1808.....	£9,973,000
In 1592.....	50,000	In 1823.....	11,498,000
In 1614.....	148,000	In 1830.....	17,540,000
In 1622.....	168,000	In 1835.....	18,612,000
In 1642.....	500,000	In 1840.....	19,915,000
In 1720.....	1,555,600	In 1855.....	20,000,000
In 1748.....	2,000,000		

The customs in Ireland were, in the year 1224, viz., on every sack of wool, 3d.; on every last of hides, 6d.; and 2d. on every barrel of wine.—*Annals of Dublin*. Custom-house officers, and officers of excise, were disqualified from voting for the election of members of Parliament, by statute 22 George III., 1782.

Customs duties seem to have existed in every commercial country. The Athenians laid a tax of a fifth on the corn and other merchandise imported from foreign countries, and also on several of the commodities exported from Attica. The *portoria*, or customs payable on the commodities imported into, and exported from, the different ports in the Roman empire, formed a very ancient and important part of the public revenue. The rates at which they were charged were fluctuating and various, and little is now known respecting them. Cicero informs us, that the duties on corn exported from the ports of Sicily were, in his time, 5 per cent. Under the imperial government, the amount of the *portoria* depended as much on the caprice of the prince as on the real exigences of the state. Though sometimes diminished, they were never entirely remitted, and were much more frequently increased. Under the Byzantine emperors, they were as high as 12½ per cent.

Customs duties existed in England previous to the Conquest. They appear to have derived their name from having been immemorially or customarily charged on certain articles when conveyed across the principal ferries, bridges, etc., within the kingdom, and on these and other articles of native and foreign produce, when exported from or imported into the kingdom. In 1206 the entire customs revenue of England, including that derived from tolls and fairs, amounted to only £4,958 7s. 3½d.! It is not, therefore, true, as has sometimes been stated, that the king's first claim to the customs was established in the reign of Edward I. But that able and politic prince, by rendering the levy of the old duties more effectual, and procuring the sanction of Parliament to the imposition of new duties, was the first who made the customs revenue of any material importance. The duties were at first principally laid on wool, woolfels (sheepskins), and leather when exported. There were also extraordinary duties paid by aliens, which were denominated *parva custuma*, to distinguish them from the former, or *magna custuma*. The duties of tonnage and poundage, of which mention is so frequently made in English history, were customs duties; the first being paid on wine by the tun, and the latter being an *ad valorem* duty of so much a pound on all other merchandise. When these duties were granted to the crown, they were denominated *subsidies*; and as the duty of poundage had continued for a lengthened period at the rate of 1s. a pound, or 5 per cent., a subsidy came, in the language of the customs, to denote an *ad valorem* duty of 5 per cent. The *new subsidy* granted in the reign of William III. was an addition of 5 per cent. to the duties on most imported commodities.—*Treatise on Taxation, by* J. R. McCulloch, 2d ed., p. 234.

The various customs duties were collected, for the first time, in a book of rates published in the reign of Charles I.; a new book of rates being again published in the reign of George I. But, exclusive of the duties entered in these two books, many more had been imposed at different times; so that the accumulation of the duties, and the complicated regulations to which they gave rise, were productive of the greatest embarrassment. The evil was increased by the careless manner in which new duties were added to the old, a per centage being sometimes added to the original tax; while at other times the commodity was estimated by a new standard of bulk, weight, number, or value, and charged with an additional impost, without any reference to the duties formerly imposed. The confusion arising from these sources was still further augmented by the special appropriation of each of the duties, and the consequent necessity of a separate calculation for each. The intricacy and confusion inseparable from such a state of things proved a serious injury to commerce, and led to many frauds and abuses.

Customs duties, like all duties on particular commodities, though advanced in the first instance by the merchant, are ultimately paid by those by whom they are consumed. When a government lays a duty on the foreign commodities which enter its ports, the duty falls entirely on such of its own subjects as purchase these commodities; for the foreigners would cease supplying its market with them, if they did not get the full price of the commodities, exclusive of the tax; and, for the same reason, when a government lays a duty on the commodities which its subjects are about to export, the duty does not fall on them, but on the foreigners by whom they are bought. If, therefore, it were possible for a country to raise a sufficient revenue by laying duties on exported commodities, such revenue would be wholly derived from others, and it would be totally relieved from the burden of taxation, except in so far as duties might be imposed by foreigners on the goods it imports from them. Care, however, must be taken, in imposing duties on exportation, not to lay them on commodities that may be produced at the same, or nearly the same, cost by foreigners; for the effect of the duty would then be to make the market be supplied by others, and to put an entire stop to their exportation. But in the event of a country possessing any decided natural or acquired advantage in the production of any sort of commodities, a duty on their exportation would seem to be the most unexceptionable of all taxes. If the Chinese chose to act on this principle, and had the power, they might derive a considerable revenue from a duty on exported teas, which would fall entirely on the English and other foreigners who buy them. The coal and tin, and perhaps, also, some of the manufactured goods produced in this country, seem to be in this predicament. The revenue derived from the customs duties in 1590, in the reign of Elizabeth, amounted to no more than £50,000. In 1613, it had increased to £148,075; of which no less than £109,572 were collected in London. In 1660, at the Restoration, the customs produced £421,582; and at the Revolution, in 1688, they produced £781,987. During the reigns of William III. and Anne, the customs revenue was considerably augmented, the nett payments into the exchequer in 1712, being £1,315,423. During the war terminated by the peace of Paris in 1763, the nett produce of the customs revenue of Great Britain amounted to nearly £2,000,000. In 1792, it amounted to £4,407,000. In 1815, at the close of the war, it amounted to £11,360,000. See *Great Britain.* See *Tariff, United States.*

Consular officers are instructed that the following values have been established by the laws of the United States for certain foreign currencies, viz.: dollars of Mexico, Peru, Chili, and Central America, $1; dollar, specie, of Denmark, $1 05; dollar, rix, or thaler, of Prussia, and the Northern States of Germany, 69 cts.; dollar, rix, of Bremen, 78¾ cts.; dollar, specie, of Sweden and Norway, $1 06; ducat of Naples, 80 cts.; franc of France and Belgium, 18 6-10 cts.; florin of Netherlands, 40 cts.; florin of Austria, 48½ cts.; florin of Southern States of Germany, 40 cts.; guilder of Netherlands, 40 cts.; lira of the Lombardo-Venetian Kingdom, 16 cents; lira of Tuscany, 16 cents; lira of Sardinia, 18 6-10 cts.; livre tournoise of France, 18½ cts.; livre of Leghorn, 16 cts.; milrea of Portugal, $1 12; milrea of Azores, 83⅓ cts.; marc banco of Hamburg, 35 cts.; ounce of Sicily, $2 40; pound sterling of Great Britain, $4 84; pound sterling of British provinces of Nova Scotia, New Brunswick, Newfoundland, and Canada, $4; pagoda of India, $1 84; real vellon of Spain, 5 cts.; real plate of Spain, 10 cts.; ruble, silver, of Russia, 75 cts.; rupee, company, 44½ cts.; rupee of British India, 44½ cts.; tael of China, $1 48.

Invoices of merchandise made out in the depreciated currencies of Austria, Chile, Bolivia, Peru, Porto Rico, and Nova Scotia, with certificates of United States' consuls annexed, will be received by the collectors of the United States.

The depreciated pound sterling of Nova Scotia will be taken, in computation at the custom-house of duties, in the case of invoices of merchandise from that province made out in that depreciated currency, at $3 84, as compared with the silver currency of the United States, provided such depreciation, at the date of exportation, is certified by the United States' consul at the port of shipment.

The value of the Austrian silver florin is fixed by the laws of the United States, and the Austrian paper florin is usually depreciated in comparison with it. Assuming it to be, for example, depreciated 38 per cent., the computation will be made by collectors by proportion, to wit: as 138 : 100, so is the amount of paper florins stated in the invoice to the value in silver florins. Of course the consular certificate, showing the rate of depreciation, must be produced in such cases.—See *contra*, ACT, *Feb.* 1857.

A TABLE SHOWING THE REVENUE COLLECTED FROM THE BEGINNING OF THE GOVERNMENT TO JUNE 30, 1855, UNDER THE HEAD OF CUSTOMS, AND THE PARTICULAR TARIFF, UNDER WHICH THE REVENUE FROM THOSE SOURCES WAS COLLECTED.

Years.	From Customs.	Date of tariff.	Total receipts.
From March 4, 1789, to Dec. 31, 1791	$4,399,473	July 4, 1789—general; August 10, 1790 — general; March 3, 1791—general..........	$10,210,025
1792	3,443,070	May 2—general.....	8,740,766
1793	4,255,306	....	5,720,624
1794	4,801,065	June 5 — special; June 7—general...	10,041,101
1795	5,588,461	Jan. 29—general ...	9,419,802
1796	6,567,987	....	8,740,329
1797	7,549,649	March 3 — general; July 8—special....	8,758,916
1798	7,106,061	....	8,209,070
1799	6,610,449	....	12,621,459
1800	9,080,932	May 13—special.....	12,451,184
1801	10,750,778	....	12,945,455
1802	12,438,235	....	15,001,391
1803	10,479,417	....	11,064,097
1804	11,098,565	March 26 — special; March 27—special.	11,853,840
1805	12,936,487	....	13,689,508
1806	14,667,698	....	15,608,828
1807	15,845,521	....	16,398,019
1808	16,363,550	....	17,062,544
1809	7,296,020	....	7,773,473
1810	8,583,309	....	12,144,206
1811	13,313,222	....	14,431,838
1812	8,958,777	July 1—special.	22,639,032
1813	13,224,623	July 29—special.....	40,524,844
1814	5,998,772	....	34,559,536
1815	7,282,942	....	50,961,237
1816	36,306,874	February 5—special; April 27—general.	57,171,421
1817	26,283,348	....	33,833,592
1818	17,176,385	April 20—special....	21,593,936
1819	20,283,608	March 3—special....	24,605,665
1820	15,005,612	....	20,881,493
1821	13,004,447	....	19,573,703
1822	17,589,761	....	20,232,427
1823	19,088,433	....	20,540,666
1824	17,878,325	May 22—general....	24,881,212
1825	20,098,713	....	26,840,858
1826	23,341,331	....	25,260,434
1827	19,712,283	....	22,966,363
1828	23,205,523	May 19 — general; May 24—special...	24,763,629
1829	22,681,965	....	24,827,627
1830	21,922,391	May 20 — special; May 29—special...	24,844,116
1831	24,224,441	....	28,526,820
1832	28,465,237	July 13 — special; July 14—general..	31,865,561
1833	29,032,508	Mar. 2—special; Mar. 2—compromise ...	33,948,426
1834	16,214,957	....	21,791,935
1835	19,391,310	....	35,430,087
1836	23,409,940	....	50,826,796
1837	11,169,290	....	27,883,853
1838	16,158,800	....	39,019,382
1839	23,137,924	....	33,881,242
1840	13,499,502	....	25,032,193
1841	14,487,216	Sept. 11—general....	30,519,477
1842	18,187,908	Aug. 30—general....	34,773,744
June 30, '43	7,046,843	....	20,782,410
1843—44	26,183,570	....	31,198,555
1844—45	27,528,112	....	29,941,853
1845—46	26,712,667	....	29,699,967
1846—47	23,747,864	July 30, 1846—general	55,838,168
1847—48	31,757,070	Mar. 29, 1848—special	56,992,479
1848—49	28,346,738	Aug. 12, 1848—special; Jan. 26, 1849—spec.	59,796,892
1849—50	39,668,686	....	47,649,388
1850—51	49,017,567	....	52,762,704
1851—52	47,339,326	....	49,893,115
1852—53	58,931,865	....	61,500,102
1853—54	64,224,190	....	73,802,291
1854—55	53,025,794	....	65,351,374
1855—56	64,022,863	....	73,918,141
Total.	$1,327,151,691		$1,885,997,256

The value of the specie dollar of Sweden and Norway having been fixed by an act of Congress of the 22d May, 1846, at 106 cents United States' currency, and the rix dollar banco of Sweden and Norway, being a component part of their specie dollar, and in the invariable proportion of 2⅓ to 1, and consequently equal to 39¾ cents United States' currency; the rix dollar banco of Sweden and Norway is therefore taken, in computations at the custom-houses, at the rate of 39¾ cents, United States' currency, and no consular certificate will be required, unless the currency should be depreciated. All former acts authorizing the currency of foreign gold or silver coins, and declaring the same a legal tender in payment of debts, are hereby repealed; but it shall be the duty of the director of the mint to cause assays to be made, from time to time, of such foreign coins as may be known to our commerce, to determine their average weight, fineness, and value, and to embrace in his annual report a statement of the results therefor.

The certificate of the United States' consul, showing the value of the currency of the country from which the merchandise is imported, and in which the invoice is made out, in United States' or Spanish silver dollars, must be required in every case in which the value of such foreign currency is not fixed by the laws of the United States. And in case the foreign currency in which the invoice is made out, whether its value is fixed by the laws of the United States or not, is depreciated, the certificate of the United States' consul, stating the rate of depreciation, must be produced on the entry, and the officers of the customs are governed by such certificate in computing the foreign market value of the merchandise.

Customs Duties consist for the most part of taxes levied upon goods, and produce brought for consumption from foreign countries; such duties are sometimes collected upon exports made to foreign countries, and upon goods and produce passing from one port to another in the same country.

The earliest statute passed in England, whereby the crown was authorized to levy customs duties, was the 3d of Edward I. The mode long employed in the collection of these duties, was to affix a certain rate or value upon each kind or article of merchandise, and to grant what was called a *subsidy* upon these rates. This subsidy was generally 1 shilling of duty for every 20 shillings of value assigned in the book of rates. The early acts which grant these duties speak of them as subsidies of tonnage and poundage. The word tonnage was applied to a specific duty charged on the exportation of each ton of beer; and the word poundage was applied to other articles valued as already explained.

The first "book of rates agreed upon by the House of Commons" is believed to be that compiled by a committee in 1642, during the reign of Charles I., and published under the authority of the House by Lawrence Blacklock. The next book of rates of which we have any record, was published by order of the House of Commons, in 1660, the year of the restoration of Charles II.—*Nat. Cyclo.* See HUNT'S *M. M.*, v. 145 (J. BOWRING), vi. 9 (C. RAGUET), ix. 448 (C. C. WHITTLESEY), iv. (G. TUCKER), xiv. 456 (by C. C. JEWETT). See also *Encyc. Am.*, *Art. Taxes.*

Custom-house, an office established by law in maritime cities or seaports, for the receipt and management of the customs and duties imposed on goods imported or exported.

Customs of Merchants. The law merchant is a peculiar system which prevailed throughout the whole of the Anglo-Saxon times; it was especially recognized in the time of Edward III.; when the staple was ordained, a mayor was to be chosen in each town, skilled in the law merchant to do right to every man according to that law. The modern law merchant is composed of three distinct elements, viz., the *customs* of merchants, the ordinances of foreign states, and the statute law—as art precedes science, so customs precede law. Long are these customs practiced before they are committed to writing. But though not written or declared by the legislative power, they acquire all the authority of law, and are gradually engrafted upon the common law of the country. The customs of merchants are part of the law. Judicial determinations settle what is the custom of merchants, and they become the *lex mercatoria* as to the different questions. In order that a custom be binding, it must be either the usage of the whole mercantile world, or of a particular trade universally known as such. A usage of a particular place, or of a particular class of persons, would not be binding on other persons unless these were acquainted with those usages and adopted them. In all cases, however, no custom can be set against an express statute law. Among the most important customs among merchants are the establishment of boards of trade, the settlement of disputes by arbitrations, and the binding force of the decision of a referee. See LEVI'S *Manual of Mercantile Law.*

Cutlass, a short sword used by seamen. The art of fencing with it is different from that with the small sword or broad sword. A guard over the hand is an advantage. It is, if well understood, a very effectual weapon in close contest; on account of its shortness, it can be handled easily, and yet it is long enough to protect a skillful swordsman.

Cutlery (Fr. *coutellerie;* Lat. *culter*, a knife), generally speaking, includes all cutting tools made of steel. Various countries and cities have at different periods excelled in the manufacture of some particular article, as Damascus for a beautiful sword blade, which has hitherto baffled all attempts at imitation. If this blade is made, as is commonly supposed, by welding together extremely fine wires of iron, steel, and gold, laid alternately on each other, the dexterity required is such as must astonish the most active and experienced workmen of other countries. The peculiar wave, usually called the water, so universally admired, is effected by the application of a weak acid to the polished surface of iron and steel. At Damascus, sulphate of alumine is used; but any dilute acid seems to answer the purpose. The cutlery of England is deservedly held in high estimation in every part of the civilized world. The finer articles, as razors, penknives, scissors, and surgical instruments, are made of cast steel, that is, steel purified and equalized by fusion. Dexterity and nice attention on the part of the workman to a variety of circumstances, as the quality of the steel, nature of the fuel, accuracy in the process of hardening and tempering, and many other minor considerations, are essential to the production of a good cutting instrument. For table-knives, and all cutlery of that description, shear-steel is generally used; the tang and shoulder of the table knife and fork are iron, united to the blade by welding. The celebrated Indian steel called wootz is not used in the manufacture of British cutlery.

The principal seat of the cutlery trade of England is at Sheffield, where all kinds of table cutlery, razors, penknives, scissors, surgeons' instruments, and every variety of cutting instruments, are manufactured. There are also some small manufactures of similar articles in London; but much the greater proportion of the cutlery sold as London-made, is actually manufactured in Sheffield, although bearing the name of London manufacturers. Sheffield cutlery has deservedly obtained a high degree of reputation in almost every part of the civilized world; and it is of the greatest importance to the commercial interests of the country that this high character should be maintained. But here it must not be omitted to be mentioned, that there is also an extensive manufacture of an inferior description of cutlery, principally consisting of table knives and forks, scissors, and pocket-knives, which are professedly made for export to the less civilized portions of the globe, but also retailed in large quantities in this country. It is manufactured by casting from a species of pig-iron. This iron is, from the superabundance of its carbon, highly susceptible of liquidity, and readily casts into the required form. In this state the cast-iron cutlery is extremely hard, and as brittle as glass; but it is reduced from this hardness by decomposition—being subjected to a strong and long-continued fire in close vessels, in contact with iron ore, oxyd of iron, or any substance containing oxygen, with which the superabundant carbon combines, and flies off in the state of carbonic acid gas. This cast-iron cutlery is, when finished, not always distinguishable in appearance from that made at the forge, and can, of course, be afforded at a much lower price. This very fusible iron may be applied to many purposes. It is hardly necessary to add, that it is quite unfit for any description of edge instrument.

These observations apply generally to every description of knife used in surgery; but the nature of each particular operation should not be considered, in judging of the requisite degree of strength or delicacy of edge. Next in importance to the knives are the saws used in surgery. All of these must be of the best spring temper, which, for the cast-steel blade, is about 570° of Fahrenheit, and for one of Indian steel 600°, or quite the boiling point of mercury. Of another class of instruments, namely, those denominated blunt, it will be sufficient to observe, that what is known by the name of shear-steel is best adapted for the purpose. Case-hardened iron has been most improperly used, this hardening being very superficial. It is, in fact, converting the surface only into steel, by heating it to redness, in a close vessel, in contact with animal charcoal, such as charred bone, leather, or horn, and quenching it when red-hot in a cold fluid. Iron thus treated, will take a beautiful polish; but, except for ornamental purposes, it ought never to be employed. Some instruments are necessarily made of gold or silver; as catheters, and other tubes and probes. When for these ductility is required, the metals should be unalloyed; the extra expense of which, will be more than compensated by the convenience of giving to the instruments, in all cases, the desired curve and form.

The handles of instruments, together with all ornamental parts, must in a great measure depend on the taste and choice of the purchaser. It would be well, however, to avoid such materials as are known to produce chemical action when in contact with polished steel. Ivory, mother-of-pearl, and ebony are much used; but the fine walnut-tree, such as the London gunmakers employ, is perhaps of all the woods the best for the purpose. Sandal-wood answers very well, although it by no means deserves all the credit which has been given to it as a preservative of steel from rust. The instrument-maker who wishes to excel will do well to avail himself of every opportunity of witnessing the operative part of surgery; that he may observe how far the instrument is mechanically and physically adapted to its purpose, and, if necessary, be the better able to make the requisite alteration.—E. B.

The value of hardwares and cutlery exported from Great Britain in 1855, was £2,960,391. In the New England States the manufacture of cutlery is rapidly increasing. In Massachusetts about $400,000 is invested in this branch, with an annual product of about $600,000.

Quietly, but rapidly, we are day by day gaining on the old world, and the time is not far distant when it will be discovered that the majority of our manufactures are actually superior to those of Europe. As an illustration of this, we will venture to assert that there are very few persons, not concerned in the business, who are aware of the degree of excellence which the manufacture of cutlery has attained in the United States, or that, if it were generally known and encouraged, we should in all probability be entirely self-dependent as regards its production. On this subject, Fleischmann, whose work on the "Branches of Industry in the United States" has contributed more than any other book to enlighten Germany as to our country, remarks as follows:

"The manufacturers of cutlery in the United States have far surpassed those of the old world in the manufacture of tools, and that not merely in the excellence of the metal used, but especially in the practical utility of their patterns, and in the remarkable degree of finish of their work."

It is a somewhat remarkable fact that American hardware is every year developing in its shapes a practical economy of material and a straight-forward adaptation to the end in view which are unknown to the greater part of Europe. The American laborer or mechanic, it is well known, even where not gifted with a greater degree of physical ability, will still, as a rule, turn out more work in a day than a foreigner under the same circumstances. With such men, who go directly at their work and stick to it, there is no play and no trifling with labor. A result of this is shown in the fact that the American ax, which, in its well-known form, is entirely a native American pattern, is far more practically useful than the miserable European ax which it has supplanted. And not in axes alone, but in many other implements there has been a marked progress, and a gradual, though unnoticed, communication of practical patterns to English manufactories. In our factories, which are themselves very generally proofs of the same principle of economy and of keeping directly at the object proposed, there is actually more of the first quality English steel used, than in England itself. Of Hoop L, the best quality of English steel, there is annually ten times as much used as in England, though that country manufactures about fifty times as much cutlery as we do.

Could our American mechanics receive the credit so justly their due, for the improvements which they have gradually introduced into the shape of carpenters' tools, and could the world be made aware of the degree to which of late years the English trade has been indebted to them for these improvements, we will venture to state that there are few who would not be amazed. The European—especially the continental—suffers in this respect under a tyranny of "old customs," which no Yankee mechanic would believe. If we look through Paris, if we examine the pattern-plates published, we are amazed at the luxuriance of beautiful and practical forms annually produced, which glitter in shop windows, or are displayed at exhibitions. But go into the country, and we find the same clumsy, unpractical old implements which were used three centuries ago. The seed falls on stony ground.

At the present day, American cutlery is extensively imitated in Germany, even to the marks and names of our manufacturers. This is also done by English goods, but the complimentary fraud has been of late years greatly on the increase as regards our own. We will not assert that there is not, especially in England, a vast amount of inventiveness, nor that a corresponding degree of improvements has not been made. But a practical invention is less likely to die in the birth in America, and we confidently assert, without fear of refutation, that if any one will study the history of cutlery patterns adopted for the last 50 years, including all the allied branches of manufacture, he will find that by far the greater proportion of practical improvements have been of American origin.—HUNT'S *Merchants' Magazine.*

Cutter. A vessel with one mast and a bowsprit, of considerable breadth in proportion to her length. The distinction between a cutter and other vessels of one mast, which are called sloops, is, that in the cutter the jib has no *stay* to support it.

Cutters, Revenue. These vessels are usually about 100 or 150 tons, built as fast sailers, to aid the revenue officers. The captains and lieutenants of revenue cutters of the United States, are appointed by the President. Their reports are made to the Treasury Department; the vessels subject to the direction of the collector of the port. Their officers and seamen are placed upon the navy pension list, when disabled. Congress has recently authorized the construction or purchase of steam revenue cutters, which will furnish material aid to the government officers in extraordinary cases.

Cyclopædia. (More commonly *Encyclopædia*, from the Greek words *ἐν κύκλω πάιδεια; instructions in a circle.*) A work containing definitions or accounts of the principal subjects in one or all departments of learning, art, or science. Its arrangement may be either according to divisions into the various sciences, etc., or the subjects may be arranged and treated in alphabetical order. The *Encyclopédie Française*, or *Dictionnaire Encyclopédique*, and the *Encyclopædia Britannica*, have been the most celebrated works of this species; but the earliest appears to be the *Lexicon Technicum* of Harris, published in 1706. The great French work, the *Encyclopédie Methodique*, consists, not of one, but of a series of encyclopedias or dictionaries.

Cypress, a forest tree, of which there are many varieties, the species denominated the evergreen cypress (*Cupressus sempervirens*) and the white cedar (*Cupressus Thyoides*) being the most celebrated. The cypress is indigenous to the southern parts of Europe, to several parts of Asia, and to America. It grows to a great size, and is a most valuable species of timber. It is never attacked by worms; and exceeds all other trees, even the cedar, in durability. Hence the Athenians, when desirous to preserve the remains of their heroes and other great men, had them inclosed in cypress coffins; and hence, also, the external covering of the Egyptian mummies is made of the same enduring material. The cypress is said to live to a great age; and this circumstance, combined with its thick, dark, green foliage, has made it be regarded as the emblem of death and the grave. In his *Geography and History of the Western States*, Mr. Timothy Flint has given the following account of the cypress-trees found in the southern parts of the valley of the Mississippi: "These noble trees rear their straight columns from a large cone-shaped buttress, whose circumference at the ground is perhaps 3 times that of the regular shaft of the tree. This cone rises from 6 to 10 feet, with a regular and sharp taper, and from the apex of the cone towers the perpendicular column, with little taper after it has left the cone, from 60 to 80 feet, clear shaft. Very near the top it begins to throw out multitudes of horizontal branches, which interlace with those of the adjoining trees, and, when bare of leaves, have an air of desolation and death, more easily felt than described. In the season of vegetation the leaves are short, fine, and of a verdure so deep as almost to seem brown, giving an indescribable air of funereal solemnity to this singular tree. A cypress forest, when viewed from the adjacent hills, with its numberless interlaced arms covered with this dark-brown foliage, has the aspect of a scaffolding of verdure in the air. It grows, too, in deep and sickly swamps, the haunts of fever, musquitoes, moccasin snakes, alligators, and all loathsome and ferocious animals, that congregate far from the abodes of man, and seem to make common cause with nature against him. The cypress loves the deepest, most gloomy, inaccessible swamps; and south of 33° is generally found covered with sable festoons of long moss, hanging, like shrouds of mourning wreaths, almost to the ground. It seems to flourish best when water covers its roots for half the year. Unpromising as are the places and circumstances of its growth, no tree of the country where it is found is so extensively useful. It is free from knots, it is easily wrought, and makes excellent planks, shingles, and timber of all sorts. It is very durable, and incomparably the most valuable tree in the southern country of this valley." Of whatever materials the building is constructed, the roof is universally covered with cypress shingles, which, if made of trees felled in the winter, last forty years. Cypress boards are preferred to those of pine for the inside of brick houses, and for window-sashes, and the panels of doors exposed to the weather; cabinet-makers also choose it for the inside of mahogany furniture. It is highly proper for the masts and sides of vessels, and wherever it grows it is chosen for canoes, which are fashioned from a single trunk, and are often 30 feet long and 5 feet wide, light, solid, and more durable than those of any other tree. It makes the best pipes to convey water under the ground; especially the black variety, which is more resinous and solid.—BROWNE'S *Trees of America.*

Cyprus (*Kybris*), an island in the N. E. corner of the Levant, lying at about equal distances from the shores of Cilicia and Phœnicia. Its extreme length from the promontory of Dinaretum to that of Acamas is about 140 miles; its extreme breadth, from the promontory of Crommyon to that of Curias, about 70 miles. The area is roughly estimated at about 4,500 English square miles. The greater part of the island is occupied by the central ridge and spurs of the Stavro-Vuno and Santo Croce mountains (the ancient Olympus). The loftiest peaks of this range attain a height of from 8,000 to 10,000 feet above the sea. The northern slopes are rocky and bare, but on the side of the south they are well wooded and highly picturesque, and inclose, in various parts of their course, valleys of unrivaled fertility. Considerable part of the wealth of ancient Cyprus arose from its copper mines, the most important of which were those of Tamasus in the centre of the island, Soli on the north coast, and Amathus and Cyrium on the south coast. In these mines gold and silver were also found. The precious stones of Cyprus were also highly valued. The chief of these were the emerald, agate, malachite, jasper, opal, and the minerals asbestos and rock crystal.

The first settlers in Cyprus appear to have been of Phœnician origin. Under Augustus it became an imperial province, and was governed by a proconsul, with a staff of inferior officers. Before the close of the 1st century of the Christian era, the Jewish population of the island had greatly increased, and in the reign of Hadrian, is said to have risen in rebellion, and slain 200,000 of the other inhabitants. In the 7th century, Cyprus fell into the hands of the Saracens; and in the 9th, it owned the supremacy of the "good" Haroun Al Raschid. At the close of the 12th century, it was conquered by Richard Cœur de Lion, who made it over first to the Knights of the Temple, and ultimately to Guy of Lusignan, titular king of Jerusalem. For three centuries the island remained in the family of Lusignan, till, in 1473, it became an appendage of the Venetian republic. Cyprus was retained by the Venetians till in 1571 it was overrun by an army of Turkish invaders, who stormed Lefkosia and Famagosta, and made a general massacre of the inhabitants. Since that date the island has remained in possession of the Turks, and now forms a pashalic in the Eyalet of Djizairs. Under the Turkish rule the material prosperity of Cyprus has greatly declined. In the times of the Venetian supremacy, the island maintained a population of 1,000,000; its present population is only about 150,000, of whom the great majority are Greeks. Many parts of the island, formerly healthy and fertile, are now, from malaria and other causes, barren and uninhabitable. Its trade was at one time valuable and important; now the value of its annual imports does not exceed £26,000; of its exports, about £60,000. Besides corn, of which it produces about 120,000 quarters annually, Cyprus yields in considerable quantities cotton, wine, various kinds of fruit, opium, and madder; while the mountain districts furnish olives, pines, and many species of valuable timber. On the island are found great quantities of the *Ferula græca*, which the Cypriote applies to a great variety of domestic purposes. This is the plant whose uses are feigned by the poets to have been taught to mortals of old by Prometheus.

D.

Dacca, the capital of an extensive and rich district in the eastern quarter of the province of Bengal, a large city, and for 80 years the capital of Bengal, of which it is still the third city in point of extent and population. It is situated beyond the principal stream of the Ganges, on the northern bank of a very large branch of that river, called the Boor Gunga, or old Ganges, at the distance of a hundred miles from the mouth of the Ganges. Its position is admirably well adapted for inland trade, as the river which flows past it communicates with all the other inland navigations by a direct course. The present town covers a great deal of ground, extending four miles along the bank of the river, though it is not of proportional breadth. The houses of the wealthy are built of brick, but there are many thatched houses, with very narrow and crooked streets; the bazaars are only tiled or thatched; and as every vacant spot is covered with trees, the town looks from a distance like a grove. Owing to the effects of British competition, the manufactures of Dacca are at this time scarcely deserving of notice; but here were formerly manufactured the most beautiful muslins, which were exported to all quarters of the world, and which had long been famed for their delicacy and beauty. The spinning of the thread was carried on with wonderful nicety. The operation was performed with the fingers on a fine steel spindle by young women, who could only work during the early part of the morning while the dew was on the ground; for such was the extreme tenuity of the fibre that it would not bear manipulation after the sun had risen. Such was the skill of the darners that they could remove an entire thread from a piece of muslin, and replace it by one of a finer texture. From their wonderful fineness these muslins were called Abrawan, or "flowing water," and Shabnam, "evening dew."—E. B.

Daguerreotype. The name given to a process invented by M. Daguerre of Paris, in 1839, by which perfect fac-similes of objects are transferred upon thin copper plates with plated silver. The images are produced by the action of light upon the iodine, through the focus of the camera obscura. An apparatus somewhat kindred in design, was in contemplation about the same time by M. Niepcé, and about five years previously by Henry Fox Talbot of London; the original idea, however, is traceable as far back as the days of Roger Bacon. By means of the Talbotype, a recent improvement upon the above process, pictures in colors are produced both on paper and plates. So important a discovery in the fine arts was the daguerreotype deemed by the French government, that it awarded to its inventor a life pension of 6000 francs.—Haydn. See Silliman's *Journal of Science*, xxxvii., p. 69; xl., p. 137; xliii., p. 185; *Foreign Quarterly Rev.*, xxiii., p. 213; *Westminster Rev.*, xxxiv., p. 434.

In 1802 Mr. Thomas Wedgewood and Sir Humphrey Davy succeeded in forming pictures of objects laid on paper prepared with nitrate of silver, and in taking profiles (silhouettes) by means of shadows. They proposed to obtain similar effects by means of the camera obscura, but their paper was not sufficiently sensitive. The effectual bar to their proceedings was, however, this: that they could discover no means of *fixing the shadows* which they had obtained, or preventing the whole surface of the paper from being gradually blackened by exposure to light.

In 1814 J. Nicephore Niepce, a retired proprietor at Chalons sur Saône, entered into a similar inquiry, but by methods quite different. He employed the solar effect upon resinous bodies, and some, at least, of his pictures were executed upon plates of pewter or of rotted silver. They were mostly copies of engravings, and the light parts corresponded to the lights of the originals. He, however, at length succeeded in fixing impressions of views in the camera obscura, though in an imperfect manner, and after very long exposure. The pictures thus obtained had this in common with more perfect processes, that the luminous impression was first brought into view by a chemical process *subsequent* to exposure in the camera. In 1825 Nicephore Niepce became associated with Daguerre, who had previously been engaged in the same research; they agreed to communicate the results of their several experiments. The result, as is well known, was the invention of the Daguerreotype, not improperly called after Daguerre, who seems really to have worked it out almost entirely for himself after the death of Niepce in 1833; while so patient and determined was Daguerre in keeping his secret till brought to perfection, that he did not even show his results until early in 1839, when the numerous specimens he had to exhibit rivaled in delicacy any thing that the art has since produced.—*Ency. Brit. Pre. Dissertation*, by Forbes.

Dahlia. This beautiful flower was imported from China, of which it is a native, early in the present century, and amateurs in flowers have annually laid out hundreds of pounds in England, and thousands of francs in France, in the purchase of it. The Swedish botanist, Professor Dahl, first cultivated and made it known. It soon attracted notice in England, where, from the beauty of its form and variety of color, it became at once an especial favorite. In 1815, about 2 months after the battle of Waterloo, it was introduced into France, and the celebrated florist, Andre Thouine, suggested various practical improvements in its management. The botanist, Georgi, had shortly before this introduced it at St. Petersburg; and hence it is, that to this day the dahlia is known throughout Germany under the name of *Georgina*.—Haydn.

Dairy. Milk, either in its natural state, or in the form of butter and cheese, is an article of diet so wholesome and so palatable, that the health and comfort of people, especially such of them as dwell in cities, depend much upon their having a pure and plentiful supply of it at all seasons. Dairy Management, which includes every thing about the production and treatment of milk, is consequently a very important branch of husbandry, and one in which every body feels interested. The physical conditions of the different countries of the world have determined in each case the particular milk-yielding animal most suitable to be there used for dairy purposes. The Laplander obtains his supplies of milk from his reindeer, the roving Tartar from his mares, and the Bedouin of the desert from his camels. In the temperate regions of the earth many pastoral tribes subsist mainly upon the milk of their sheep. In some rocky regions the goat is invaluable for this purpose; and the buffalo is equally so amid the swamps and jungles of tropical climates. The milking of ewes was once a common practice in Great Britain; but it has fallen into disuse because of its hurtful effects upon the flock. A few milch asses and goats are kept for the benefit of infants or invalids; but with these exceptions the cow is the only animal now used for dairy purposes in this country and Europe.

Butter is made either from cream only, or by churning the whole milk and cream together. The best butter is obtained from the cream which rises during the first 12 hours after milking, and the next best by churning the whole milk. In the former case the new milk, after being carefully strained, is poured into shallow vessels of glazed earthenware, glass, tinned iron, wood, lead, or zinc, of which the 3 first-named sorts are the best. The wooden vessels are objectionable from the difficulty of cleaning them thoroughly; and the last two from the noxious salt which is produced by the action of the acid of the milk on the metal. When it is intended to extract as nearly the whole of the butter from the milk as is practicable, the 1st skimming takes place at the end of 24 hours, and is followed up by one or more skimmings at further intervals. The cream is stored in jars, which should be kept in a place separate from the milk-room, that the milk in the coolers may not be prematurely acidulated by the proximity of the sour cream. The latter is either stirred repeatedly, or poured from one vessel to another, to prevent the formation of a tough coat upon it before enough is accumulated for churning. In large dairies it is usual to churn daily. Three days is as long as the cream can ordinarily be kept with safety to the quality of the butter. When a cow has recently calved, her milk is comparatively rich in butter and poor in curd; but soon the relative proportions of these constituents change places, the cream diminishing and the milk becoming thicker. A very sensible change in the quality also usually takes place when a cow again becomes pregnant. In not a few cases the cream is so affected by this circumstance, that double or treble the length of time is required to churn it that sufficed before, and the butter is at the same time of inferior quality. If cows are flurried and heated, either by gadding in the pasture, or by being overdriven in bringing them home for milking, their milk becomes peculiarly liable to corrupt, the yield of butter is sensibly lessened, and its quality is impaired. The success of the process of churning depends much on the temperature of the cream being nicely regulated. A mean temperature of 60° Fahrenheit seems to be the best. The temperature of the cream usually rises about 10° during the process of churning. About 55° is therefore the desirable starting-point. Advantage is derived from rinsing the churn with cold water in summer and with warm water in winter. The addition to the cream of small quantities of cold or hot water, as the case requires, is also found beneficial. Box or barrel churns are preferred when the cream only is churned, the former being best adapted for small dairies, and the latter for large ones.—E. B. See *Butter and Cheese.*

Damaged Goods, in the language of the customs, are goods, subject to duties, that have received some injury either in the voyage home or in the bonded warehouses.

Damar, a kind of indurated pitch or turpentine, exuding spontaneously from various trees indigenous to most of the Indian islands. Different trees produce different species of resin, which are designated according to their color and consistence. "One is called *Damar-butu* in Malay, or *Damar-selo* in Javanese, which means hard or stoney rosin; and another in common use, *Damer-Puteh*, or white rosin, which is softer. The trees which produce the damar yield it in amazing quantity, and generally without the necessity of making incisions. It exudes through the bark; and is either found adhering to the trunk or branches in large lumps, or in masses on the ground under the trees. As these often grow near the seaside, or on the banks of rivers, the damar is frequently floated away, and collected in distant places as drift. It is exported in large quantities to Bengal and China; and is used for all the purposes to which we apply pitch, but principally in paying the bottoms of ships. By a previous arrangement, almost any quantity may be procured at Borneo, at the low rate of ½ dollar per picul."—CRAWFORD, *East. Archip.*, v. i., p. 455, v. iii., p. 420.

Damascus. This city was in being in the time of Abraham.—*Gen.* xiv. It is, consequently, one of the most ancient in the world. From the Assyrians, Damascus passed to the Persians, and from them to the Greeks under Alexander; and afterward to the Romans, about 70 B.C. It was taken by the Saracens A.D. 633; by the Turks in 1006; and was destroyed by Tamerlane in 1400. It was in a journey to this place that the apostle Paul was miraculously converted to the Christian faith, and here he began to preach the gospel, about A.D. 50. Damascus is now the capital of a Turkish pachalic.—HAYDN. Damascus is the seat of an extensive trade both with India and with Europe. The productions of India, consisting chiefly of spices, cotton manufactures, coarse and fine muslins, and gold stuffs, are in great demand, and bring high prices. They are brought from India by the Persian Gulf, Bassora, Bagdad, and Aleppo. The manufactures of England are much sought after, and held in very high esteem, particularly light woolen cloths of gay colors, printed cottons and chintzes, and silk and cotton shawls made in imitation of those of Cashmere; also needles, pins, knives, scissors, and fine hardware, as well as china and earthenware, whether English or Indian. These goods being generally imported through Saida, Beirût, and Tripoli, are sold at very high prices. Iron, lead, tin, cochineal, sugar, and other European articles, are also imported through the same channel. Wearing apparel for fashionable persons of both sexes at Damascus, and clothes that have been worn, are brought from Constantinople; and being distributed all over the country, are frequently the means of spreading the contagion of the plague. Among the various manufactures to be found in the bazaars are superb caparisons for horses, of which the Turks, as well as all the other eastern nations, are extremely fond. These are made in European Turkey; and a number of fine bridles, martingales, and silver and embossed breast-pieces, come also from Persia. The firearms are chiefly of French and German manufacture, being prepared in an ornamental style expressly for this market. The sabre blades are almost all of the old Persian or Damascus manufacture. The art of making them, however, is no longer known or practiced in this city; so that they grow daily more valuable, as no modern sword can compare with them in temper and quality. The silk seen in the bazaars of Damascus is principally of Chinese and Indian manufacture; the furs come from Russia, Georgia, Circassia, and Armenia; the velvet from Italy; copper from Asia Minor; the manufactures of Britain through Smyrna; and various other articles of an inferior kind from Germany and France. There are few manufactures in Damascus; and these consist chiefly of silk stuffs, plain, colored, and embroidered with gold; fabrics of plain cotton, and cotton and silk mixed, all for home consumption, and mostly of broad, striped, or wavy patterns, for the caftans of the Turkish dress.

Commerce, as in all other places in the East, is carried on by means of caravans, of which the principal is that which goes with the annual pilgrimage to Mecca. It is conducted by the pasha, who receives the standard of the Prophet from the governor of the castle, and gives a solemn pledge for its restoration. This expedition unites commercial with religious objects. A caravan accompanied by a numerous train of armed men goes thrice a year to Bagdad, the journey occupying 30 days; that to Aleppo travels twice or thrice a month. Besides these, many other caravans go to different ports of Syria, Damascus being a great rendezvous and emporium of trade. Provisions and fruits of all kinds are abundant; also ice and snow, which may always be obtained from the neighboring mountains. Damascus is generally regarded as the oldest city in the world, its history remounting beyond the time of Abraham, whose steward Eliezer was a native of this place. A great era in its history is its conquest by the Saracens.—E. B. See *Am. Whig Rev.*, vol. viii.

Damascus Blades are swords or cimeters, presenting upon their surface a variegated appearance of *watering*, as white, silvery, or black veins, in fine lines, or fillets; fibrous, crossed, interlaced, or parallel, etc. They are brought from the East, being fabricated chiefly at Damascus, whence their name. Their excellent quality has become proverbial; for which reason these blades are much sought after by military men, and are high-priced. The oriental processes have never been satisfactorily described; but of late years methods have been devised in Europe to imitate the fabric very well.

Damask (from *Damascus*, whence first brought), a variegated textile fabric of silk, richly ornamented with raised patterns representing flowers, fruits, etc., woven in the loom. It is also fabricated in woolen stuffs. Woolen damasks and moreens are sold in England at 9d. to 1s. 6d. per yard.

Damask likewise denotes a kind of wrought linen, used chiefly for table-cloths and napkins, and so called because its patterns resemble those of real damask. It was first made in Flanders, but it is now wrought extensively in Britain, particularly at Dunfermline in Scotland, and also at Lisburn and Ardoyne in Ireland. An inferior description has latterly been made of cotton. See *Linen.*

Irish Damasks.—As early as the beginning of the last century, the manufacture of linen damasks was introduced into Ireland from Germany; and there still exist specimens woven in Ireland 130 years ago. The manufacture has gone on increasing in excellence, and it is now considered that the high-class Irish damasks equal any from any other country. Almost all are used in Great Britain, and the better kinds are so costly that none but the wealthy can purchase them. Hand-loom weaving is invariably adopted for the best damasks; but the power-loom is now beginning to be employed for the cheaper damasks and diapers; and it is hoped that this will create a foreign market for them. The Jacquard loom is extensively used for the richer damasks, for which its wonderful action especially adapts it. What a Jacquard loom is, a long and wearisome description would scarcely make intelligible; what it appears like, the thousands who watched the working of the several Jacquard looms at the great exhibition may perhaps remember; what it does is exemplified by specimens of pattern, or damask, or figure weaving, for which it is especially adapted. In designing table-cloths, table napkins, and d'oyleys, for royal personages, city companies, club houses, and regimental messes, the damask manufacturers of Ireland sometimes display considerable taste; and this taste afterward reflects some of its light upon the cheaper and ordinary commercial products. It is yet a disputed point among persons artistically inclined, what kind of ornamentation is best fitted for colorless damasks; human forms and features are seldom damasked satisfactorily, and buildings are very tame affairs when so depicted; at present, heraldic emblems seem to take the lead.

Damask is also applied to a very fine steel, prepared in some parts of the Levant, but particularly in former times at Damascus, whence its name. It is used for sword and cutlass blades, and is very finely tempered.

Damaskeening, or **Damasking**, the art of ornamenting iron or steel, by making incisions on its surface, and filling them up with some other metal, generally gold or silver. It is chiefly used for enriching sword blades, guards, locks of pistols, etc. There are two ways of damasking; the one, which is the finest, is when the metal is cut deep with proper instruments, and inlaid with gold and silver wire; the other is superficial only. This art is of great antiquity, and its invention is attributed by Herodutus (i. 25) to Glaucus of Chios, who lived B.C. 490. It would appear to have flourished at some period in Damascus, whence the name is generally derived.—E. B.

Damassin. A species of woven damask with gold and silver flowers.

Dampier, William, an English navigator, was born at East Coker, Somersetshire, about 1652. Having early become an orphan, he was removed from the Latin school, and placed with the master of a ship at Weymouth. In this ship he made a voyage to Newfoundland; but, disgusted at the cold of that northern climate, on his return he engaged himself as a common sailor in a voyage to the East Indies. He next served in the Dutch war under Sir Edward Sprague, and was present at two engagements; but the declining state of his health induced him to come on shore, and remove to the country, where he remained some time. In the year following he became an under-manager of a Jamaica estate; but only continued a short time in this situation. He afterward engaged in the coasting-trade, and thus acquired an accurate knowledge of all the ports and bays of that island. Having entered on board a vessel bound for the bay of Campeachy, and returning a second time to the same coast, he remained with the logwood-cutters, and engaged himself as a common workman. During his stay in that country he collected the materials for the minute and interesting account which he has given of the laborious life of these people, as well as of the geographical description and the natural history of the country. It appears that he was preparing in 1703 for another voyage. It is mentioned in WOODES ROGERS' *Voyage Round the World*, that Dampier had the command of a ship in the South Seas about the year 1705, and along with Captain Stradling, whose vessel foundered at sea. Dampier accompanied Woodes Rogers in his voyage round the world in the years 1708, 1709, 1710, and 1711, but only in the capacity of pilot, which is supposed to be a circumstance due to some remissness in his conduct. During this expedition Guayaquil was taken, and Dampier had the command of the artillery. Nothing further is known of the life of Dampier; and we are equally ignorant of the place and time of his death.—E. B. See *Retrospective Review*, vol. ix., p. 73, for an account of the voyages of Dampier.

Dantzic (in German, *Danzig*), the principal port and commercial city of Prussia proper, and capital of a cognominal government, lies on the left bank of the Vistula, about 4 miles from its mouth. N. lat. 54° 20′; E. long. 18° 38′. Population in 1849, including military, 63,917; of whom 2,369 were Jews, 13,339 Catholics, and 47,723 Protestants. Ramparts, bastions, and wet ditches, which have been vastly strengthened since the war, and gigantic works for laying the country under water, have done what fortifications can to make Dantzic impregnable. The road or bay of Dantzic is covered on the west side by a long, narrow, low, sandy tongue of land, extending from Reserhoft Point (on which is a light-house), in lat. 54° 50½′; long. 8° 23′ 15″, upward of 20 miles in an E. by S. direction, having the small town of Heela or Heel, near its termination. A light-house, elevated 123 feet (English) above the level of the sea, has been erected within about ½ mile of the extremity of this point. The flashes of the light, which is a revolving one, succeed each other every ½ minute. Dantzic lies about S. ½ W. from the Heel; its port being distant about four leagues. There is good anchorage in the roads for ships of any burden; but they are exposed, except immediately under the Heel, to the north and northeasterly winds. There are harbor-lights at the entrance to the port. All ships entering the Vistula must heave-to about a mile off the port, and take a pilot on board; and pilots must always be employed in moving ships in the harbor, or in going up and down the river. The usual depth of water at the mouth of the river is from 12 to 13 feet (English); in the harbor, from 13 to 14 feet deep; at the confluence of the Motlau with the Vistula, from 9 to 9½ feet; and in town, from 8 to 9 feet. Moles have been erected on both sides the entrance to the harbor; that on the eastern side, which is most exposed, is constructed of granite, but is not yet completed; the other is partly of stone and partly of timber.

Trade.—Next to Petersburg, Dantzic is the most important commercial city in the north of Europe. It owes its distinction in this respect to its situation; the Vistula, with its important tributaries the Bug, Narew, etc., giving it the command of a great internal navigation, and rendering it the *entrepôt* where the surplus products of West Prussia, Poland as far as Hungary, and part of Lithuania, are exchanged for those imported from the foreigner. The exports of wheat from Dantzic are greater than from any other port, Odessa excepted. There are four sorts of wheat distinguished here; viz., *white*, *high-mixed*, *mixed*, and *red*, according as the white or red predominates. The quality of Dantzic wheat is for the most part excellent; for, though small in the berry, and not so heavy as many other sorts, it is remarkably thin-skinned, and yields the finest flour. The white Polish wheat exported here is the best in the Baltic. Rye is also very superior, being both clean and heavy; the exports of barley and oats are comparatively inconsiderable, and the qualities but indifferent. Very fine white peas are exported. Next to grain, timber is the most important article of export from Dantzic, but latterly the supply has been diminishing, and the quality is said not to be so good as formerly.—*Meek.* The principal supply of fir timber, masts, etc., is brought by the river Narew, which, with its branches, rises in old Prussia and Lithuania, and falls into the Bug near the confluence of the latter with the Vistula. Oak planks, staves, etc., are brought down from the higher parts of the Vistula, and the tributary streams of Dunajetz, Wieprez, etc. Salted pork, weed ashes, linseed and rapeseed, mats, bones, zinc, spruce beer, feathers, etc., are also exported.

Imports.—These consist principally of iron and steel, herrings, wine, sugar, coffee, cotton and cotton yarns, spices, salt, coal, tobacco, dyewoods, spirits, rice, etc.; but their value is seldom more than half that of the exports.

Duties on Pilotage and Police Passports at Dantzic.

Duties.	Prussian and privileged foreign flags.			Foreign flags not privileged.		
	th.	sil.	pf.	th.	sil.	pf.
Pilotage Duties,						
Vessel drawing 6 ft. water and under.	1	15	0	2	0	0
" " 7 feet water..........	2	15	0	3	0	0
" " 8 " "	3	0	0	3	15	0
" " 9 " "	3	15	0	4	0	0
" " 10 " "	4	0	9	5	0	0
Police passport taxes.						
Vessel of 25 lasts, 50 tons, and under.	1	10	0	1	25	0
" 50 " 100 "	1	17	6	2	0	0
" 100 " 200 "	1	25	0	2	5	0
" 200 " 400 "	2	7	6	3	5	0
" above 400 lasts	3	5	0	4	15	0

Money.—Accounts used formerly to be wholly kept in guldens, guilders, or florins of 30 groschen. The rixdollar=3 florins=90 groschen=270 schillings=1,620 pfennings. The florin or guilder=9d. sterling, and the rixdollar=2s. 3d. A new system was, however, introduced into all parts of the Prussian dominions, conformably to the decrees of the 30th of September, 1821, and of the 22d of June, 1823. The Cologne mark (containing 3,609 English grains) is the weight at present used in the Prussian mint in weighing the precious metals. The fineness of the coins is not determined, as previously, by carats or loths, but the mark is divided for this purpose into 288 grains. Accounts are now kept in the public offices in thalers or dollars (R.), silver groschen, and pfennings; 1 dol. =30 sil. gr.=12 pf. The only silver moneys now coined are dollars and ⅙ dollar pieces; but smaller coins are in circulation, of former coinages. The Prussian silver coins have ¼ of alloy; and as the mark is coined into 14 dollars, each should contain 257·68 English grains pure silver, and be worth about 2s. 11½d. sterling; but the assays do not always strictly coincide with the mint valuation. The gold coins are Frederic d'ors, double, single, and half pieces. The mark of 288 grains, having 260 grains of fine gold, is coined in 35 Fred. d'ors. The Fred. d'or is worth from 5 dol. 18 sil. gr. to 5 dol. 22 sil. gr., according to the demand.

Weights and Measures.—The commercial weights are,

32 loths = 1 ounce.
16 ounces = 1 pound.
16½ pounds = 1 lispound.
20 pounds = 1 small stone.
33 pounds = 1 large stone.

110 lbs.=1 centner; 3 centners=1 shippound (330 lbs.); 100 lbs. of Dantzic=103·3 lbs. avoird.=46·85 kilog.=94·7 lbs. of Amsterdam=96·6 lbs. of Hamburg.

The liquid measures are, for beer,

5 quarts = 1 anker.
4 ankers = 1 ahm.
1½ ahms = 1 hhd.
2 hhds. = 1 both.
2 boths = 1 fuder.
2 fuders = 1 last=620·4 Eng. wine gals.

In wine measure, which is less than beer measure, the ahm=39⅜ Eng. gallons. The pipe=2 ahms.

The last of corn=5¾ malters=60 scheffels=240 viertels=960 metzen; and weighs 4,680 lbs. Dantzic weight in rye. The scheffel=·547 of a hectolitre=1·552 Winchester bushels. Hence the last of 60 scheffels=11 quarters 3 bushels; the last of 55½ scheffels=10 quarters 7 bushels.

The Dantzic foot=11·3 Eng. inches, or 100 Dantzic feet=94·16 Eng. feet. The ell is 2 feet Dantzic measure. The Rhineland or Prussian foot=·3138 French metres, or 12·356 Eng. inches; hence 100 Prussian=102·8 English feet. The Prussian or Berlin ell has 25½ Prussian inches=26·256 Eng. ditto. 100 Berlin ells=72·93 Eng. yards; and 137·142 Berlin ells=100 Eng. yards. 14¾ Prussian miles are equal to 15 geographical miles.

Oak planks, deals, and pipe staves are sold by the shock of 60 pieces; wheat, rye, etc., are sold by the last of 56½ scheffels.—*Kelly's Cambist; Nelkenbrecher, Manual Universel.*

Corn Trade of Dantzic.—Grain is almost wholly brought to Dantzic by water, in flat-bottomed boats suited to the navigation of the Vistula, Bug, etc. The English consul estimated the expense of the conveyance of wheat and rye, including the duty at Thorn and the charges of turning on the river, till put into the granary, as follows:

	Per Imp. quarter.				
	s.	d.		s.	d.
From the upper provinces on the Bug, a distance of from 700 to 500 miles..............	9	2	to	7	10
From the provinces of Cracow, Sendomir, and Lublin, 550 to 350..........................	6	6	"	5	4
From Warsaw and its neighborhood, about 240 miles..............................	4	9	"	3	11
From Wlaclaweck and its neighborhood, about 140 miles..............................	4	2	"	3	5
From Grandentz, a distance of about 70 miles, no duty at Thorn, and when not turned on the river..............................	0	10	"	0	9

The Bug has many windings, and its navigation, which is tedious and uncertain, can only be attempted in the spring, when the water is high. It is the same, though in a less degree, with some of the rivers that fall into the Vistula before it reaches Warsaw; and toward Cracow the Vistula itself is frequently unnavigable, especially in dry seasons, except in spring, and after the midsummer rains, when the snow melts on the Carpathian mountains. The navigation of the Polish rivers in some seasons is more than usually bad. The corn from the upper provinces does not reach Dantzic till from 2 to 4 months later than usual, and is burdened with a very heavy additional expense. In fact, the supplies of grain at Dantzic depend quite as much on the abundance of water in the rivers, or on their easy navigation in summer, as on the goodness of the harvests. "There are," says Mr. Jacob, "two modes of conveying wheat to Dantzic by the Vistula. That which grows near the lower parts of the river, comprehending Polish Russia, and part of the province of Plock, and of Masovia, in the kingdom of Poland, which is generally of an inferior quality, is conveyed in covered boats, with shifting-boards that protect the cargo from the rain, but not from pilfering. These vessels are long, and draw about 15 inches water, and bring about 150 quarters of wheat. They are not, however, so well calculated for the upper parts of the river. From Cracow, where the Vistula first becomes navigable, to below the junction of the Bug with that stream, the wheat is mostly conveyed to Dantzic in open flats. These are constructed on the banks, in seasons of leisure, on spots far from the ordinary reach of the water, but which, when the rains of autumn, or the melted snow of the Carpathian mountains in the spring, fill and overflow the river, are easily floated. Barges of this description are about 75 feet long, and 20 broad, with a depth of 2½ feet. They are made of fir, rudely put together, fastened with wooden treenails, the corners dovetailed and secured with slight iron clamps—the only iron employed in their construction.

"A large tree, the length of the vessel, runs along the bottom, to which the timbers are secured. This roughly-cut keelson rises 9 or 10 inches from the floor, and hurdles are laid on it, which extend to the sides. They are covered with mats made of rye straw, and serve the purpose of dunnage; leaving below a space in which the water that leaks through the sides and bottom is received. The bulk is kept from the sides and ends of the barge by a similar plan. The water which these ill-constructed and imperfectly-calked vessels receive, is dipped out at the end and sides of the bulk of wheat. Vessels of this description draw from 10 to 12 inches water, and yet they frequently get aground in descending the river. The cargoes usually consist of from 180 to 200 quarters of wheat. The wheat is thrown on the mats, piled as high as the gunwale, and left uncovered, exposed to all the inclemencies of the weather, and to the pilfering of the crew. During the passage, the barge is carried along by the force of the stream, oars being merely used at the head and stern, to steer clear of the sand-banks, which are numerous and shifting, and to direct the vessel in passing under the several bridges. These vessels are conducted by 6 or 7 men. A small boat precedes, with a man in it, who is employed sounding, in order to avoid the shifting shoals. This mode of navigating is necessarily very slow; and during the progress of it, which lasts several weeks, and even months, the rain, if any fall, soon causes the wheat to grow, and the vessel assumes the appearance of a floating meadow. The shooting of the fibres soon forms a thick mat, and prevents the rain from penetrating more than an inch or two. The main bulk is protected by this kind of covering, and, when that is thrown aside, is found in tolerable condition. The vessels are broken up at Dantzic, and usually sell for about ⅝ of their original cost. The men who conduct them return on foot. When the cargo arrives at Dantzic or Elbing, all but the grown surface is thrown on the land, spread abroad, exposed to the sun, and frequently turned over, till any slight moisture it may have imbibed is dried. If a shower of rain falls, as well as during the night, the heaps of wheat on the shore are thrown together in the form of a steep roof of a house, that the rain may run off, and are covered with a linen cloth. It is thus frequently a long time after the wheat has reached Dantzic, before it is fit to be placed in the warehouses.

"The warehouses (*speichers*) are very well adapted for storing corn. They consist generally of 7 stories, 3 of which are in the roof. The floors are about 9 feet asunder. Each of them is divided by perpendicular partitions, the whole length, about 4 feet high, by which different parcels are kept distinct from each other. Thus the floors have two divisions, each of them capable of storing from 150 to 200 quarters of wheat, and leaving sufficient space for turning and screening it. There are abundance of windows on each floor, which are always thrown open in dry weather to ventilate the corn. It is usually turned over three times a week. The men who perform the operation throw it with their shovels as high as they can, and thus the grains are separated from each other, and exposed to the drying influence of the air. The whole of the corn warehouses now left (for many were burnt during the siege of 1814) are capable of storing 500,000 quarters of wheat, supposing the quarters to be large enough to fill each of the 2 divisions of the floors with a separate heap; but as of late years it has come down from Poland in smaller parcels than formerly, and of more various qualities, which must of necessity be kept distinct, the present stock of about 280,000 quarters is found to occupy nearly the whole of those warehouses which are in repair, or are advantageously situated for loading the ships. Ships are loaded by gangs of porters, with great despatch, who will complete a cargo of 500 quarters in about 3 or 4 hours."—*First Report.*

Banking Establishments.—There is none such here, excepting a branch of the Royal or Government bank of Berlin. This was founded partly in the view of receiving deposits of money under litigation in the courts of the province; moneys the property of minors and charitable institutions, the former until disposable or placed on good security; and moneys belonging to individuals not merchants, and at times, also, those of the latter. Interest is paid on such deposits as follows, viz.: 3 per cent. on sums belonging to minors; 2½ per cent. on sums belonging to charitable institutions, churches, and sums depositad by the courts of justice, and 2 per cent. on all other deposits.

The principal is demandable at pleasure, unless otherwise stipulated. The bank makes advances on grain and some other kinds of goods at 5 per cent. interest; discounts bills with 3 signatures, not having more than 2 months to run, at 6 per cent., and sometimes, when money is plenty, at a lower rate. It also makes advances at 4 per cent. on deposits of Fred. d'ors and certain foreign moneys; and it occasionally buys bills for account of, and sells bills on, the Berlin Bank. It does not issue notes. The amount of its capital is not fixed; but government guaranties its transactions. It is relieved from the payment of postage on money, and it is not required to use the stamps fixed by law, on bills for its deposit transactions, but only those of 10 s. gr. (about 11¼d.); while individuals must use stamps for such bills of 5 s. gr. for every 400 r. of not longer date than 3 months, and for every 200 r. of longer date. On negotiable bills, however, the bank must use the stamps fixed by law, say of. 5 s. gr. (about 5⅝d.) for sums of 50 dol. to 400 dol., and at the same rate for every additional sum between 100 dol. and 400 dol. Bills from and on foreign places, negotiated at Dantzic, are not subject to the stamp duty. The affairs of the bank are not made public. Being a government concern, there are no dividends. It is not supposed to be very profitable, at least in the present circumscribed state of trade, although enjoying the advantages of exemption from postage of moneys, and paying less stamp duty. It is true, however, that the direct advantage of the lower stamp duty is enjoyed by the borrower.

Credit, Brokerage, etc.—Very few goods are consigned from abroad for sale, for such consignments rarely turn to good account. Imports are seldom sold for cash, but generally at 1, 2, and 3 months' credit, or longer. The discount allowed for cash payments, when sold on time, is usually 6 per cent., but it varies according as money is plentiful or otherwise. Any person, being a burgher of the town (which any one of good character may become), may transact business as a commission merchant or factor; but brokers must be chosen by the elders of the corporations of merchants, approved by the regency of the province, and sworn in by the magistracy of the town.

Danube (German, *Donau;* anc. *Danubius* and *Ister*), an important river, and, next to the Volga, the largest in Europe, originates in the *Berge*, a mountain torrent which rises in the E. declivity of the Schwarzwald, in Baden, at an elevation of 2,850 feet above the level of the sea. The stream, when joined by the *Brigach*, and by the waters of a spring from the castle garden of Donaueschingen, takes the name of the Donau. It flows first generally E. N. E., through an alpine country to Ulm, thence E. N. E. and S. E., to Passau, it traverses the plain of Bavaria. From Passau to Vienna, E. S. E., it intersects a hilly region, and the remainder of its course, E. S. E. to Waitzén, S. to Bazc, and E. to the Black Sea, is through a country generally flat, except at the defile of the "*iron gate*," E. of Orsova. Length (direct), 1,000 miles; or, including windings, 1,725 miles. It drains a surface of about 250,000 square miles; its average fall is 18 inches per mile, but below Pesth it is only 3 inches; at Ulm it is 1,400, at Regensburg 1,000, at Passau 800, at Vienna 450, and at Pesth 300 feet above the level of the sea. Its breadth at Ulm is 108 feet, and in its lower course 6,000 feet; depth at Ulm, 6 feet; at Passau, 16 feet; and lower down, average 20 feet. It passes Sigmaringen and Ulm in Würtemberg, Dillingen, Hochstädt, Donauwörth, Ingolstadt, Regensburg, and Passau, in Bavaria; Linz, Diernstein, Korneuborg, and Vienna, in Austria; Presburg, Komorn, Gran, Waitzen, Buda, Pesth, Peterwardein, and Carlowitz, in Hungary; Belgrade, Semendria, and Orsova, in Servia; Widin, Nicopoli, Rutschuk, Silistria, and Hirschova, in Bulgaria; Giurgevo and Brahilov in Wallachia. The chief affluents of the Danube are, on the right, the Iller, Lech, Isar, Inn, Ens, Raab, Drave, Save, Morava, Timok, Isker, Vid, and Jantra; and on the left, the Altmühl, Nab, Regen, March, Waag, Gran, Theiss, Temes, Chyl, Aluta, Jalomnitza, Sereth, and Pruth. Near its mouth in the Black Sea, it separates into several branches, the southernmost of which, called the branch of St. George, forms, by the treaty of Adrianople, the boundary between the Ottoman empire and Russia. It communicates by canals with the Elbe, by means of the Moldau, and with the Rhine by the Altmühl. It is navigable for vessels of 100 tons from Ulm. Steam packets were established on the Danube in 1830, and there are 10 steam vessels employed between Presburg, Pesth, and Constantinople, and 2 between Regensburg and Linz.—See FRASER'S *Mag.*, xxii., 560, 684; QUIN'S *Steam Voyage down the Danube.*

The ports of Baila and Galatz are appointed as ports on the Danube for the commerce of neutral powers, both as regards exportation and importation. The vessels of neutral powers coming from the Black Sea can return freely into that sea after having received their cargoes in the ports above mentioned, on condition always that they abstain, before entering the Black Sea, from touching at any port on the Danube. Consequently these vessels, before quitting the ports of Braila and Galatz, must present their documents to the Russian consular agent, who will furnish them gratis with a certificate showing the destination of the ship, and bearing the formal declaration, that if before entering the sea they should disembark corn or provisions upon any point of the right bank of the Danube, they will, by this contravention, incur sequestration. Neutral vessels which wish to ascend the Danube in order to proceed at once into the Austrian States, and which carry down cargoes destined either for Brila or Galatz, or for exportation by the Black Sea, will be liable to the same formality of a Russian certificate indicating their destination, and prohibiting them, under similar penalties, from entering into any traffic on the right bank of the Danube. Neutral vessels wishing to descend the Danube will not meet with any hinderance, provided that on their passage by Orsova they furnish themselves at the Russian consulate with a certificate, stating that they belong, *bonâ fide*, to a neutral power, and that their cargo is not destined for one of the Turkish ports of the Danube.—P. J. of T. 1856.

Dardanelles (Straits of the), form the communication between the Sea of Marmora and the Archipelago. This channel, through which there flows a constant current out of the Sea of Marmora into the Archipelago, is upward of 50 miles long, and varies in breadth from 1 mile toward its western, to 10 miles at its eastern extremity. It derives its name from two ancient fortresses on either side of the river, of which one is built on the site of the ancient Sestos, and the other on the site of the ancient Abydos. About 20 miles to the west of these are two modern fortresses called the New Castles, and between the old and the new forts are military works of various descriptions. The total number of guns mounted on these fortresses is 689, some of which discharge stone shot, and require a charge of more than 3 cwts. of powder. It derived its ancient name of the Hellespont from the tradition of Phryxus and Helle, and is celebrated in ancient times for the bridge of boats built over it by Xerxes. It is memorable also as the scene of the death of Leander.—E. B.

The gallant exploit of forcing the passage of the Dardanelles was achieved by the British squadron under Admiral Sir John Duckworth, Feb. 19th, 1807; but the admiral was obliged to repass them, which he did with great loss, and immense damage to the fleet, March 2, following; the castles of Sestos and Abydos hurling down rocks of stone, each of many tons' weight, upon the decks of the British ships.—HAYDN. So long as the shores of the Black Sea were exclusively possessed by Turkey, that sea might with propriety be considered a *mare clausum;* and there seems no reason to question the right of the Ottoman Porte to exclude other nations from navigating the passage which connects it with the Mediterranean, both shores of this passage being at the same time portions of the Turkish territory; but since the territorial acquisitions made by Russia, and the commercial establishments formed by her on the shores of the Euxine, both that empire and the other maritime powers have become entitled to participate in the commerce of the Black Sea, and consequently to the free navigation of the Dardanelles and the Bosphorus. This right was expressly recognized by the 7th article of the treaty of Adrianople, concluded in 1829 between Russia and the Porte, both as to Russian vessels and those of other European States in unity with Turkey. The 7th article of the treaty of 1830, between the United States and the Ottoman Porte, provides that merchant vessels of the United States, in like manner as vessels of the most favored nations, shall have liberty to pass the canal of the Imperial Residence, and go and come in the Black Sea, either laden or in ballast; and they may be laden with the produce, manufactures and effects of the Ottoman empire, except such as are prohibited, as well as of their own country.—WHEATON'S *International Law*, p. 241.

Daric. A Persian gold coin (so called by the Greeks, from Darius, the name of several Persian sovereigns), having upon the obverse an archer, crowned and kneeling upon one knee, and on the reverse a quadrata incusa, or deep cleft. The weight of the daric is about 130 grains.

Darien (Isthmus of). "The Isthmus of Darien, or, as it is more commonly styled, the Isthmus of Panama, connects North and South America, and is principally comprised in the republic of Granada. On the northern side is the Caribbean Sea and the Gulf of Darien; on the south the Gulf of Panama. In length the isthmus proper is about 200 miles, with an average breadth of 40 miles; but in long. 79° it narrows down to less than 30 miles. At this point it is proposed to establish the ship canal. The country is undulating, with chains of small mountains, but very fertile and well timbered. The expense of a commodious ship canal, say 30 miles long and 200 feet wide, would not be less than $50,000,000. When it is considered that one half the world's commerce would in all probability pass through this canal, the expense is trifling. All the India and China trade, instead of doubling Cape Horn, would find passage through the canal. It should be free to all nations who assist in the construction by money or credit."

An appropriation was embraced in the naval appropriation bill of 1856, giving a sum not to exceed $25,000, to be paid to officers selected by the Secretaries of War and Navy "for the purpose of making explorations and verification of the surveys already made of a ship canal near the Isthmus of Darien, to connect the waters of the Pacific and the Atlantic by the Atrato and Truando rivers."

Dates (German, *Datteln;* French, *Dattes;* Italian, *Datteri;* Spanish, *Datiles*), the fruit of the palm-tree (*Phœnix dactylifera* Lin.). This tree is abundant in Egypt, Barbary, Arabia, Persia, and the adjacent countries, particularly on the confines of the desert, and wherever there is sufficient moisture. It is a tall, majestic tree; and repeated references are made to it in the sacred writings (Ecclus. xiv. 14), and in the Koran. Mohammed, in one of his sayings, beautifully compares the upright and generous man to the palm-tree: "He stands erect before his Lord; in his every action he follows the impulse received from above, and his whole life is devoted to the welfare of his fellow-creatures." But the veneration in which the palm-tree is held in the East is to be ascribed more to its utility than to its beauty. Dates form the principal part of the subsistence of the inhabitants of many parts of Arabia and Barbary, and they are held in the highest estimation wherever they are met with. "They are," says Burckhardt, "by far the most essential article of food for the lower classes of Medina; their harvest is expected with as much anxiety, and attended with as much general rejoicing, as the vintage in the south of Europe; and if the crop fails, which often happens, as those trees are seldom known to produce abundantly for 3 or 4 successive years, or is eaten up by the locusts, universal gloom overspreads the population, as if a famine were apprehended."—*Travels in Arabia*, vol. iv., p. 214.

There is an endless variety of dates. Generally, however, they may be described as being somewhat in the shape of an acorn, but usually larger, consisting of a thick, fleshy substance, including and freely separating from an oblong stone or kernal, having a furrow on the one side. Their taste is agreeably sweet, accompanied with a slight astringency. The new fruit is called by the Arabs *ruteb*. When the dates are allowed to remain on the tree till they are quite ripe, and have become soft and of a high red color, they are formed into a hard, solid paste or cake, called *adjoue*. This is formed by pressing the ripe dates forcibly into large baskets, each containing about 2 cwt. "In this state," says Burckhardt, "the Bedouins export the adjoue; in the market it is cut out of the basket, and sold by the pound. It forms part of the daily food of all classes of people; in traveling it is dissolved in water, and thus affords a sweet and refreshing drink. During the monsoon, the ships from the Persian Gulf bring adjoue from Bussorah to Djidda, for sale, in small baskets, weighing about 10 pounds each; this kind is preferred to every other. Ships bound from Arabia to India take with them a considerable quantity of adjoue, which is readily disposed of among the Mohammedans of Hindostan."—*Travels in Arabia*, vol. i., p. 57. The Arabians and Egyptians use the leaves of the trees in the preparation of bags and baskets; the boughs, the outer and inner bark of the trunk, and the fleshy substance at the root of the leaves, where they spring from the trunk, have all their respective uses; and besides this, the kernels of the fruit, notwithstanding their hardness, are used as food for cattle; they are soaked for 2 days in water, when they become softened, and are given to camels, cows, and sheep, instead of barley; they are said to be much more nutritive than that grain. There are shops at Medina in which nothing else is sold but date kernels; and the beggars are continually employed in all the main streets in picking up those that are thrown away.—*Burckhardt*, vol. ii., p. 212. All the refinements of Arabian cookery are exhausted in the preparation of dates; and the Arabs say that a good housewife will daily supply her lord for a month with a dish of dates differently dressed. Palm-trees are raised by shoots; and Dr. Shaw mentions that they arrive at their vigor in about 30 years, and continue so 70 years afterward, bearing yearly 15 or 20 clusters of dates, each of them weighing 15 or 20 pounds; after this period they begin to decline.—*Travels in the Levant*, p. 142, 4to ed.

The best dates imported are said to come from Tunis, but they are most commonly brought from Smyrna and Alexandria. They should be chosen large, softish, not much wrinkled, of a reddish yellow color on the outside, with a whitish membrane betwixt the flesh and the stone. Those that are dry and hard are of little value.

The date-tree is indigenous to Syria, Arabia, and the lower parts of Persia, Egypt, and northern Africa, whence it was introduced into the south of Europe; and it is also more or less cultivated in British India, South Africa, and in some parts of America. Though belonging to the extensive family of palms, which abound and flourish in most tropical regions, it attains perfection only in comparatively high latitudes, and doubtless would be adapted to the soil and climate of the more arid regions of California and of our southern States.

The date is a lofty tree, growing to a height of 60 feet, with a rugged trunk, crowned with leaves 6 or 8 feet long, with pinnæ 3 feet long, and a little more than an inch broad. The flowers of both sexes, which grow on separate trees, come out in very long bunches, from the trunk, between the leaves, and are covered with a spatha, which opens and withers. Those of the male tree have 6 short stamens, with narrow, four-cornered anthers, filled with pollen. The female flowers have a roundish germ, which afterward becomes an oval berry, with a thick pulp, inclosing a hard, oblong stone. This berry is the fruit known as the date of commerce, upon which a considerable portion of the people of Egypt, Arabia, and Persia, almost entirely subsist. A single tree will produce from 100 to 300 pounds of this fruit in the season. They come into bearing at from 6 to 10 years of age, and are fruitful for upward of 200 years.

The extensive importance of the date-tree, in the countries where it occurs, is perhaps one of the most curious subjects to which a traveler can direct his attention. Independent of the use of the fruit as food, the inhabitants make a conserve of it with sugar, and even grind the hard stones, to feed to their camels. In Barbary they form handsome beads of these stones. From the leaves they make couches, baskets, bags, mats, brushes, and fly-traps; the trunk is split, and employed in erecting small buildings, also for fences to gardens; and the stems of the leaves are used for making cages for their poultry. The threads of the web-like integument at the base of the leaves are twisted into ropes, which are employed in rigging small vessels. The amylaceous central part of the trunk is also good to eat, and the buds are esteemed a delicate vegetable; and even the young shoots are said to resemble asparagus. The sap, which is sweetish when first collected, and may be drunk as a mild beverage, is distilled into a kind of spirit, known in eastern countries by the name of "arrack." It is obtained by cutting off the head of the tree, and scooping out a hollow in the top of the stem, where, in ascending, it lodges. 3 or 4 quarts may be obtained daily from a single palm, for 10 or 15 days.—*U. S. Patent Office Report*, 1855, p. 56.

Davits, beams of wood or iron, with sheaves or blocks at their ends, projecting over a vessel's side or stern, to hoist in the boats.

Days of Grace. These vary in almost all mercantile towns and countries, but the tendency of modern legislation is to abolish them altogether. In France, Belgium, Lombardy, Tuscany, the Two Sicilies, and other States where the French code has been introduced, there are no days of grace. So throughout the German States they are altogether done away. In Great Britain, and Ireland, and the United States of America, there are 3 days; in Denmark there are 8 days; in Sweden, 6 days; in Russia, 3 days for bills at sight, 10 days for bills at a fixed time; in the Canton of Berne, Switzerland, 6 days; in Spain and Portugal, none; and in the Netherlands, none.

The law merchant respects the religion of different peoples. A Jew would not be bound to pay a bill on a day sacred to him. So if the first day of grace should be on Saturday, and Monday Christmas-day, and the maker a Jew, the note would be payable on Friday. The word month means generally a calendar month. A note dated on the 30th of August would end with the corresponding day of the month. In calculating the day when the bill falls due, the day of the date is always excluded; so a bill drawn on the 1st of January at 10 days after date would become due on the 11th, and not on the 10th.—*Manual of Mercantile Law*, by LEONE LEVI. In New York and other States statutes have been adopted by the Legislature, providing that when a bill falls due on a public holiday (Christmas, 4th of July, Thanksgiving Day, New-Year's Day, and, in New Orleans, January 8th, for instance) the bill shall be payable the day preceding.

Dead-lights, ports or shutters to close in the cabin-windows of a ship in bad weather.

Dead-reckoning, in *Navigation*, the estimation that is made of the place where a ship is situated, without having recourse to observation of the celestial bodies. It is made by observing the distance she has run by the log, and the course on which she has been steered, making allowance for drift, lee-way, etc.

Dead Sea or **Lake Asphaltites** (Arabian, *Bahr-el-Lout*, "Sea of Lot"), a lake of Palestine, celebrated in Scripture as the site of Sodom and Gomorrah, between lat. 31° 5′ and 31° 52′ N., and long. 35° 26′ and 35° 43′ E., its N. extremity nearly 20 miles E. Jerusalem. Mean length N. to S. about 35 miles; average breadth from 10 to 12 miles; but its size varies greatly in different seasons and years.—ROBINSON. It is inclosed in a valley, bounded by bare limestone mountains, and according to recent researches, its depth is about 350 fathoms, and its surface 1,312 feet below that of the Mediterranean Sea; it being thus by far the deepest known fissure on the earth's surface. The river Jordan enters it on its north side. Its waters are thoroughly impregnated with salt; and it has not been proved that any animal exists in this sea. A mountain of rock salt on its S. W. side, called *Hajr Usdum*, "Stone of Sodom," preserves the name of that city, ruined with others, as described in Genesis xix., 24–28; and traces of towns or buildings are reported, on doubtful authority, to have been seen at certain times in its bed. Asphaltum was thrown to the surface at its southern extremity in large quantities after the earthquakes of 1834 and 1837. Messrs. Robinson and Smith have found the "*Asclepias gigantea*," growing at Engedi, on its western coast, the fruits of which (the famed "apples of Sodom") though inviting in appearance, crumble in the hand into powder.—See *N. A. Rev.*, l., p. 203 (by B. B. EDWARDS); *Bib. Sac.*, v. 397, vii. (by Dr. ROBINSON); SILLIMAN'S *Jour.*, xlviii viii., 317; *North Brit. Rev.*, ii., p. 261; *Living Age*, xxiii. (same article); so *Lit. Mess.*, xiv. (M. F. MAURY); *Methodist Quar. Rev.*, ix., 633; *Living Age*, xxxi., 307.

"In undertaking to explore the physical geography of the sea, I have found myself standing side by side with the geologist on the land, and with him, far away from the sea-shore, engaged in considering some of the phenomena which the inland basins of the earth—those immense indentations on its surface that have no sea-drainage—present for contemplation and study. Among the most interesting of these is that of the Dead Sea. Lieutenant Lynch, of the United States' Navy, has run a level from that sea to the Mediterranean, and finds the former to be about 1,300 feet below the general sea-level of the earth. In seeking to account for this great difference of water-level, the geologist examines the neighboring region, and calls to his aid the forces of elevation and depression which are supposed to have resided in the neighborhood; he then points to them as the agents which did the work. Truly, they are mighty agents, and they have diversified the surface of the earth with the most towering monuments of their power. But is it necessary to suppose that they resided in the vicinity of this region? May they not have come from the sea, and been, if not in this case, at least in the case of other inland basins, as far removed as the other hemisphere? This is a question which I do not pretend to answer definitely. But the inquiry as to the geological agency of the winds in such cases is a question which my investigations have suggested. It has its seat in the sea, and therefore I propound it as one which, in accounting for the formation of this or that inland basin, is worthy, at least, of consideration.

"Is there any evidence that the annual amount of precipitation upon the water-shed of the Dead Sea, at some former period, was greater than the annual amount of evaporation from it now is? If yea, from what part of the sea did the vapor that supplied the excess of that precipitation come, and what has cut off that supply? The mere elevation of the rim and depression of the lake basin would not cut it off. If we establish the fact that the Dead Sea at a former period did send a river to the ocean, we carry along with this fact the admission that when that sea overflowed into that river, then the water that fell from the clouds over the Dead Sea basin was more than the winds could convert into vapor and carry away again; the river carried off the excess to the ocean whence it came.

"In the basin of the Dead Sea, in the basin of the Caspian, of the Sea of Aral, and in the other inland basins of Asia, we are entitled to infer that the precipitation and evaporation are at this time exactly equal. Were it not so, the level of these seas would be rising or sinking. If the precipitation were in excess, these seas would be gradually becoming fuller; and if the evaporation were in excess, they would be gradually drying up; but observation does not show, nor history tell us, that either is the case. As far as we know, the level of these seas is as permanent as that of the ocean, and it is difficult to realize the existence of subterranean channels between them and the great ocean. Were there such a channel, the Dead Sea being the lower, it would be the recipient of ocean waters, and we can not conceive how it should be such a recipient without ultimately rising to the level of its feeder. It may be that the question suggested by my researches has no bearing upon the Dead Sea; that local elevations and subsidences alone were concerned in placing the level of its waters where it is. But is it probable that, throughout all the geological periods, during all the changes that have taken place in the distribution of land and water surface over the earth, the winds, which in the general channels of circulation pass over the Dead Sea, have alone been unchanged? Throughout all ages, periods, and formations, is it probable that the winds have brought us just as much moisture to that sea as they now bring, and have just taken up as much water from it as they now carry off? Obviously and clearly not. The salt-beds, the water-marks, the geological formations, and other facts traced by Nature's own hand upon the tablets of the rock, all indicate plainly enough that not only the Dead Sea, but the Caspian also, had upon them, in former periods, more abundant rains than they now have. Where did the vapor for those rains come from? and what has stopped the supply? Surely not the elevation or depression of the Dead Sea basin."—MAURY'S *Phys. Geog. of the Sea*, p. 222.

Dead-water. The water that closes in with a ship's stern.

Deals, or **Deal-boards** (German, *Dielen*; Dutch, *Deelen*; Danish, *Dæler*; Swiss, *Tiljor*; French, *Planches minces*; Italian, *Tavole*, *Piane*; Russian, *Dorski*; Polish, *Tarcice*), a thin kind of fir planks, much used in carpentry. They are formed by sawing the trunk of a tree into longitudinal divisions, of greater or less thickness, according to the purposes they are intended to serve. They are imported from Dantzic, Petersburg, Narva, and many other ports in the Baltic, and from North America; but those from Christiana, the capital of Norway, are the best, and bring the highest price. They are distinguishable from those produced in the contiguous provinces of Norway; their superiority has been said to depend principally on their being more perfectly sawed; but it really depends on the greater care with which the sap-wood and other defective portions of the timber are cut away, and on the quality of the timber. A Russian standard deal is 12 feet long, 11 inches wide, and 1½ inch thick; 400 feet of 1½ inch plank make a load. A Christiana standard deal is 11 feet long, 9 inches wide, and 1¼ inch thick. There is another standard of Norway deals at Dram, 10 feet long, 9 inches wide, and 1¼ inch thick.

Debenture, a term used at the custom-house to signify the *certificate* subscribed by the customs officers, and given to the exporter of goods on which a drawback is allowed, bearing that the exporter has complied with the required regulations, and that he is entitled to such drawback.

Debt, in law, is a species of contract, whereby a *chose in action*, or right to a certain sum of money, is mutually acquired and lost; usually divided into debts of record, debts by special contract, and debts by simple contract. A debt of record is a sum which appears to be due by the evidence of a court of record; such as debt on judgment or recognizance. Debt by specialty is where a sum is acknowledged to be due, or becomes due, by instrument under seal; such as a covenant, bond, etc. Both these species of debts, being contracted by a man for himself and his heirs, attach on his lands and tenements, and bind them in the hands of his heir or devisee. Debt by simple contract is either by parole or by written obligation unsealed; within which class fall bills of exchange and promissory notes. Debt is also a personal action of contract, in which the plaintiff seeks the recovery of debt; *i. e.* a *liqvidated* or certain sum of money alleged to be due to him.

Debt, Imprisonment for. See HUNT'S *M. Mag.*, iv. pp. 72, 538; *N. A. Review*, xxxii. (by A. H. EVERETT); *Am. Almanac*, 1848, 181; *Westminster Review*, ix., xix., xx., xliv; *British and For. Rev.*, v.; *Bankers' Magazine*, iii. p. 88.

Decade (Latin, *decas*, from Greek *δεκα*, *ten*). A word used by some old writers in a general sense for the number ten, or an enumeration by tens; but more peculiarly appropriated to the number of books into which the history of the Roman empire by Livy is divided, each division consisting of ten books or *decades*. It was also the name given to the space of 10 days, which in the French republican calendar was substituted for the ordinary week. The 10th, or last day, was termed *decadi*. Thus, except in bissextile years, the whole number of decades was 36½: the days of the half decades, falling at the close of the year, were at one time called *sansculottides*, and afterward *complementary*; and dedicated respectively to Virtue, Genius, Labor, Opinion, and Recompence.

Decimal Coinage, a system of monetary calculation advancing to infinity from a fixed standard of value, and performing its multiplications by any increasing progression of tens, and its divisions by a decreasing progression which is also decimal.

This system, whose superiority to all others now in use is universally acknowledged, was first organized and established by the Constituent Assembly of France in 1790. It forms a part of that vast decimal metrical system of weights and measures, which, since the close of the last century, has obtained in France, and is slowly spreading thence into the other countries of Europe and America. The subject was so widely and keenly agitated throughout Great Britain in the opening months of 1853, that the House of Commons appointed a committee to investigate the whole matter. The report of this committee was laid before the House on the 1st of August of that year. This document was introduced with a strong recommendation of the decimal system of coinage, and proposed that the basis of that system when introduced should be the present pound sterling. By the retention of the pound, the decimal system might be introduced with the least possible change. Its 10th part already exists in the shape of the florin or two-shilling piece, while an alteration of 4 per cent. in the value of the present farthing will serve to convert that coin into the lowest step of the decimal scale, which it is necessary to represent by means of an actual coin, viz., the one-thousandth part of a pound. To this lowest denomination it was proposed by the committee to give the name of *mil*, in order to mark its relation to the unit of value. The addition of a coin to be called a cent, of the value of 10 mils, and equal to the 100th part of a pound, or the 10th part of the florin, would serve to complete the list of coins necessary to represent the moneys of account, which would accordingly be pounds, florins, cents, and mils. As to the coins by means of which the decimal system will be developed, it is proposed that some of those now in use be retained, and that new coins be substituted for others of them. The coins thus retained would be the present sovereign (1000 mils), the half-sovereign (500 mils), florin (100 mils), and shilling (50 mils, or 5 cents). The present sixpence, under the denomination of 25 mils, might be retained; and the crown-piece, or a piece of 250 mils, of which few are in circulation, need not be withdrawn. On the other hand, it would be desirable to withdraw the half-crown, and the threepenny and fourpenny pieces, which are inconsistent with the decimal scale. In the United States the decimal system has been introduced into the coinage with great advantage; and an effort is now being made to introduce it into weights and measures, which it is hoped will succeed in a few years.

Decimal Fractions, are fractions which have for their denominator 10, 100, 1000, etc., or in general some power of 10. The use of decimal fractions is merely an extension of the ordinary scale of arithmetical notation. Setting out from the unit's place, the 1st figure to the left (in the expression of any whole number) denotes so many tens, the 2d to the left so many hundreds, the 3d so many thousands, and so on; so that in the number 765, for example, each unit of the 6 is the 10th part of each unit of the 7, and each unit of the 5 a 10th of each unit of the 6. In like manner, in the expression of a decimal fraction, setting out from the unit's place, the 1st figure to the right expresses so many 10th parts, the 2d to the right so many 100th parts, the 3d so many 1000ths, and so on; so that each figure, as before, expresses parts, which are each 10 times smaller than those expressed by the figure immediately preceding. By expressing fractions in this manner, the operations of addition, subtraction, multiplication, and division, are exactly the same as in integer numbers. In order to distinguish the integral from the fractional part of a numerical expression, a point or comma is placed between them. Various marks have been used for this purpose at different times; but the point is now most commonly employed, and, according to the practice of Sir Isaac Newton, it should always be placed near the top of the figure, thus 2·46, which prevents it from being confounded with the ordinary marks of punctuation. Decimal fractions appear to have been introduced by Regiomontanus, about the year 1464; but Stevinus was the first who wrote an express treatise on the subject in his *Pratique d' Arithmetique*, published in 1582. They are now universally employed in all arithmetical calculations; and it is much to be regretted that a decimal division of weights, measures, money, etc., has not been adopted in all civilized countries, by which the reduction of fractional parts from one scale to another would be obviated, and all the applications of arithmetic to the ordinary purposes of life greatly simplified. A subdivision of weights and measures on this principle was adopted in France at the time of the Revolution, but has not been imitated by other countries.

Decimal Weights and Measures. I. *Introduction of the Decimal System.*—The introduction of the decimal system is so important to all nations, and the advantages so apparent, that any discussion on the subject will be of interest. The facility of transacting every business, and the saving of labor, would be much increased by having a *general* and convenient system of weights and measures. The good result of the introduction of the decimal system into our coinage is so universally admitted, that efforts should be made to carry the system out in all our *standards*. The importance of the clause in the Magna Charta, and expressed in an old English law of older date, is not fully felt, that *there shall be only one measure and one weight throughout the land.* This has never been realized either in England or this country, though many efforts have been made to introduce a common system. Commercial intercourse would be facilitated, and many of the embarrassments and delays would be obviated, could a system be made universal in all maritime countries. There is no bar to the introduction of such a system; for whatever difference there may be in the systems adopted or in the notation used, yet they are all founded on the Arabian numbers. All have the same numerical system for a foundation, though the superstructures are varied. It would be scarcely practicable to introduce into the whole world a general system at once; *but it is practicable* for the principal maritime nations, who are so much interested, to have a congress, and unite upon some complete system that would take the place of the many disjointed and *empirical* ones now in use. The rest of the world would follow in time, from the fact that convenience and advantage are more than equal to custom. However, the principal end would be attained in a short time—*commercial intercourse* would be carried on among nations with one *standard*; having, if necessary, the notation admitted into each country affected by the language, but yet to be equivalent in values. It is a very interesting question what shall be the *standard*? and one where rival claims can be brought forward, each standard of measure, of weight, and of coinage having some advantages; and it may be difficult to decide what are the best. It seems, however, to be admitted that the decimal *division* is the only perfect one. It being stated as a general principle, that for convenience a standard varying but little from some old standard, should, if possible, be used.

II. *The Natural Standard or Unit for the Base of the System.*—In respect to coinage, our standard of a dollar for a unit seems to answer every purpose, and is the most convenient of any in use in the world. So it will, perhaps, be sufficient to examine with respect to weights and measures. The standard or unit for measurement that would seem to be given by nature, is the circumference of the earth taken at a given latitude. We have there an unvarying base, and one always practicable to measure. For convenience, we would naturally take a part of this circle, using any natural division. This is given to us at once by the rotation of the earth on its axis, and the arc a fixed star traverses in a given time, and then dividing by a decimal division this time of rotation, gives a standard of convenient length. Having to call in the aid of astronomy to determine this distance, the notation used in that science, of degrees and minutes, etc., was naturally adopted. It was found that one degree, or 360th part of the earth's circumference divided into 60 parts, was about equal to a mile of the old empirical system. A very small change will be therefore necessary, taking this mile as a unit. From this unit a table is constructed that will give the most convenient measures, with the least possible change from the old system, and one that could be adopted at least by the United States and Great Britain with advantage:

III. 1. *General Table of New Lineal Measure proposed*

10 tenths = 1 inch.
10 inches or 100 tenths, = 1 foot.
6 feet or 60 inches = 1 fathom.
1000 fathoms or 6000 feet = 1 mile.
60 miles = 1 degree on the meridian.

Measures of Temperature and Air.—The centigrade thermometer generally used in France and other countries, having its zero at the freezing point—the only invariable point of temperature in nature—and its 100th degree determined by the temperature of boiling water, when the barometer stands at 24½ inches of the new lineal measure proposed to be adopted in preference to Fahrenheit's scale. The barometer to be marked in inches and 10ths of the new measure. The new standard of lineal measure to be the fathom of 6 feet marked on a rod of brass or other metal, and made equal to 6 feet 0·91548 inch of our present measure at the temperature of 62·6 degrees of Fahrenheit, or 17 degrees of the centigrade thermometer. This proportion will make the proposed mile equal to 1012·715 fathoms of our present measure, being the mean length of the minute of a degree of terrestrial meridian, according to Mr. Airy's treatise on the figure of the earth.—*Ency. Metro.* Should more extensive surveys of meridianal areas, since made or in progress, lead to a more accurate value of the said minute, it is proposed that the necessary correction shall be effected, not by changing the standard rod, but by altering the legal temperature to a higher or lower point than 17 degrees centigrade.

For measuring works of architecture and engineering, the foot and its decimal subdivisions will be used, and measurements by 10 feet and 100 feet, and not by the yard or rod.

2. *For Land Measure.*—The fathom to be the unit, and 10th and 100th for fractions, and all square-work to be so measured:

1000 square fatboms = 1 acre.
1000 acres = 1 mile

3. *For Solid Measure.*—The foot to be the unit:

1000 cubic inches = 1 foot.

Liquids to be measured by solid measurements:

10 cubic inches = 1 pint
100 cubic inches = 1 gallon.
100 cubic gallons or 10 cubic feet = 1 barrel.

4. *Measures of Weight Proposed.*

10 tenths = 1 ounce.
10 ounces = 1 pound.
100 pounds = 1 hundred-weight.
1000 pounds = 1 thousand-weight,
2000 pounds = 1 ton.

And 1 pound be the weight of 1-60th of a cubic foot of water at 17 degrees centigrade, and the barometer standing at 24½ inches of the new lineal measure. By this arrangement, 100 pounds will be equal to about 108 pounds of the present avoirdupois weight. All the weights for coins, bullion, apothecaries' weights, etc., be regulated by this system, and all customs and duties collected by these tables. This would soon introduce the system without any compulsory measures.

IV. *Some of the Advantages of the New System of Measures and Weights.*—The mile proposed is the nautical or geographical mile, and used exclusively for the purposes of navigation by all the maritime nations, and inserted in all the scales of charts and maps of the world, is the only universal measure now recognized. Also the weights, as well as the measures, are decimal parts of the unit, as far as can be, without a total change of our present systems. The French metrical system has proved a failure practically. Theoretically it is perfect; taking the degree for a unit, and using the decimal divisions throughout. But our whole notation in astronomy and navigation is founded upon the division of the degree into 60 parts, and we can not have a complete change until we manufacture our clocks and watches so as to mark time by decimal divisions, and change our hours and minutes into corresponding 10ths and 100ths; in fact, abandon entirely our present system. This is too great a change ever to be practicable, especially where so many different people have to conform. The system that has been proposed, only introduces the decimal *divisions* into the standards already adopted, and is not only practicable, but the change can readily be made, as in the case of our coinage. It will be sufficient to convince the most skeptical of the necessity of a change, to make an examination of the tables of weights, measures and coins in the world. And as no better time to correct an evil can be had than the present, it is hoped that our government will lead the way in so useful a change. The British government have already taken measures to have an examination and researches made for this object, as may be seen from the following:

"Sir John Wrottesley brought the decimal system of coinage, weights, etc., before Parliament, February 25th, 1824, but it was not till May, 1838, that a commission of inquiry was appointed at the instance of the then Chancellor of the Exchequer, Mr. Spring Rice, since Lord Monteagle; and in June 20, 1843, another commission was appointed; they both consisted of eminent scientific men, and both reported strongly in favor of the change. A committee of the House of Commons reported to the same effect, August 1st, 1853. Mr. Gladstone, however, while admitting the advantages of this system, thought its introduction premature. In June, 1854, an association was formed for the purpose of obtaining the adoption of the system. In July, 1855, the commissioners for inquiry were again appointed." See *Weights and Measures.* See *Bankers' Magazine*, N. Y., 1856; *Bankers' Register*, N. Y., 1857.

Declination of the Needle. Professor Christopher Hansteen, of Christiana, in Norway, is the person who has given, probably, the greatest impulse, in recent times, to the efforts to methodize the facts and laws of the earth's magnetism. M. Hansteen was born September 26, 1783, and is Professor of Astronomy in the University of Christiana, and Director of the Observatory. His dissertation, entitled *Magnatismus der Erdo*, published in 1819, which received a prize from the Royal Danish Academy, recapitulated all the authenticated facts obtained by voyagers and others, from the earliest times. It will be recollected that Halley had represented the magnetic variation at different parts of the globe by lines traced on Mercator's chart, and passing through all the places where the variation (or declination) of the needle from the true north was equal; and being well aware of the progressive (or secular) changes in the course of these lines, he proposed the hypothesis of 2 pairs of magnetic poles interior to the globe, of which 1 pair revolves slowly.

Professor Hansteen also constructed charts of the lines of equal dip. In certain positions between the tropics the dip is nothing, or the freely-suspended magnetic needle remains horizontal. The line connecting these places is called the magnetic equator. It is an undulating line, inclined somewhere near 12° or 13° to the terrestrial equator, and cutting it in 2 points, not exactly opposite, but in about 3° 20′ and 174° 30′ of E. long. from Paris, according to Admiral Duperrey's observations in 1825. The position of these nodes is, however, variable. The north end of the needle (as is well known) dips more and more in the northern hemisphere, until in a certain place it becomes vertical, when therefore the horizontal component of the magnetic force is nothing, and the common compass loses altogether its directive power. Similar phenomena occur in the southern hemisphere. Lines of dip of 10°, 20°, etc., may be drawn, and where the dip is 90° *there* is a true magnetic pole. The best observations serve to show that there is but one such true pole in each hemisphere.—E. B. *Preliminary Dissertation*, by J. D. Forbes, F.R.S.

Deed is a written contract, sealed and delivered. It must be written before the sealing and delivery, otherwise it is no deed; and, after it is once formally executed by the parties, nothing can be added or interlined; and therefore, if a deed be sealed and delivered, with a blank left for the sum, which the obligee delivers up after sealing and delivery, this will make the deed void. A deed must be made by parties capable of contracting, and upon a good consideration, and the subject-matter must be legally and formally set out. The formal parts of a deed are the premises containing the number, names, additions, and titles of the parties, the covenants, which are clauses of agreement contained in the deed, whereby the contracting parties stipulate for the truth of certain facts, or bind themselves to the performance of some specific acts; the conclusion, which mentions the execution and date of the deed, or the time of its being given or executed, either expressly, or with reference to some day and year before-mentioned. Every deed must be founded upon good and sufficient consideration, not upon an usurious contract, nor upon fraud, collusion, either to deceive *bona fide* purchasers, or just and lawful creditors; any of which considerations will vacate the deed, and subject the parties to forfeiture, and in some cases to imprisonment. A deed, also, without any consideration, is void. A deed must be executed by the party himself, or by another for him in his presence, or with his direction; or, in his absence, by an agent authorized so to do by another deed, also under seal; and in every such case, the deed must be made and executed in the name of the principal. A deed takes effect only from the day of delivery; and therefore, if it have no date, or a date impossible, the delivery will, in all cases, ascertain the date of it; and if another party seal the deed, yet, if the party deliver it himself, he thereby adopts the sealing and signing, and by such delivery makes them both his own. The delivery of a deed may be alleged at any time after the date; but unless it be sealed and regularly delivered, it is no deed. Another requisite of a deed is, that it be properly witnessed or attested. The attestation is, however, necessary rather for preserving the evidence than as intrinsically essential to the validity of the instrument. There are four principles adopted by the courts of law for the exposition of deeds, viz.: 1. That they be beneficial to the grantee, or person in whose favor they are intended to operate. 2. That where the words may be employed to some intent, they shall not be void. 3. That the words be construed according to the meaning of the parties, and the intent of the parties be carried into effect, provided such intent can possibly stand on a law. 4. That they are to be expounded consonantly to the rules of law, and reasonably, without injury to the grantor, and to the greatest advantage of the grantee.—E. A.

Degree of Latitude is the space or distance, on the meridian, through which an observer must move to vary his latitude by 1 degree, or to increase or diminish the distance of a star from the zenith by 1 degree; and which, on the supposition of the perfect sphericity of the earth, is the 360th part of the meridian. The length of a degree of a meridian, or other great circle on the surface of the earth, is variously determined by different observers, and the methods made use of are various; and, therefore, without entering into the history of all attempts of this kind, we shall present our readers with the following

TABLES OF THE DIFFERENT LENGTHS OF A DEGREE, AS MEASURED IN VARIOUS PARTS OF THE EARTH, THE TIME OF ITS MEASUREMENT, THE LATITUDE OF ITS MIDDLE POINT, ETC.

Date.	Latitude.	Extent in English miles and decimals.	Measurers.	Countries.
1525	49° 20½′ N.	68·763	M. Fernel........	France.
1620	52 4 N.	66·091	Snellius	Holland.
1635	53 15 N.	69·545	Norwood.........	England.
1644		75·066	Riccioli...........	Italy.
1669	49 22 N.	68·945	Picard.........	France.
1718		69·119	Cassini........	
1737	66 20 N.	69·403	Maupertuis......	Lapland.
1740	49 22 N.	69·121	Cassini & LaCaille	France.
	45 00 N.	69·092		
1744	0 0	68·751	Juan d'Ulloa...	Peru.
		68·732	Bouguer.......	
		68·713	Condamine....	
1752	33 18½ S.	69·076	La Caille.........	C. of G. H.
1755	43 0 N.	68·998	Boscorich.,....	Italy.
1764	44 44 N.	69·061	Beccaria.......	
1766	47 40 N.	69·142	Liesganig.........	Germany.
1768	39 12 N.	68·893	Mason and Dixon	U. States.
1802	51 29 54½ N.	69·146	Lieut. Col, Mudge	England.
1803	66 20½ N.	69·292	Swanberg........	Lapland.
	12 32 N.	68·743	Lambton	Mysore.
1808	44 52½ N.	68·769	Biot, Arago, etc...	France.

Degree of Longitude is the space between 2 meridians that make an angle of 1° with each other at the poles, the quantity or length of which is variable according to the latitude. The following table expresses the length of a degree of longitude in different latitudes, supposing the earth to possess a perfect sphericity:

Lat.	Miles.	Lat.	Miles.	Lat.	Miles.	Lat.	Miles.
0	69·07	23	63·51	46	47·93	69	24·73
1	69·06	24	63·03	47	47·06	70	23·60
2	69·03	25	62·53	48	46·16	71	22·47
3	68·97	26	62·02	49	45·26	72	21·32
4	68·90	27	61·48	50	44·35	73	20·17
5	68·81	28	60·93	51	43·42	74	19·02
6	68·62	29	60·35	52	42·48	75	17·86
7	68·48	30	59·75	53	41·53	76	16·70
8	68·31	31	59·13	54	40·56	77	15·52
9	68·15	32	58·51	55	39·58	78	14·85
10	67·95	33	57·87	56	38·58	79	13·17
11	67·73	34	57·20	57	37·58	80	11·98
12	67·48	35	56·51	58	36·57	81	10·79
13	67·21	36	55.81	59	35·54	82	9·59
14	66·95	37	55·10	60	34·50	83	8·41
15	66·65	38	54·37	61	33·45	84	7·21
16	66·31	39	53·62	62	32·40	85	6·09
17	65·98	40	52·85	63	31·33	86	4·81
18	65·62	41	52·07	64	30·24	87	3·61
19	65·24	42	51·27	65	29·15	88	2·41
20	64·84	43	50·46	66	28·06	89	1·21
21	64·42	44	49·63	67	26·96	90	0·00
22	63·97	45	48·74	68	25·85		

A degree of the meridian on the surface of the globe has been variously determined by different observers. M. Picart measured a degree in the latitude of 49° 21′, and found it equal to 57,060 French toises. But the French mathematicians who examined Picart's operations, found that the degree in that latitude is 57,183 toises. Mr. Norwood measured the distance between London and York, and found it 905,751 English feet, and finding the difference of latitudes 2° 28′, determined the quantity of 1 degree to be 367,196 English feet, or 69 English miles and 288 yards. Maupertuis measured a degree in Lapland, in the latitude of 66° 20′, and found it 57,438 toises. A degree was measured at the equator by other French mathematicians, and found to contain 56,767·8 toises. From these measurements it appears that the earth is not a sphere, but an oblate spheroid.—E. B.

Delaware, one of the middle United States, next to Rhode Island the smallest in the Union, and in population the least, is bounded north by Pennsylvania, east by Delaware River and Bay, south and west by Maryland. It is between 38° 27′ and 39° 50′ N. lat., and between 75° 04′ 42″ and 75° 56′ W. long., and between 1° 13′ and 1° 57′ E. long. from W. It is 92 miles long and 23 broad, and contains 2,120 square miles, or 1,356,800 acres. The population in 1790 was 59,094; in 1800, 64,272; in 1810, 72,674; in 1820, 72,749; in 1830, 76,739; in 1840, 78,085; in 1850,91, 532.

Early History.—That Delaware Bay was already known to the Spaniards a long time before Hudson, there is no doubt. But the question is what they called it. Benson, in his memoir on the names of the State of New York, says that they called it *The Bay of all Saints.* He does not give his authority. In the most ancient Spanish description of the east coast which we have (that of Oviedo), this "Bay of all Saints" is not mentioned all. But Oviedo mentions a *Bahia de S. Christoval* on the east coast, and says that it stands under 39° N. lat. This is nearly exactly the latitude of Delaware Bay, which therefore probably is designated by him under that name. If it is true that the Spanish *Cabo de las Arenas* is our Cape Henlopen, then that large bay which the Spanish maps invariably paint immediately to the north of this cape, must be *Delaware Bay.* The figure which they give to this bay, as well as to the river which they make run into it, corresponds with the configuration of our bay and river. Often we find on the maps the name given by Oviedo—that of *Bahia de S. Christoval* or *Chripstoval* (St. Christopherus Bay), written to it. So for instance on a Spanish map of 1580, so on a French map made after a Spanish original of 1587; but sometimes other names appear here; for instance, that of *Bahia de la Buelta* (Repulse Bay), or that of *Rio de S. Antonio,* probably only because the map-makers confounded all those names in a most irregular way. As to the Spanish navigator who brought home the sketch of our bay, and gave it the name of *St. Christopherus Bay,* there is yet some doubt.

The first navigator whom we can prove to have been at the entrance of the bay, is Henry Hudson, when (1609) he sailed along the coast from Chesapeake Bay toward the north. He looked into the bay, found it full of shoals, did not explore it, gave to it no name, and "*suspected,* from the currents which came out from it, that there was a river leading into it." It is pretty generally said that Lord Delaware, when (in the year 1610) he sailed to Chesapeake Bay, was thrown out of his way and touched at this bay, and that it was therefore called by him, or by his companions, and the first English settlers in Virginia, *Delaware Bay.* This was not only the first English, but upon the whole the first name under which the bay became more generally known in Europe. We see it for the first time mentioned and written in the letter of Captain Argall, of the year 1612, in Purchas' Pilgrims. The old Virginian writers spelled or corrupted the name in very different ways. Sometimes they write "*My Lord Delaware's Bay,*" sometimes *Delawar Bay,* and sometimes *Delaware Bay.* Later French mapmakers (for instance Bellin) made of this *Bay Delaware* or *Lavar.* The first map on which we find this name, is a little map of the greater part of the east coast by Captain Smith, of the year 1624. For the first time, pretty well drawn, the bay is to be found on the first map of Maryland, of the year 1635.

After Hudson and Lord Delaware, Dutch skippers and navigators were the first who entered this bay. The Dutch Captain Hendricksen sailed (1616) up into the bay and river as far as Schuylkill river. Captain Cornelius May entered the bay 1623, explored it, sailed up in the river as high at least as the present site of the city of Philadelphia, and built there a fort called "Fort Nassau." The bay was from him called "New Port May." The river was called by the Dutch *Zuydt rivier* (the South river), with respect to the second great river of the New Netherlands to the north (Hudson's river). It is not evident, but it is probable that the Dutch commenced at once after Hudson's discovery to designate the river under that name. The first book in which the name Zuydt rivier is mentioned and printed is the "New World" of Laët, 1624. From the river also the bay was generally called Zuydt Bay, the South Bay, and this name became among the Dutch so common that the other name, New Port May, was soon forgotten. Another Dutch name for the bay was that of Godyn's Bay, from the well-known Amsterdam merchant, Samuel Godyn, who purchased from the Indians Cape May, and a tract of country from this cape along the shores of the bay. Other Dutch names of this river sometimes used were *Nassau rivier*, *Prince Hendrick's rivier*, and *Charles rivier*. This latter name was in use as well among the English as among the Dutch. We find in an English document of the year 1648, the name *Delaware* or *Charles river*. And so we find on the Italian map by Lucini, taken from a Dutch original in about the year 1631, the name *Rio Carlo*. We do not know in honor of which Charles the river was so called. The English claimed the bay and river in consequence of Cabot's and Delaware's discovery, and from different other reasons. The Dutch claimed it from Hudson's discovery, and took possession of it about 1623, through Captain May. In the year 1629 they built another fort there, called *Swanandael*, and 1633 the great navigator, David Pietersz de Vries, entered the bay and river, explored it, and made there also a temporary little settlement, *Fort Upland*.

But all these Dutch settlements disappeared again, and were partly destroyed by the Indians, and the river and bay were without any habitation from 1633 to 1638, when at last the Swedes entered it under Peter Minuit, Minuet, or Menewe. They changed the whole geography of the bay and river. The river was under them called *The New Swedeland Stream*, and the bay *New Swedeland Bay*, and the Swedes erected also new forts and gave Swedish names to the old Dutch forts, which they partly rebuilt. The greater number of the Swedish and Dutch settlements on Delaware river and bay were made on the western shore, and this first Dutch and Swedish population formed from the beginning a peculiarly situated community. What since 1638 was called *New Swedeland*, comprised principally the territory of the present State of Delaware. The Swedes remained 17 years in possession of the river and bay, and one of their engineers, Lindstrom, who accompanied the Swedish governor Rising, in the year 1654, made a minute exploration and the first special map of the whole. In the following year, 1655, however, the Dutch governor of the New Netherlands, Stuyvesandt, appeared with some men of war in the bay, and subdued the whole little New Sweden to the Dutch. They reintroduced the old and some new Dutch names, but retained possession only for 9 years. When the English (1664) conquered this land from the Dutch, it was, until 1681, attached to the great province of New York. But during the same time the founders of Maryland considered it to be comprised under this name and to be a part of their *colony of Maryland*. In this period were formed the 3 counties of which the State still to-day consists, and the whole tract was usually called *the three lower counties on the Delaware*. In the year 1681 William Penn bought these 3 counties from the Duke of York, and they made now a part of Pennsylvania, under the usual name of *The Territories of Pennsylvania*, or the *Three Lower Counties*. They remained in connection with Pennsylvania until 1776, when these territories separated from Pennsylvania and declared themselves independent, under the name of the *State of Delaware*.—J. G. KOHL.

A somewhat elevated table-land passes through a portion of the State from north to south, dividing the waters which fall into Chesapeake Bay from those which flow into Delaware Bay. This table-land contains a chain of swamps in the western part of this State, from which its principal streams originate. The soil in the north is a strong clay. Along Delaware River, and for about 10 miles west of it, the soil is generally a rich clay, well adapted to agriculture; but between this and the swamps the soil is light and sandy. Proceeding toward the south, the soil becomes more sandy, and in Sussex county sand greatly predominates. Kaoline, or porcelain clay, is found in the northern portion, bog-iron ore in the southern, and shell marl throughout the State. There were in 1850, 580,862 acres of land improved, and 375,282 of unimproved in farms. Cash value of farms, $18,880,031; and the value of implements and machinery, $510,279.

Live Stock, etc.—Horses, 13,852; asses and mules, 791; milch cows, 19,248; working oxen, 9,797; other cattle, 24,166; sheep, 27,503; swine, 56,261; value of live stock, $1,849,281; of slaughtered animals, $373,665.

Agricultural Products, etc.—Wheat, 482,511 bushels; rye, 8,066; Indian corn, 3,145,542; oats, 604,518; barley, 56; buckwheat, 8,615; peas and beans, 4,120; potatoes, 240,542; sweet potatoes, 65,443; value of products of the orchard, $46,574; produce of market gardens, $12,714; pounds of butter made, 1,055,308; of cheese, 3,187; molasses, 50 gallons; beeswax and honey, 41,248 pounds; wool, pounds produced, 57,768; flax, 11,174; hops, 348; hay, tons of, 30,159; clover-seed, 2,525 bushels; other grass seeds, 1,403; flax-seed, 904 bushels; and were made 145 gallons of wine; value of home-made manufactures, $38,121.

Manufactures, etc.—There were in the State in 1850, 12 cotton factories, with a capital invested of $585,100, employing 413 males and 425 females, producing 5,205,000 yards of sheeting, etc., valued at $538,439; 5 woolen factories, with a capital invested of $136,500, employing 113 males and 86 females, manufacturing 157,000 yards of cloth, valued at $244,510; 13 establishments making pig-iron, with a capital of $373,500, employing 250 persons, and making 3,630 tons of castings, etc., valued at $267,462; 2 establishments, with a capital invested of $15,000, employing 50 persons, manufacturing 550 tons of wrought iron, valued at $55,000; 70 flouring-mills, 83 saw-mills, 16 tanneries, with a capital of $99,350, employing 108 persons; value of products, $163,742; 8 printing-offices, issuing 2 semi-weekly, and 8 weekly newspapers. Capital invested in manufactures, $2,978,945; value of manufactured articles, $4,649,206.

The principal port is Wilmington, a port of entry, and the principal commercial town of the State, situated between Brandywine and Christiana Creeks, 1 mile above their junction. On Brandywine Creek are some of the finest flouring-mills in the United States, to which vessels drawing 8 feet water can come. Christiana Creek is navigable for vessels drawing 14 feet of water, and gives to Wilmington considerable commerce. The tonnage of the port in 1856, was 13,665 tons. The foreign trade of Delaware is effected chiefly through Baltimore, New York, and Philadelphia, especially the last; so that its direct foreign commerce is very inconsiderable. During 1850, 16 vessels were built, of an aggregate burden of 1,848 tons, viz., 12 schooners, 3 sloops, and 1 steamer. The Chesapeake and Delaware Canal connects these two bays.

Foreign Commerce of the State of Delaware. from October 1, 1820, to July 1, 1856.

Years ending.	Exports.			Imports.	Tonnage Cleared.		District Tonnage.	
	Domestic.	Foreign.	Total.	Total.	American.	Foreign.	Registered.	Enrolled and Licensed.
Sept. 30, 1821.......	$75,915	$9,530	$85,445	$80,997	2,388	....	667	9,721
1822.......	168,950	4,642	168,592	216,969	4,032	145	....	....
1823.......	35,724	18,113	53,837	60,124	124	....	....	....
1824.......	18,964	....	18,964	12,080	199	127	....	....
1825.......	29,361	2,295	31,656	18,693	827	....	....	....
1826.......	83,318	1,877	85,195	10,009	1,136	....	....	....
1827.......	9,406	....	9,406	6,993	317	....	....	....
1828.......	27,028	2,367	29,395	15,260	1,050	....	....	....
1829.......	7,195	....	7,195	24,179	308	....	....	....
1830.......	52,258	....	52,258	26,574	962	141	....	....
Total....	$453,119	$38,824	$491,943	$471,878	11,343	413	....	....
Sept. 30, 1831.......	34,514	....	34,514	21,656	799	965	99	13,453
1832.......	16,242	....	16,242	23,658	699	333	....	....
1833.......	45,911	....	45,911	9,043	186	....	....	....
1834.......	51,945	....	51,945	185,943	....	....	....	....
1835.......	88,826	....	88,826	10,611	....	....	....	....
1836.......	74,981	....	74,981	107,063	....	....	....	....
1837.......	40,333	....	40,333	66,841	....	....	....	....
1838.......	36,844	....	36,844	1,348	....	....	....	....
1839.......	8,680	....	8,680	....	....	....	....	....
1840.......	37,001	....	37,001	802	....	....	....	....
Total....	$435,277	....	$435,277	$426,960	1,684	1,298	....	....
Sept. 30, 1841.......	38,585	....	38,585	3,276	1,632	2,202	906	9,150
1842.......	55,665	....	55,665	8,557	2,537	2,672	....	....
9 mos., 1843*......	98,490	192	98,682	4,685	1,949	366	....	....
June 30, 1844.......	125,771	406	126,177	8,093	3,882	....	....	....
1845.......	138,195	....	138,195	2,274	4,958	100	....	....
1846.......	144,045	2,177	146,222	11,215	3,495	....	....	....
1847.......	235,459	....	235,459	12,722	4,096	839	....	....
1848	83,039	19	83,058	490	2,466	3,612	....	....
1849.......	37,850	379	38,229	1,400	1,091	1,599	....	....
1850.......	....	....	....	....	....	....	....	....
Total....	$957,099	3,173	$960,272	$47,712	26,101	11,390	....	....
June 30, 1851.......	....	...	....	....	....	....	663	11,217
1852.......	....	....	....	....	....	....	....	....
1853.......	....	....	....	....	....	....	....	....
1854.......	80,920	....	80,920	....	2,053	....	....	....
1855.......	63,087	....	63,087	5,821	2,444	....	....	....
1856.......	76,380	....	76,380	3,053	1,674	....	....	....

* Nine months to June 30, and the fiscal year begins July 1.

Delaware Bay, at the mouth of the Delaware River, is a large arm of the sea, 75 miles long, 20 miles wide between Cape May on the north, and Cape Henlopen on the south, and 30 miles wide in the middle. The navigation is difficult and dangerous, being interrupted by many shoals. Its low and sandy shores were without harbors until the construction of the Delaware Breakwater within Cape Henlopen.

Delaware Breakwater. This breakwater is situated at the entrance into Delaware Bay, near Cape Henlopen. The anchorage ground, or roadstead, is formed by a cove in the southern shore, directly west of the pitch of the cape, and the seaward end of an extensive shoal called *The Shears*. The entrance from the ocean is 1,950 feet in width, and is accessible during all winds from the sea. The depth of water is from 24 to 36 feet deep, at low tide, throughout the harbor. There are two dykes, one of 1,500 feet, and the other of 6,000 feet, giving a secure harbor of seven tenths of a square mile. The objects of this artificial harbor are to protect vessels from winds from east to north-west, by way of north, and against the floating ice of the bay.

Delaware River, a river of the United States, which rises on the west side of the Catskill Mountains, State of New York, and after separating Pennsylvania from New York and New Jersey, falls into the Delaware Bay 5 miles below Newcastle. It is formed by the union of two streams. The Mohawk, or western and main branch, rises from a small lake in latitude 42° 45′ N., at an elevation of 1886 feet above the sea, and flows south-west for nearly 50 miles, when it turns suddenly to the south-east, flowing in that direction for 5 miles to the Pennsylvania boundary line in latitude 42° N. Eight miles below this spot it is joined by the Popaeton branch, which has a previous south-west course of about 50 miles. After the union of these two streams, the river pursues a winding south-east course between New York and Pennsylvania for 60 miles to the north-west corner of New Jersey, where it receives the Neversink River. It then turns south-west, along the base of the Kittaning range, for 35 miles, in passing through which it forms what is called the "Water Gap," a great natural curiosity. The banks here rise precipitously from the water's edge to the height of 1,600 feet, overhung by immense masses of rock, and at the south-east entrance leaving scarcely room for a road. The passage, however, widens toward the north-west. Its entire length is about 2 miles. From this point it pursues a south-east and then a south-west course to Easton, where it receives the Lehigh, a large tributary, from the west. A little below this the river passes through South Mountain, and has a south-east course to Trenton, 60 miles below Easton; having in that distance 25 rapids, with a total fall of 165 feet. These falls are navigable at high water. The river below Trenton turns to the south-west until near the bay, which it enters in a south-east direction, after an entire course of 309 miles. It is navigable for vessels of the largest class to Philadelphia, 40 miles, and for sloops 35 miles further, to Trenton. Above the falls at Trenton it is navigable for boats of 8 or 9 tons for 100 miles. The Delaware is connected with the Hudson River and the bays of New York by the Delaware and Hudson Canal, the Morris Canal, and the Delaware and Raritan Canal.

Del Credere Commission. All agents who sell goods for their principals, and guaranty the price, are said abroad to act under a *del credere commission*. In the United States, this phrase is seldom used, nor is such guaranty usually given, except by commission merchants. And where such guaranty is given, the factor is still but a surety, so far that his employers must first have recourse to the principal debtor. But his promise is not "a promise to pay the debt of another," within the statute of frauds. Nor does he guaranty the safe arrival of the money received by him in payment of the goods, and transmitted to his employer, but must use proper caution in sending it. If he take a note from the purchaser, this note is his employer's; and if he take depreciated or bad paper, he must make it good.—PARSONS *on Mercantile Law*, ch. x., p. 159.

In mercantile law, a term derived from the Italian (*credere*, to trust), which denotes a commission granted by a merchant to a factor to dispose of goods; the factor, for the consideration of an additional percentage, agreeing to guaranty the solvency of the purchaser.

Delft or **Delf** (German, *Fayence*, *Unachtes Porzellan;* Dutch, *Delfs porcelyn-;* French, *Faienbe*), a coarse species of porcelain, originally manufactured at Delft, whence its name. It is a kind of pottery of baked earth, covered with an enamel of white glazing, which gives it the appearance and neatness of porcelain. Some kinds of this enameled pottery differ from others, either in their sustaining sudden heat without breaking, or in the beauty and regularity of their forms, enamel, and the painting with which they are ornamented. In general, the fine and beautifully-enameled potteries, which approach the nearest to porcelain in external appearance, are, at the same time, those which least resist a brisk fire; while those which sustain a sudden heat are coarse, and resemble common pottery.

Demand and Supply are terms used in political economy to express the relations between consumption and production—between the demand of purchasers and the supply of commodities by those who have them to sell. The relations between the demand for an article and its supply, determine its price or exchangeable value: the relations between the demand for labor and its supply, determine the amount of wages to be earned by the laborer. For causes explained elsewhere, the price of an article will rarely vary, for any length of time, very much above or below its cost of production; nor will the wages of labor, for any length of time, much exceed or fall below the amount necessary to maintain laborers and their families in such comforts as their habits of life have accustomed them to believe necessary for their subsistence; but bearing in mind that, in the prices of commodities and labor, there is a certain point, determined by causes independent of demand or supply, above or below which prices can not materially vary for any considerable time: all variations of price, if the medium in which they are calculated remain unchanged, may be referred to the proportion which exists between the demand for commodities and the supply of them—between the quantities which purchasers are willing and able to buy, and the quantities which producers are able and willing to sell.

To have any influence upon prices, a demand must be accompanied by the means of purchasing. A demand is not simply a want—a desire to obtain and enjoy the products of other men's labor; for if this were its meaning, there would never be the least proportion between demand and supply: all men would always want every thing, and production could not keep pace with consumption. But an "effective demand," as it is termed by Adam Smith, exists wherever one man is anxious to exchange the products of his labor for that of other men. It is, therefore, of an effective demand only that political economists are speaking when they examine the circumstances of demand and supply in connection with prices.

But although a demand, without the means of purchase, can not affect prices, the universal desire of mankind to possess articles of comfort and luxury suggests other important considerations. As this desire is natural to man, and too often is so strong as to tempt him even to commit crime, it obviously needs no encouragement; men will always gratify it whenever they have the means, and these means consist in the products of their own labor. Hence all that is required to convert this desire of acquisition into an effective demand is ample employment for industry. Increase the production of all commodities and an increased consumption of them is the certain result; for men, having larger products of their own labor to offer in exchange for the products of other men's labor, are enabled to purchase what they are always eager to acquire. Production, therefore, is the great object to be secured, not only as furnishing a supply of commodities necessary and useful to mankind, but also as creating an effective demand for them. When trade is depressed by a languid demand, it is commonly said that increased consumption is all that is required to restore its prosperity. But how is this consumption to be caused? The desire to consume is invariable, and thus any falling off in consumption must be attributed to a diminished production in some departments of industry which causes an inability to consume. When production is restored, an effective demand for all articles will immediately follow; but until the productive energies of the consumers are in a state of activity, it is in vain to expect from them an increased demand.

These considerations lead us to the conclusion that a universal glut of all commodities is impossible. The supply of particular commodities may easily exceed the demand for them, and very often does exceed it; but as the constant desire to obtain commodities needs nothing but the power of offering other commodities in exchange, to become an effective demand, it is evident that a universal increase of production is necessarily accompanied by a proportionate increase of consumption. Men are stimulated by no love of production for its own sake, but they produce in order to consume directly, or because, by exchanging their produce with others, they are able to enjoy the various comforts and luxuries which they are all desirous of obtaining. Active production, therefore, in all departments of industry, causes a general and effective demand for commodities, which will continue to be equal to the supply unless it be checked by war, by restrictions upon commerce, or by other circumstances which prevent a free interchange of commodities.

A country is in the highest prosperity when there is an active and steady demand for commodities and labor, and a sufficient supply of them. Any disturbance of the proportion between one and the other is injurious to the community; and the injury is greater or less according to the extent and duration of such disturbance. When the proportion is well adjusted, the whole community derive benefit from the circumstance, both as producers and consumers; when it is disturbed, they are injured in both capacities.

Having described, thus generally, the nature and causes of demand, and its intimate connection with supply, it becomes necessary to examine the influence of demand and supply upon one another, and upon production, consumption, prices, and profits. This influence varies according to the circumstances of the market, and the nature of the commodities to which its law may be applied. These may be best understood by considering, 1st, the effects of a demand exceeding the supply; and 2dly, of a supply exceeding the demand.

1. The first effect of a demand exceeding the supply of a commodity, is to raise its price. As more persons want to buy the commodity than the producers are able or willing to supply, they can not all obtain what they desire; but must share the supply between them in some manner. But their wants are very much regulated by the cost of gratifying them. One man would purchase an article for a dollar for which he may be unwilling or unable to pay two; while others, rather than forego the purchase, will consent to pay that amount. Those who have commodities to sell, finding that they have more customers than they can

satisfy, immediately infer that they are selling them too cheaply, and that they could dispose of all their stock at a higher price. The price is accordingly raised, when the sale becomes limited to those who are not restrained from buying by the increased price. In principle, though not in outward form, the market is in the nature of an auction. The sellers endeavor to obtain the highest price for their goods; the price rises with the eagerness of those who wish to buy, and the highest bidders only secure the prizes. In the market, however, the competition of the buyers is not perceptible among themselves, except through the prices demanded. Their competition determines the prices, but the sellers judge of its extent, and regulate their demands so as to obtain the greatest possible advantage from it.

Some commodities are positively necessary for the support of the people, of which the supply may fall very short of the demand and be incapable of increase. This is the case when there is a bad harvest in a country which is excluded from a foreign supply by war or by fiscal restrictions. Here the price rises in proportion to the deficiency of the crops. The competition for food is universal. Some, indeed, may be driven to the consumption of inferior articles of food, and others to a diminished consumption; but all must eat. The number of consumers is not diminished, while the supply is reduced; and the price must, therefore, rise and continue high until a fresh supply can be obtained. In a siege the competition is still greater. The prices of provisions become enormous; the rich alone can buy; the poor must starve or plunder.

A similar effect is produced if the supply, without being deficient, be confined to the possession of a small number of persons, who limit it to the consumers in order to secure higher prices. However abundant corn might be in a besieged town, if one man were exclusively authorized by law to sell it, it might rise to a famine price, unless the people broke into the granaries, or the government interfered with the monopoly. Less in degree, but similar in principle, is the effect upon prices of every limitation of the market by fiscal restrictions. When any sellers are excluded, the others are enabled to raise their prices.

These are cases in which the supply can not be increased to meet the demand, or in which the supply is monopolized. But the greater number of commodities may be increased in quantity, and the supply of them is not artificially limited. The price of these also rises when the demand exceeds the supply: but the increased price raises the profit of the producer, and attracts the competition of others in the market. Fresh capital and labor are applied to the production of the profitable article, until the supply is accommodated to the demand, or exceeds it. The prices gradually fall, and at length the profits are reduced to the same level as the profits in other undertakings, or even lower. The encouragement to further production is thus withdrawn, and prices are adjusted so as to secure to the producer the ordinary rate of profits, and no more.

But sometimes the demand for a commodity is diminished, if the supply fall short of it for any considerable time. There are various articles useful and agreeable to mankind, but not essential to their existence, which they are eager to enjoy as far as they can, but for which they are not prepared to make great sacrifices. When the price of an article of this description is raised by a deficient supply, continuing for some length of time, it is placed beyond the reach of many persons who learn to regard it with indifference. They would buy it if it were cheap; but as it is dear, they go without it, or are satisfied with a substitute. In this manner the number of consumers is diminished. Others again, who will not be deprived of an accustomed luxury, enjoy it more sparingly, and consume it in less quantities. But so long as the supply is not increased, the price will continue high, because the consumers who still purchase the article, notwithstanding its price, keep up an effective demand equal to the whole supply; while there is still a dormant demand, only awaiting a reduction of price to become effective.

For the same reasons, a demand for articles is diminished when their price is artificially raised by taxation. The demand is gradually confined to a smaller number of persons, and many consume more sparingly.

In these various ways demand and supply become adjusted through the medium of price, whenever the one exceeds the other. This is the result of natural laws, the operation of which is of the highest value to mankind. If the supply be incapable of increase, it economises consumption; if the supply can be increased, it encourages production. In either case, it is of great benefit to the consumer. To revert, for a moment, to the example of a bad harvest, in a country excluded from all foreign supply. Suppose that prices did not rise, but remained precisely the same as if the harvest had been abundant, what would be the consequence? The whole population would consume as much bread as usual, and use flour in every way that luxury points out, unconscious of any scarcity. Farmers might even feed their cattle with wheat. By reason of this improvidence, the whole of the corn would be consumed before the next harvest, and the horrors of famine would burst, without any warning, upon a people living as if they were in the midst of plenty. This evil is prevented by a rise of prices, which is a symptom of scarcity, just as pain is a symptom of disease. By timely precaution the danger is averted. A high price renders providence and economy compulsory, and thus limits consumption. The supply, therefore, instead of being exhausted before the next harvest, is spread over the whole year. In the case of food, it is true that such economy is painful and presses heavily upon the poor: but this evil is a mercy compared with famine. If no privation had been endured before scarcity became alarming, none but rich men could buy a loaf: for every one who had a loaf to sell, would be risking his own life if he sold it.

These observations are also applicable in some measure to cases in which prices are raised by the supply being confined to one or to a few persons, who have contrived to buy up the whole or nearly the whole of any commodity. But such exclusive possession (sometimes improperly called a monopoly) can not exist, for any length of time, in articles of which the supply is capable of increase. The extreme case has been put of a besieged town, in which the whole supply of corn was monopolized by one man. Under those circumstances of course he would demand a high price; but unless his exclusive supply were upheld by law, it does not follow that the inhabitants would suffer on that account. A most provident consumption of food is absolutely necessary for the defense of a town, and no organization could distribute provisions according to the wants of the people so well as a system of purchase restrained by a high price. It must also be recollected that, without any such exclusive possession, the fact of the siege alone must raise prices by cutting off fresh supplies. If the siege continue, provisions are more likely to last out by the instrumentality of prices than by any other means. At the same time the sole possessor of the corn would be restrained from keeping back the supply beyond the actual necessity of the occasion by many considerations. He would know that if a popular tumult arose —if the town were relieved, the siege raised, a capitulation agreed to, or the place suddenly carried by assault—the value of his exclusive property would be destroyed. His own interest, therefore, is coincident with that of the people. It is better for both that the supply should be meted out with parsimony; it is dangerous to both that it should be immoderately stinted.

In circumstances less peculiar than these, very little evil can arise from an exclusive possession of any commodity not protected directly or indirectly by law. If the supply be capable of increase, and the demand be sufficient to enable the owner to secure a high price, for reasons already explained, the market would rapidly be supplied from other quarters. If the supply can not be increased, that fact alone would raise the price; and it is probable that the supply would not have been so great without the extraordinary activity of the capitalist who had been able to secure for his country the whole accessible supply to be collected from the markets of the world.

A monopoly, properly so called, is of a totally different character: for, however abundant the supply of an article may be, it may, nevertheless, be inaccessible to the consumer.

When prices are high by reason of the demand exceeding the supply, it is by no means necessary that the profits of those who sell the dear commodities should always be greater than the profits in other branches of trade. It must always be recollected, that where scarcity is the cause of the high price, the sellers who demand it have the less to sell. Where scarcity is not the cause, but the demand is great because the supply, notwithstanding the exertions of producers, can not keep pace with it, the profits are undoubtedly greater than usual, until the supply has been increased.

II. It is now time to consider the effects of a supply exceeding the demand, and this division of the inquiry will require less elucidation, as the effects of such a condition of the market may be stated to be the very reverse of those which we have just been examining. When there is more of a commodity than people are prepared to buy, its price must fall. Its sellers must offer it for sale at the price at which they can induce people to purchase. All is now in favor of consumers. They are no longer bidding against each other: but the sellers are competing among themselves to get rid of their goods. The price falls generally in proportion to the excess of the quantity, but this result is very much qualified by the nature of the article. If there be an excess of supply in perishable goods, there is nothing to prevent the natural fall of prices. When fish is unusually abundant, it must be cheap, or a great part of it will be destroyed: it must be eaten at once, or not at all; and to induce people to eat it, it must be offered to them at a low price. But with articles which may be held back, in expectation of higher prices, their value may be partially sustained. Production may be reduced, and the stock gradually brought into the market, until the supply has been equalized with the demand; and wherever the article is such as to admit of voluntary increase or diminution, the natural result of an excessive supply is to reduce production, until the balance of supply and demand has been restored. This mutual adjustment is in perpetual operation, and is ordinarily effected with such precision, that it may be said, without exaggeration, that a large city is supplied exactly with every thing its inhabitants require—even down to an egg or a pint of milk. There is always enough of every thing, and rarely too much.

Whenever there is an excessive production of any commodity, it is an evil almost as great as scarcity. It is true that the consumer derives benefit from it, but the producing classes are most injuriously affected. In order to raise the value of the produce of their labor, they must cease to produce, or must produce in less quantities. The workmen are thus either deprived of employment altogether for a time, or are employed for a portion of their time only, at reduced wages; while their employers are disposing of their goods at low prices, which scarcely repay the outlay of their capital. Nor does the penalty of over-production fall exclusively upon those engaged in the trade in which supply has exceeded the demand. Their distresses extend to other classes. It has been shown already that it is to production we must look as the cause of sustained consumption, and thus the pressure upon any considerable branch of productive industry must be sensibly felt by those who have the produce of their own labor to sell. Production has failed, and consumption must therefore be diminished.

The ruinous consequences of gluts, in particular staples of trade and manufacture, are too well known, especially in this country, to require any further illustration; but their causes are not always agreed upon. Such gluts are often attributed to the facility with which manufactures are produced by machinery; but we have shown that over-production in all branches of industry is impossible; and if that be true, it is evident that when partial gluts are produced by the aid of machinery, that powerful agent must have been misapplied. It is not contended that nothing can be produced in too great abundance. Whether machinery be used or not, production must be governed by the same laws of demand and supply. Those things only must be produced for which there is a demand, and they must not be produced in greater abundance than the demand warrants. But the more generally machinery is used, the more abundant will be the products which men will have to exchange with each other, and therefore the better will be the market. It follows that machinery can only cause a glut when applied excessively to particular objects, precisely in the same manner as an excessive quantity of labor would cause one if applied where it was not needed by the demands of commerce.

The supply of markets is a very speculative business, and is often conducted with more zeal than discretion. When a particular trade is supposed to be more prosperous than others, capitalists rush into it in order to secure high profits; and in this country the abundance of capital, the perfection of our machinery, and the skill of our workmen, enable them to produce with extraordinary facility. Over-production in that particular trade is the consequence, and all engaged in it suffer from the depreciation in the value of their goods; but if, instead of rushing into the favorite trade, they had distributed their enterprises more widely, their own interest and that of the community would have been promoted. When a ship is wrecked, if all the crew precipitate themselves into one boat, they swamp it; but if they wait till all the boats are lowered, and apportion their numbers to the size of each, they may all reach the shore in safety. And so it is in trade: one trade may easily be glutted, while there is room in other trades for all the capital and industry that need employment.

In proportion to the extent of the market and the variety and abundance of commodities to be exchanged, will be the facility of disposing of the products of capital and labor; and this consideration points out as the most probable antidote to gluts, a universal freedom of commerce. When the free interchange of commodities is restricted, not only is a glut caused more easily, but its causes are more uncertain, and dependent upon unforeseen events. With the whole world for a market, the operation of the laws of demand and supply would be more equable, and the universality of the objects of exchange would make gluts of rare occurrence. The market would still be liable to disturbance by bad harvests, by errors in the monetary system, by shocks to public credit, and by war; but apart from these causes of derangement, demand and supply would be adjusted, and the productive energies of all nations called into full activity.—Bohn's *Cyclo. Pol. Econ.*; Adam Smith, *Wealth of Nations*, book i.; M'Culloch, *Principles of Political Economy*, part i., ch. 7, and part ii., ch. 1, 2; Malthus, *Principles of Political Economy;* Ricardo, ch. 30; Mill, *Essays on Unsettled Questions of Political Economy*, Essay ii.

Demurrage, in commercial navigation, is an allowance made to the master or owners of a ship by the freighter, for detaining her in port longer than the period agreed upon for her sailing. It is usually stipulated in charter-parties and bills of lading, that a certain number of days, called running or working days, shall be allowed for receiving or discharging the cargo, and that the freighter may detain the vessel for a further specified time, or as long as he pleases, on payment of so much *per diem* for such over-time. When the contract of affreightment expressly stipulates that so many days shall be allowed for discharging or receiving the cargo, and so many more for overtime, such limitation is interpreted as an express stipulation on the part of the freighter, that the vessel shall in no event be detained longer, and that if detained he will be liable for demurrage. This holds even in cases where the delay is not occasioned by any fault on the freighter's part, but is inevitable. If, for example, a ship be detained, owing to the crowded state of the port, for a longer time than is allowed by the contract, demurrage is due; and it is no defense to an action for demurrage, that it arose from port regulations, or even from the unlawful acts of the Custom-house officers. Demurrage is not, however, claimable for a delay occasioned by the hostile detention of the ship, or the hostile occupation of the intended port; nor is it claimable for any delay wilfully occasioned by the master, or owners, or crew of the vessel. The claim for demurrage ceases as soon as the ship is cleared out and ready for sailing, though she should be detained by adverse winds, or tempestuous weather. —Chitty's *Commercial Law.*

Professor Parsons in his admirable work on Mercantile Law [Boston, 1856], says:

"As time has become of the utmost importance in commercial transactions, both parties to this contract should be punctual, and cause no unnecessary delay; and for such delay, the party injured would have his remedy against the party in fault. The charter-party usually provides for so many 'lay-days,' and for so much 'demurrage.' Lay-days, or working-days, are so many days which the charterer is allowed for loading, or for unloading the vessel. These lay-days are counted from the arrival of the ship at the dock, wharf, or other place of discharge, and not from her arrival at the port of destination, unless otherwise agreed on by the parties. In the absence of any custom or bargain to the contrary, Sundays are computed in the calculation of lay-days at the port of discharge; but if the contract specifies "working lay-days," Sundays and holidays are excluded. If more time than the agreed lay-days is occupied, it must be paid for; and 'demurrage' means what is thus paid. Usually the charterer agrees to pay so much demurrage a day. If he agrees only to pay demurrage, without specifying the sum, or if so many working days are agreed on, and nothing more is said, it would, generally, at least, be considered that the number of lay-days determined what was a reasonable and proper delay, and that for whatsoever was more than this, the party in fault must pay a reasonable indemnity. If, after the lay-days allowed for unloading, have commenced, and, of course, after a safe arrival, but before the cargo is unladen, ship and cargo, or cargo alone, is lost, without the fault of the ship, of the owner, or of the master, the freight or charter-money is due, because that was earned by the arrival.

"If time be occupied in the repairs of the ship, which are made necessary, without the fault of the owner or master, or of the ship itself, that is, if they do not arise from the original unseaworthiness, the charterer pays during this time. Many cases have arisen where the ship was delayed by different causes, and the question occurred, which party should pay for the time thus lost. On the whole, we should say, that no delay arising from the elements, as from ice, or tide, or tempest, or from any act of government, or from any disability of the consignee, which could not be imputed to his own act, or to his own wrongful neglect, would give rise to a claim on the charterer for demurrage.

"Demurrage seems essentially due only for the fault or voluntary act of the charterer; but if he hires at so much on time, that is, by the day, week, or month; then, if the vessel be delayed by seizure, embargo, or capture, and the impediment is removed and the ship completes her voyage, the charterer pays for the whole time. If she be condemned, or otherwise lost, this terminates the voyage and the contract.

"The contract may be dissolved by the parties, by united consent, or against their consent, by any circumstances which make the fulfillment of the contract illegal; as, for example, by a declaration of war on the part of the country to which the ship belongs, against that to which she was to go. So either an embargo, or an act of non-intercourse, or a blockade of the port to which the ship was going, may either annul or suspend the contract of charter-party. And we should say they would be held to suspend only, if they were temporary in their terms, and did not require a delay, which would be destructive to the purposes of the voyage.

"In reference to all these points, it is to be understood, that if the parties know the circumstance, which they make their bargain, and provide for it, any bargain they choose to make in relation to it would be enforced, unless it required one or the other of the parties to do something prohibited by the law of nations, or of the country in which the parties resided, and to whose tribunals they must resort.—Parsons' *Mercantile Law*, p. 362–367. See Kent's *Com.*, 111., pp. 264, 265.

Denarius, in *Roman Antiquity* the chief silver coin among the Romans, worth in sterling money, about 7¾*d*, or about 15 cents. It was originally of 62 grains weight; and was considered equivalent to the Attic *drachma*, which, however, weighed 67 grains. It was originally one-seventh, but afterward fell to one-eighth ounce. (See Arbuthnot on *Coins.*) There was also a golden denarius, of which there is a specimen in the British Museum weighing 60 grains, besides others of less weight. As a weight, it was equal to the seventh part of a Roman ounce. Denarius was also used as of the value of an English penny.

Denier, a small French coin—copper coin, of which there were 12 to a sol.

Denmark, a kingdom in the north of Europe, small in extent and scanty in population, but known in history from an early period of the Christian era. There is no authentic account of the origin of the name of Denmark, nor of the quarter from which the country received its early inhabitants. From the similarity of the Danish and German languages, as well as from the general course of migration in early ages, it seems probable that Denmark was peopled by immigrants from the south—from Holstein, Hanover, and Saxony. There are no means of ascertaining whether natives of Denmark formed part of the formidable hordes which passed the Roman frontiers in the fifth and sixth centuries; but the attacks on this empire were probably made by tribes less remote, the expeditions of the Danes being in general maritime. For such expeditions they were remarkable as early as the eighth and ninth centuries, as was proved by their repeated invasions of England, their occasional descents on Scotland, and their conquest, followed by permanent occupation, of Normandy. To cross a sea of three or four hundred miles in breadth was a bold undertaking for men unacquainted with the use of the compass; but the number of islands in Denmark early accustomed the inhabitants to navigation, and gave them a practical dexterity in it, similar to that acquired by the Dutch from their vicinity to arms of the sea, and to the mouths of great rivers. Both countries proved the advantage of a maritime position, for in those days neither France nor England were capable of sending forth a naval armament.

Denmark is a portion of the great European plain, and may be described as almost uniformly level, with partial inequalities of surface, particularly in Schleswig and Holstein, and the islands of Funen and Zealand. The kingdom consists of two great divisions, the one a long peninsula, extending from the Elbe to the Scaggerrack, and the other a cluster of islands separating the Cattegat from the East Sea. The western coasts of the peninsula are a continuous level of marsh-land; the interior is dry and sandy; and the islands partake of the same characteristics. The soil of the low-land is generally fertile, producing the finest pasture, and excellent corn crops. The climate is milder than the northern situation of the country would indicate; but the sky is very frequently obscured with vapors and moist fogs, and the summer lasts only from June to the middle of August. The climate, however, is not unwholesome. The mass of the population consists of Danes, who occupy the islands, North Jutland, and the northern part of Schleswig. Germans occupy the southern part of Schleswig, Holstein, and Lauenburg: Frisons and Angles live on the islands and other parts of the W. coasts. Agriculture and fisheries are their principal occupations. From 1660 till 1848 the kingdom was an Absolute Monarchy; but in the latter year a constitution was granted by the king; and the legislative power is now vested in two parliamentary bodies, the *Volksthing* and *Landesthing*, both consisting of elective members; the former resembling the House of Representatives, and the latter the Senate, of the Congress of the United States of North America, rather than the Lords and Commons of Great Britain. Denmark is a small and poor country, and her naval and military power corresponds with her small resources. She possesses in Europe the Faroe Islands, and the large, volcanic, and poor island of Iceland, with a portion of West Greenland.

Lubec and Dantzic.—The chief mercantile intercourse of Denmark in the fourteenth century was with Lubec and the north-west of Germany. To the Baltic Lubec was nearly what Venice was to the Mediterranean, the earliest commercial town of consequence. There was also some traffic from Denmark to the mouths of the Vistula; the name of Dantzic or Dansvik (Danish town or port) indicating that a Danish colony, aware of the advantages of the situation, had established itself there. The more remote provinces of Courland and Esthonia were also objects of ambition to the Danes; but they did not find it practicable to keep settlements there. Holstein was more within their control, and much more advantageous, from the comparative civilization of its inhabitants.

Hanse Towns.—During the fourteenth century, the association of the Hanse Towns had acquired considerable strength, and asserted strenuously the freedom of commerce in the north of Europe. Denmark commanding the great entrance into the Baltic by the Sound, was the power most interested in laying merchant vessels under a toll of regular contribution; and the result was repeated contentions, followed at times by open war, between the Danish government and this powerful confederacy.

Shipwrecked Vessels.—The rude habits of the age were strongly marked by the difficulty which the Danish government found in putting a stop to the practice of plundering merchantmen shipwrecked on the coast. Vessels proceeding to and from the Baltic necessarily approached the coast of Jutland, particularly in an age when the ignorance of mariners led to their considering the vicinity of the land in the light of a protection. Shipwrecks were constantly of frequent occurrence there, and were generally turned to the profit of the nobility, who were proprietors of the maritime districts. We may here remark, that the nobles claimed not only the soil, but even the persons of the peasantry; for the principle of personal bondage was until lately maintained in Denmark. The practice was to collect in the vicinity of a wreck such a number of the inhabitants, as to prevent the master or mariners from opposing the seizure of the merchandise. Even bishops residing on the coast, though humane in their treatment of the crews, did not scruple to aid in taking forcible possession of the cargo; so crude were in those days the notions of justice toward merchants. It is a remarkable fact, that a law passed by the king about the year 1521 for the prevention of these practices was abrogated and publicly burned at the instance of the barons and clergy a few years after, when a new sovereign had succeeded to the crown.

Navy.—The following was the state of the Danish navy in 1854:

5 Ships of the Line	3	of 84	guns =	252	guns.
	1	" 72	"	72	"
	1	" 66	"	66	"
6 Frigates	1	" 60	"	60	"
	1	" 48	"	48	"
	3	" 46	"	138	"
	1	" 44	"	44	"
4 Corvettes	1	" 28	"	28	"
	2	" 20	"	40	"
	1	" 14	"	14	"
1 Barque		14	"	14	"
4 Brigs	2	" 16	"	32	"
	2	" 12	"	24	"
3 Schooners	1	" 8	"	8	"
	2	" 1	"	2	"
90 Gun-boats					
6 Steam-vessels				35	"
1 Cutter				6	"
120				883	"

The financial state of the kingdom will best appear from the following summary of revenue for the whole monarchy, with the exception of Lauenburg, as contained in the Budget for 1854–5:

Domains	£189,748
Surplus from Lauenburg	34,683
Lotteries	5,625
Posts and Telegraph	2,601
Sound, River, and Canal Dues	238,308
Customs, Stamps, etc	733,331
Sundries	31,217
Interest on State Capital	154,300
Floating Debt	146,250
Total revenue	£1,536,063

EXPENDITURE, 1854–1855.

Civil List	£90,000
Appanage of the Royal Family	36,133
Privy Council	5,130
Foreign Department	25,942
War "	521,837
Marine "	185,480
Finance "	47,780
Pensions	171,810
Interests, etc	834,660
Extraordinary Expenses	16,751
Total expenditure	£1,935,523

Besides these, there are special estimates for each of the Duchies, and also for Denmark Proper. The total amounts of each for the above year are as follows, viz.:

General Receipts	£1,535,000
Special Receipts of the Kingdom	572,719
" " of the Duchy of Schleswig	236,696
" " of the Duchy of Holstein	238,828
" " of the Duchy of Lauenburg	34,226
Total	£2,617,469

General Expenses	£1,935,523
Special Expenses of the Kingdom	322,095
" " of the Duchy of Schleswig	81,996
" " of the Duchy of Holstein	91,720
" " of the Duchy of Lauenburg	21,720
Total	£2,453,054

The national debt in 1853 amounted to £13,612,500.

Sound Dues.—In 1490 the reigning king of Denmark made a commercial treaty with Henry VII. of England, by which the English engaged to pay the Sound dues on all vessels entering or returning from the Baltic; and in return they were allowed to have mercantile consuls in the chief seaports of Denmark and Norway. By this time the extension of trade had given rise in Denmark, as in England, to a middle class, among whom the sovereign found in each country the means of balancing the political weight of the nobility; hence a grant was made by the kings of Denmark of various privileges to traders, and relief from a number of local imposts on the transit of merchandise. See *Danish Sound Dues.*

The Armed Neutrality.—One of the principal political questions between England and Denmark occurred in the year 1780, in the midst of a war between England, France, Spain, and the North American colonies. During that arduous contest, England, superior at sea, had no difficulty in obtaining, by her own merchantmen, a supply of hemp, cordage, and other naval stores, from the Baltic, while France and Spain trusted to receiving such supplies by neutral vessels. But the British government denied the right of neutrals to carry warlike stores; and the northern powers, headed by the ambitious Catherine of Russia, entered into a compact, called the Armed Neutrality, by which, without resorting to actual hostility, they sought to overawe England, and to continue the questionable traffic. Happily no bloodshed followed this diplomatic menace, and the question fell to the ground in 1782, on the negotiation for a general peace.

The king of Denmark, subject all along to imbecility, became after 1784 quite incapable of governing. His son, the crown prince, was therefore appointed regent, and soon passed several judicious enactments. The peasants living on the crown lands were gradually emancipated—an example followed by a number of the nobility on their respective estates. In the abolition of the African slave-trade Denmark had the honor of taking the lead among the governments of Europe. The crown prince, guided by the counsels of Count Bernstorff, son of the minister already mentioned, long remained neutral in the political convulsions engendered by the French Revolution. He continued to adhere steadfastly to this plan until in 1801 the Emperor Paul of Russia having, as in the case of the armed neutrality, formed a compact of the northern powers hostile to England, a British fleet was sent into the Baltic under the orders of Sir Hyde Parker, with Lord Nelson as his second in command.

It was this fleet which taught the Danes that their capital was not impregnable, and that the long line of men-of-war moored in front of the harbor was an insufficient defense against such enterprising opponents. The attack took place on the 2d of April, 1801; and the resistance of the Danes was spirited, but fruitless. The loss of the English in killed and wounded exceeded 1000 men, but that of their opponents was much greater, and most of their shipping was destroyed. Happily little injury was done to the capital. A cessation of hostilities took place forthwith, and was followed by a treaty of peace. The death of the Emperor Paul, which occurred soon afterward, dissolved the compact between the northern courts.

But no treaty of peace could be regarded as permanent during the ascendancy of Bonaparte. After defeating first Austria, and then Prussia, that extraordinary man found means to obtain the confidence of the Emperor Alexander of Russia, and in the autumn of 1807 threatened to make Denmark take part in the war against England. Although the Danish government discovered no intention to violate its neutrality, the English ministers, eager to please the public by acting on a system of vigor, despatched to the Baltic both a fleet and an army, in order to compel the surrender of the Danish navy upon condition of its being restored at a peace. To such a demand the crown prince gave an immediate negative, declaring that he was both able and willing to maintain his neutrality, and that his fleet could not be given up on any such condition. On this the English army landed near Copenhagen; laid siege to that city; and soon obliged the government to purchase its safety by surrendering the whole of its naval force.

This act, the most questionable in point of justice of any committed by the British government during the war, can hardly be defended on the score of policy. The battle of Trafalgar had ere this been fought; and after that great victory her superiority at sea was so decisive as to exempt her from the necessity of offending foreign powers by adopting extreme measures. The resentment felt on that occasion by the Emperor of Russia was so great as to deprive England during four arduous years of the benefit of his alliance; and the seizure of the Danish fleet so exasperated the crown prince and the nation at large, that they forthwith declared war against England, throwing themselves completely into the arms of France.

The hostilities between England and Denmark were carried on by sea, partly at the entrance of the Baltic, and partly on the coast of Norway. These consisted of a series of actions between single vessels or small detachments, in which the Danes fought always with spirit, and not infrequently with success. In regard to trade, both nations suffered severely; the British merchantmen in the Baltic being much annoyed by Danish cruisers, while the foreign trade of Denmark was in a manner suspended by England's naval superiority.

Population.—The increase and distribution of the population of Denmark will appear from the following table:

	1769.	1834-35.	1845.
Denmark Proper....	814,238	1,223,797	1,350,327
Schleswig...........	249,104	338,378	362,900
Holstein.............	278,963	435,596	479,364
Lauenburg	....	....	46,486

The population of Denmark Proper, 1st February, 1850, was as follows:

	Towns.	Rural Dists.	Total.
Zealand and Moen...	170,392	335,068	505,460
Bornholm...........	9,451	18,476	27,927
Funen, etc.....	31,324	156,494	187,818
Laaland and Falster..	11,164	67,853	79,017
North Jutland......	68,234	536,291	604,525
Total............	290,565	1,117,182	1,407,747

The population of the principal towns of Denmark Proper (1st February, 1850) was as follows, viz.: Copenhagen, 129,600; Odensee, 11,100; Helsingor, 8,100; Aarhuus, 7,800; Aalborg, 7,700; Randers, 7,300; Horsens, 5,800; Rönne, 4,700; Svendborg, 4,500; Fredericia, 4,300; Viborg, 4,000; Slagelse, 4,000; and Roeskilde, 3,800. In the duchy of Schleswig, the principal towns with their populations on 1st February, 1840, was as follows, viz.: Flensborg, 12,561; Schleswig, 11,204; Hadersleve, 6,165; Eckernförde, 4,058; and Apenrade, 4,021. In that of Holstein as follows, viz: Altona, 28,095; Kiel, 12,344; Rendsburg, 10,009; and Glückstadt, 5,939.

The principal ports are Copenhagen and Elsinore. Copenhagen, capital of Denmark, situated on the east coast of the island of Zealand, in the channel of the Baltic called the Sound, in lat. 55° 41′ N., long. 12° 35′ 46″ E. The water in the channel is from 25 to 35 feet deep; but it is narrow, and the navigation difficult. Vessels not intending to come into the harbor bring up in the roads, at from one quarter to one half a mile from shore, in about 25 feet water. In the harbor, within the boom, the water is from 17 to 18 feet deep, and vessels unload alongside of the quay. The anchorage in the roads is good and safe.

Elsinore, or Elsineur (Danish *Helsingör*), a seaport town of Denmark Proper, on the east coast of the island of Seeland. It stands at the narrowest part of the Sound, opposite the Swedish town of Helsingborg, from which it is three miles distant. All merchant vessels are obliged, under certain reservations depending on the weather, to salute the castle by lowering their top-sails in passing. In the vicinity is Marienlyst (Mary's delight), till lately a royal chateau, now the property of the corporation, and let to a private family. The towns of Altona and Wansbeck are included under the head of foreign commerce, as standing without the toll-regulations of the kingdom.

The navigation from the north of Germany to Denmark, around the northern point of Jutland, being always tedious, and sometimes dangerous, gave rise to the idea of uniting the two seas by means of a canal, communicating with the river Eyder. The work was commenced in 1777, and finished in the course of seven years, at a great expense. This is the Canal of Kiel, which begins near the town of that name, on the side of the Baltic, and extends eastward about twenty-three miles, when it comes in connection with the Eyder. This canal is nearly 100 feet wide at the surface, and 54 at the bottom; it has six locks, and its least depth of water is 10 feet; it admits vessels of 120 tons burden; and of such small shipping no less than from 2,000 to 3,000 pass in a year. Of no less importance is the Stecknitz Canal, which, along with the railway between Altona, Glückstadt, and Kiel, serves to promote the commerce of the duchies. There are also railways from Copenhagen to Elsinore, and from Copenhagen to Roeskilde; and one has been recently opened from Tonning to Flensburg, with a branch to Rendsburg. Tonning is the port on the east coast, and the length of navigation from there to the Baltic is about 105 miles.

The passage to the Baltic by the Sound continues to be followed by English, Dutch, and other vessels of heavy burden, as well as by Swedes and Norwegians, on account of the vicinity of their respective countries to the Sound; but coasting vessels and other traders from Oldenburg, Hamburg, the mouth of the Elbe, as well as from Tonning and the ports of Schleswig, and still more small Danish barks belonging to the islands, find it a great convenience to traverse the Canal of Kiel. The hazard on the north coast of Jutland arises from extensive sand-banks and a number of currents.—E. B.

The customs regulations of Denmark did not assume any fixed or permanent character until toward the close of the last century. No regular system of commercial policy was pursued; and the regulations which, from time to time, were enforced, were issued more with the immediate view of recruiting the treasury of the crown, than with any regard to the encouragement of the industrial or commercial enterprise of the country. High and prohibitory duties were imposed; exclusive privileges were granted by the crown to such companies as were either rich or favored enough to secure them; competition, so essential to success in every pursuit, was prevented; and the industrial energies of the nation, the only true basis of individual as well as of national wealth, were crushed by the monopolizing spirit and grasping cupidity of these privileged associations. They enjoyed the exclusive right of trading, even with the colonists; of supplying their wants; taking in exchange their surplus productions at such valuations and prices as they thought proper to fix and were willing to pay. About the period already referred to, a better system was gradually introduced. Many of the restrictions which had hitherto contributed to fetter and depress the foreign trade of Denmark were taken off; a new tariff was adopted; and the whole system of regulations was consolidated into the "ordinance 31, Christian VII., dated the 1st of February, 1797, relating to the customs;" which, with the various enactments since adopted, constitutes the basis of the present commercial policy of Denmark.

Under these regulations, a distinction is drawn between privileged and unprivileged nations. The former are those with which, by treaty, convention, or otherwise, a reciprocity and equality of commerce and navigation have been established—such treaty, convention, etc., prescribing the terms on which reciprocity is granted; the latter are subject to extra duties, amounting to as high as 50 per cent. above the rates fixed in the general tariff. To the former class the United States belong, the treaty by which entire reciprocity and equality of commerce and navigation are guarantied, dating as far back as April, 1826. The following abstract embraces the principal stipulations of this treaty, so far as it relates to commerce and navigation:

No particular favors in respect of commerce or navigation to be granted to other nations, which shall not become common to the other party, on like or equivalent terms. Commerce and navigation between the two countries to rest on the liberal basis of perfect equality and reciprocity; and the citizens and subjects of each to enjoy all rights, privileges, and exemptions, in the territories of the other, which native citizens or subjects do or shall enjoy; Iceland, the Faroe islands, and Greenland, and the places situated beyond the Cape of Good Hope, and the direct trade between Denmark and the Danish West India colonies, being excepted from the operation of the treaty. Duties to be alike on all manufactures or merchandise of any country that can be lawfully imported into either country, whether such importation be made in the vessels of one nation or the other. Similar equality to exist in respect to exportations or re-exportations from either country, and in the vessels of either. The produce and manufactures of each country, when imported into either, to be subject to no other or higher duties than similar produce or manufactures of any other country; and this equality to extend to exports from either country to the ports of the other. Article 5th stipulates that neither the vessels of the United States nor their cargoes shall, when they pass the Sound or the Belts, pay higher or other duties than those which are or may be paid by the most favored nation.

West India Colonies.—In the intercourse between the United States and the Danish West India colonies, it is agreed that whatever can be lawfully imported into or exported from the said colonies, in vessels of one party, from or to the ports of the United States, or from or to the ports of any other foreign country, may, in like manner, and with the same duties and charges applicable to vessel and cargo, be imported into or exported from the said colonies in vessels of the other party. The treaty to continue in force ten years, with the usual stipulation for twelve months' notice if either party should desire to terminate it after that period.

The general foreign navigation of Denmark, in 1844, employed 33,845 vessels, measuring 1,266,417 tons, and, as appears from official returns, floating 765,475 tons of merchandise.

It may be interesting to inquire to what extent the national flag of Denmark participated in this general movement. The total number of vessels which entered and cleared on foreign voyages in 1844 was 33,845, with a tonnage of 1,266,417 tons, and conveying 765,475 tons of freight. Of these vessels, there were under the Danish flag 22,275, with a tonnage of 717,891 tons, and conveying 459,079 tons of freight. Thus, Denmark had,

1st. In the number of vessels..............	65.8	per cent.
2d. In the tonnage..........................	52.7	"
3d. In the cargoes..........................	60	"

Leaving for all other nations,

1st. In the number of vessels..............	34.2	per cent.
2d. In the tonnage..........................	47.3	"
3d. In the cargoes..........................	40	"

The aggregate tonnage of vessels employed in the trade between the United States and Denmark in 1844, was 3,458 tons. In 1854, it had decreased to 2,608; in 1856, it was 2,913.

MERCHANT VESSELS OF DENMARK, JANUARY, 1856.

	Denmark.	Schleswig.	Holstein.
Vessels	2,403	1,476	1,275
Steamers	25	11	1
Tonnage of vessels	55,634	27,144	20,393
" of steamers	1,002	212	105
Horse-power	1,678	522	59

Total number of vessels, 5,154; steamers, 37. Tonnage of sailing vessels, 103,171; steamers, 1,319. Horse-power, 2,059. See *Gotha Almanac*, 1857.

From official returns of the foreign trade of Denmark, it appears that in 1847 the imports and exports united amounted to $46,500,000; a sum nearly equally divided between Denmark Proper and its dependencies. In estimating the true relative value of this commercial movement, we must bear in mind that the kingdom proper contains a population of 1,350,000 inhabitants, and comprises an area of 683 Danish superficial miles; while the duchies contain a population of 842,000 souls, spread over an area of only 318 Danish miles. The Danish miles are given as found in the authorities from which these facts are condensed, and because they will suffice for the purpose of comparison. Denmark and dependencies in Europe contain an area of 1,031,075 geographical miles, and a population of 2,296,587, exclusive of Greenland, Iceland, and the Faroe islands. Thus, the latter, with a territory less than one half, and a population more than one third less, contributes more than its proportionate share to the general commerce of the country. The importance which Denmark attaches to the sovereignty of the duchies is thus accounted for. They are not only the granaries from which her cereal supplies are obtained, but they also constitute the commercial conduits through which her principal products—live cattle, horses, etc.—pass to a market. The loss of the duchies would, besides, inflict an irreparable injury upon Denmark, by cutting off the enormous revenue which she has so long derived from the Sound dues; as, in the event of a separation, the Schleswig-Holstein Canal would soon become the principal route to the Baltic.

The description and quantities of merchandise which constitute the chief basis of the exchanges between Denmark and foreign countries, for any one year of average commercial activity, will furnish the most accurate standard by which to judge of the present or prospective importance of the trade between that kingdom and the United States. Data from which to calculate, even approximately, the value of importations, are not at hand. A valuation based upon such data as are possessed may, however, be attempted. We find that the duties levied on importations for the year 1847 reached as high as $2,685,654, or, in round numbers, $2,500,000. Allowing 12 per cent. on the imports as the amount of duties, we have as their value for that year over $20,000,000. The value of the exports, as registered in the Danish custom-houses, is more accessible, and will be found under its proper head in the following tables.

Of the $2,685,654 which is found under the column of duties on imports, the portion received in the custom-houses of Denmark Proper, amounted to $1,806,246, and that which was levied in the duchies reached $879,408. While this latter sum is less than 50 per cent. of that received in Denmark Proper, we must not infer that importation into the duchies was in the same proportion. On the contrary, the table which follows will show that, in general, they import more—in some cases 100 per cent. more—than the kingdom proper. The disproportion in the amount of duties results from the operation of different tariffs; that of Denmark Proper being much higher than the tariff applicable to the Duchies of Schleswig and Holstein. Altona, in the Duchy of Holstein, the most important commercial city in Denmark next to Copenhagen, is a free port; and all goods may be landed and stored without any other charges than port dues.

GENERAL STATEMENT OF IMPORTS INTO DENMARK AND DEPENDENCIES IN 1847, WITH AMOUNT OF DUTIES.

Description of Merchandise.	Measure or quantity.	Total.	Amounts of duties.
Cottons	Kilogs.	1,085,000	$325,500
Sugar and syrups	"	16,074,000	291,090
Woolens	"	556,000	255,378
Wood	Cubic feet.	3,454,000	208,506
Coffee	Kilogs.	6,578,000	159,568
Iron, unmanfactured and manufactured	"	20,562,000	125,178
Wines	"	31,000	124.434
Salt	Hectolitres	16,006,000	56,886
Brandy and other spirits	Kilogs.	23,000	53,556
Tobacco	Tons	3,815,000	77.376
Coal	Kilogrammes of 2.20 pounds.	614,000	51,336
Cloths, linen		612,000	49.476
" silks		37,000	43,228
Cotton, raw and spun		1.374,000	39.060
Tea		233,000	34.596
Glasswares		1,766,000	31,248
Pottery		958,000	28,830
Hemp and flax		2,555,000	23,994
Rice		2,362,000	18,228
Fruits		1,288,000	16,740
Paper		334,000	13,020
Skins and hides tanned		680,000	9,114
Yarn, cotton		162,000	8,184
" woolen		55,000	3,348
Other articles			580,320
Total duties collected.			2,685,654

The hectolitre is equal to 26·4178 gallons.

The authorities from which the preceding table is compiled omit the countries from which the different articles were exported. The United States' Treasury Report for 1847, however, furnishes data to supply the omission as respects the United States. From that document the following statements are derived:

American tonnage, entered from Denmark	none.
" " cleared from the U. S. for Denmark	216 tons.
Foreign tonnage, entered from Denmark	717 "
" " cleared from the U. S. for Denmark	2,274 "
Total tonnage entered and cleared 1847	3,207 tons.

The trade of the United States with Denmark is shown by the following exhibit of exports from and imports into the United States.

	Exports.	Imports.	Total.
1826	$345,870	$49.264	$395.134
1836	585,985	48,971	634,956
1846	121,242	1,313	124.555
1856	227,715	1,130	228,845

The total exports of domestic produce to Denmark from the United States for the fiscal year ending June, 1856, were,

In American vessels	$153,994
In foreign vessels	85,966
Total	$195.960
And foreign produce	81,758
Total for the year	$227,713

EXPORTS FROM THE UNITED STATES TO DENMARK FOR THE YEARS ENDING JUNE 30, 1847 AND 1856.

Description of merchandise.	1847.		1856.
	Quantities.	Values.	Values.
Dye woods	....	....	31,753
Tobacco ....lbs.	2,119	$210	....
Spirits of turpentine .galls.	7,756	2,708	....
Rice ....tierces	5,629	115,525	49,652
Cotton (raw) ....lbs.	660,732	62.609	127,790
Rye and other grains	....	6.000	....
Flour ....bbls.	17	131	....
Rosin and turpentine "	155	455	....
Whale & other fish oil, gls.	83,330	11,238	....
Sundries	....	5.019	3,316
Drugs and medicines	....	....	15,202
Total	....	203,895	227,713

It appears that the United States supplied Denmark in 1847 with all the rice imported into that country, and a large share of the raw cotton, spirits of turpentine, fish-oil, grains, etc. Wines and spirits are chiefly imported from France, either direct or by way of Hamburg, and cottons almost exclusively from England, but in 1855–6, the exportation of tobacco, grain, flour, oils, and turpentine, had ceased.

The following table exhibits the value of exports from Denmark and the duchies to all foreign countries during the years designated. The values are given in francs, each equal to 18·6 cents.

Description of merchandise.	1845.	1846.	1847.
Cereals	41,885,000	46,818,000	55,714,000
Live animals	12,498,000	11,730,000	11,656,000
Butter	8,800,000	11,708,000	9,956,000
Bacon, etc	1,522,000	1,802,000	1,670,000
Hides and skins	2,710,000	1,720,000	1,815,000
Seeds	1,168,000	1,095,000	1,225,000
Wool (raw)	779,000	586,000	1,672,000
Salted provisions	693,000	451,000	730,000
Bones	350,000	263,000	307,000
Total Francs	70,405,000	76,173,000	84,745,000

The following suggestion is found in a commercial report recently issued under the direction of the French government, which may be found useful to others besides the French merchants engaged in the trade with the countries of northern Europe:

"In the northern nations, especially Denmark, Sweden, and Norway, there is an active demand for a beverage extensively used in those countries, which our merchants engaged in supplying them with *liqueurs*, might advantageously imitate. It is a mixture known among the northern people as *gammel Fransk viin* (old French wine), and composed of white wine, rum, syrup, and spices. This kind of *negus* is highly esteemed by a people who have no relish for liquors, unless they are highly sweetened."

In 1850 there was published, by order of the Danish government, a statistical report of the commerce and navigation of Denmark Proper for the year 1848. From this publication, it appears that though Denmark was involved in difficulties with the Germanic Confederation during the year 1848, the general commerce of the kingdom suffered no sensible diminution. This was mainly owing to the geographical position, as well as to the military marine of Denmark, by means of which she was enabled to blockade most of the German ports, and thus give free scope to her own merchant flag. Cut off from the German markets, from which she usually draws her supplies of articles of first necessity for her manufactures, she sought for new channels through which to supply her wants; and at once found England already waiting to avail herself of the difficulties in which she was embroiled. Hence, the principal foreign trade of Denmark during this year, was carried on with England.

The number of vessels employed in the foreign trade of Denmark in 1848 was as follows:

Entered	Vessels 7,003	Tonnage	333,747
Cleared	" 7,316	"	358,832
Total	14,319	"	692,579

The tonnage of merchandise was 480,240 tons.

From North and South Ameaica there entered, during the same year, 61 vessels of 12,820 tons; while there cleared 67 vessels of 15,368 tons, of which there were 18 vessels of 3,736 tons under a foreign flag.

The value of the imports and exports from all countries, in 1848, as compared with 1847, was as follows:

1848.—Imports	$13,021,860	
Exports	8,076,678	
Total trade in 1848		$21,098,538
1847.—Imports	$13,597,716	
Exports	7,015,362	
Total trade in 1847		20,613,078
Increase in 1848		485,460

Of the above figures, the trade of Copenhagen alone absorbed:

1848.—Imports	$9,808,524	
Exports	1,463,262	
Total trade of Copenhagen in 1848		$11,271,786
1847.—Imports	$9,069,360	
Exports	1,815,360	
Total trade of Copenhagen in 1847		10,884,720
Increase in 1848		$387,060

See *Commercial Relations of the U. S.*, 1857.

The following table exhibits the trade between the United States and Denmark during the year 1848

NAVIGATION AND COMMERCE.

Entered the United States from Denmark	1,494 tons.
Cleared from the United States for Denmark	3,438 "
Imports from Denmark	$19,617
Exports to Denmark	181,913

Of the general exports from Denmark during 1848, England received 50 per cent.; and of grains, as high as 65 per cent.; while in 1847 the proportion exported to Great Britain was only 36 per cent. of the whole. The exports to the United States were,

Woolen and worsted yarns	$856
Hosiery	562
Bristles, 3,138 lbs	1,110
Rags, 53,290 lbs	1,614
Coal, 96 tons	410
Unenumerated, paying a duty of 5 per cent	9,457
" " " 20 "	2,594
" " " 30 "	241
Sundries	2,773
Total	$19,617

Copenhagen, as already remarked, absorbs about 80 per cent. of the entire trade of Denmark. In 1851 there entered at this port 321 steam-vessels, propelled by engines of 44,865 horse-power aggregate, and floating 4,700 tons aggregate of merchandise, viz.:

From Prussia	520 tons.
" England	978 "
" Lubec	1,688 "
" Weimar	1,008 "
" Elsewhere	506 "

The chief imports into Copenhagen from foreign countries in 1851, were iron, coal, cabinetmakers' and other wood, fire-wood, and heavy merchandise. From the United States and Cuba there entered 15 vessels, of 3,158 tons' measurement, and with 2,884 tons of merchandise; and from the Danish West Indies, 34 vessels, of 8,670 tons' measurement, and with 8,632 tons' merchandise. The imports of sugar were as follows:

From Danish West Indies	kilogrammes,	5,500,000
" Brazil	"	1,500,000
" Cuba	"	2,750,000
" Java	"	650,000
" Entrepots of Europe	"	100,000
Total	"	10,500,000

Imports of coffee were from Brazil, Hayti, and European entrepots, 5,250,000 kilogrammes; of which there were exported from Copenhagen 500,000 kilogrammes, leaving 4,750,000 kilogrammes for consumption.

The value of the foreign commerce of Denmark for 1853 and 1854 is exhibited in the subjoined table:

COMMERCE OF DENMARK AND THE DUCHIES OF SCHLESWIG AND HOLSTEIN FOR THE YEARS 1853 AND 1854.

Country.	1853.		1854.	
	Imports.	Exports.	Imports.	Exports.
Hamburg	15,935,373	9,019,752	18,859,656	9,643,775
Great Britain	7,554,040	10,662,224	10,882,363	12,194,060
Altona	4,141,248	3,321,698	4,481,490	5,268,919
Norway	2,179,625	3,053,727	2,246,696	2,553,518
Sweden	2,918,584	1,321,128	3,657,548	1,778,647
Russia	3,565,109	312,750	354,618	49,610
U. States, West Indies, and S. Sea	3,457,453	350,245	2,997,833	142,175
Lubec	2,169,565	1,015,844	2,651,947	1,170,229
Dan. Colonies	1,914,682	386,006	2,360,736	349,500
Prussia	1,203,308	912,129	2,001,549	950,001
Holland	713,090	1,199,444	844,830	2,278,108
Iceland	805,056	507,783	840,783	558,107
Bremen	1,012,164	46,926	1,232,625	74,364
France	563,407	325,905	619,713	178,969
Belgium	252,869	498,449	222,805	372,692
Mecklenburg	377,671	278,299	678,874	269,644
Hanover	165,277	825,012	261,092	315,580
Mediterranean	444,781	14,451	148,365	33,086
E. Indies, China and Guinea	289,020	122,018	273,877	73,440
Greenland	275,362	106,845	43,138	75,748
Faroe Isles	145,163	63,306	105,293	69,411
All others	267,865	424,864	1,096,380	698,530
Total (thalers)	50,350,712	34,268,800	56,861,711	39,088,108

Danish vessels arriving in the United States from the Danish islands of Santa Cruz and St. Thomas are not chargeable with tonnage duties in the ports of the United States; the vessels of Denmark and the United States being placed on the same footing, in that respect, under the provisions of the act of Congress of the 31st May, 1830, and the treaty with Denmark of the 26th April, 1826. The following table exhibits the commerce of the United States with Denmark from the year 1820 to the year 1856, by which it will be seen that this commerce does not assume any additional importance from year to year:

Years ending.	Exports to Denmark.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821......	$165,568	$360,535	$526,103	$16,156	....	....	4,142	....
1822......	32,028	160,757	192,780	21,232	....	....	1,243	....
1823......	39,783	53,134	92,917	24,028	....	....	908	257
1824......	35,487	299,822	335,309	....	....	....	2,416	82
1825......	214,517	637,146	851,663	46,827	....	....	5,698	200
1826......	100,582	245,288	345,870	49,264	....	$342	2,681	....
1827......	148,958	253,983	402,941	40,822	....	....	2,928	....
1828......	150,979	336,689	537,668	117,946	$500	....	4,289	202
1829......	73,597	13,166	86,763	32,911	....	....	1,043	1,070
1830......	76,292	29,048	105,340	5,384	....	....	1,928	....
Total...	$1,037,786	$2,439,568	$3,477,354	$354,570	$500	$342	27,276	1,811
Sept. 30, 1831......	$178,333	$176,883	$355,216	$575	$10,500	....	3,060	....
1832......	181,605	350,115	531,720	63,842	18,600	....	4,268	723
1833......	180,511	112,453	292,964	28,172	7,000	....	2,907	791
1834......	99,643	318,461	418,104	62,542	5,842	....	2,528	2,280
1835......	212,461	110,839	323,300	121,000	4,900	....	2,331	1,282
1836......	314,268	271,717	585,985	48,971	....	....	3,718	1,190
1837......	172,260	109,421	281,681	102,819	....	....	1,092	4,797
1838......	98,081	24,750	122,831	27,118	....	....	880	1,072
1839......	50,634	38,177	88,811	80,997	....	....	703	961
1840......	76,183	17,868	94,051	7,501	....	....	324	1,352
Total...	$1,563,979	$1,530,684	$3,094,663	$543,037	$46,842	....	21,811	14,445
Sept. 30, 1841......	$110,424	$24,364	$134,788	$8,791	....	....	889	1,955
1842......	70,766	27,819	98,585	....	....	....	795	917
9 mos. 1843......	74,657	6,510	81,167	....	....	....	465	1,714
June 30, 1844......	100,859	11,975	112,834	6,063	....	....	481	2,567
1845......	124,666	20,501	145,167	22,429	....	....	1,040	2,116
1846......	97,746	23,496	121,242	1,313	....	....	666	1,393
1847......	198,952	4,943	203,895	475	....	....	216	2,274
1848......	164,661	17,252	181,913	19,617	....	....	763	2,675
1849......	55,138	....	55,138	19,204	....	....	....	1,681
1850......	165,874	20,706	186,580	527	..	....	502	3,232
Total...	$1,163,743	$157,566	$1,321,309	$78,419	....	....	5,817	20,524
June 30, 1851......	$92,257	$19,540	$111,797	$38,887	....	....	199	2,086
1852......	93,009	22,643	115,652	16,611	....	....	374	3,916
1853......	82,903	....	82,903	....	....	....	332	2,174
1854......	87,870	23,547	111,417	8,097	....	....	714	1,894
1855......	70,996	8,675	79,671	1,701	....	....	1,216	1,027
1856......	195,960	31,755	227,715	1,130	....	....	2,197	716

Statement exhibiting the Character, Quantities, and Values of Domestic Products of the United States, together with the total Values of Foreign Products, Imported into Denmark, from the United States in 1854 and 1855.

Description of merchandise.	1854.	1854.		
	Values.	Quantities.		Values.
Oil, spermaceti........	$485	galls.	1,920	$3,616
Whalebone...........	1,416	lbs.	3,033	1,213
Candles, spermaceti...	....	"	358	104
Manufactures of wood.	191		....	297
Rosin and turpentine..	3,815	bbls.	4,306	18,845
Flour.................	67		....	....
Biscuit...............	....	bbls.	8	30
Rice..................	74,974	tierces	770	19,263
Cotton................	3,346	lbs.	209,186	20,971
Tobacco...............	1,368		....	....
Spirits from molasses..	938		....	....
Spirits of turpentine...	1,000		....	....
Tobacco, manufactured	166	lbs.	11,728	1,741
Shoes, India-rubber...	....	pairs	6,000	4,519
Miscellaneous.........	604		....	397
Tot. domes. products	$87,870		....	$70,996
Tot. foreign products	23,547		....	8,675
Total trade........	$111,417		....	$79,671

The Danish merchants no longer import tobacco from the countries of its production. In 1848 there were 2,032,387 kilogrammes imported, at a value of about $469,966 20, principally from Holland, Bremen, and Hamburg, where select cargoes can at all times be purchased. These markets are supplied chiefly from the United States. From Cuba Denmark imports annually about 12,250 kilogrammes—say 27,000 lbs. of segars. There are no restrictions of any kind on the sale of tobacco in Denmark; and under the moderate duty [leaf or unmanufactured, 89⅜ cents per 110⅛ lbs.; manufactured, $3 15 per 110⅛ lbs.], direct importations from the United States could not fail to be profitable.

In the article of cigars, at least, there is no reason why the United States could not successfully compete with Cuba. The quantities of tobacco exported direct from the United States to Denmark during the four years specified, were as follows:

1852—Unmanufactured.....	15 hhds.;	value,	$1,150
Manufactured........	3,085 lbs.	"	539
1853—Unmanufactured.....	none		
Manufactured........	9,248 lbs.	"	1,404
1854—Unmanufactured.....	13 hhds.	"	1,368
Manufactured........	800 lbs.	"	166
1855—Unmanufactured.....	none		
Manufactured........	11,728 lbs.	"	1,741

So long, however, as any duty is imposed in Denmark higher than that levied on similar merchandise in Hamburg and the other Hanseatic towns, viz., from ½ to ⅜ of 1 per cent., they will continue, more especially Hamburg, to be the entrepots from which Denmark will have to draw her supplies of such colonial produce as her own islands in the West Indies can not furnish. Cereal produce constitutes the leading staple of Danish exports, and forms the chief basis of her exchanges with foreign countries. Indeed, Denmark may be considered an exclusively agricultural and maritime country. Such, at least, is the predominant feature of her national character. In 1851 the entire exports of the kingdom amounted to upward of $7,500,000. Of this sum, cereals appropriated $4,500,000. The commerce of the kingdom and the duchies for the year 1852, imports and exports, reached the sum of $42,450,310 90; and the proportion of cereals in the export trade was about equal to that of the preceding year. During the past 10 or 12 years, however manufactures have made considerable progress in the kingdom and the duchies; and, were the obstacles removed, with which this branch of national industry has to contend, the most oppressive of which are royal and privileged monopolies, and heavy consumption duties, that progress would be still more encouraging, and its influence more perceptibly felt in the augmented wealth and increased commercial prosperity of Denmark. The following brief summary of the present state of manufactures in this kingdom is condensed from recent Danish official publications, and is given for the purpose of showing the extent to which Denmark must rely on the workshops of other nations for the necessary supplies for her 2,500,000 subjects.

Woolens.—The woolen manufactures of Denmark are coarse, and of a very inferior quality. The chief factories are those of Neumunster, in the duchy of Holstein. The proportion which these manufactures bear to the quantity annually consumed in the kingdom may be seen from the following statement:

	1846.	1847.
Foreign woolens consumed.....	95,900 lbs.	145,000 lbs.
Neumunster woolens consumed	36,700 "	88,000 "

Besides these woolen cloths, Denmark consumes large quantities of other manufactures of wool, particularly such as are suitable for women's apparel. These are all important. During the 2 years above-named, this class of imports reached as high as 320,000 lbs. each year, yielding a revenue to the government of nearly $10,000.

Cottons.—The manufacture of cottons was introduced into Denmark about 40 years back, but its progress was slow and inconsiderable until within the past 10 years. At Copenhagen there were manufactured from 1835 to 1840 about 800,000 Danish ells (about 2·26 feet each) per annum from cotton twists supplied from English markets. Since 1840, the custom-house declarations indicate a large augmentation in the quantity of spun cotton (twist) imported. In 1844 it reached as high as 911,000 Danish livres. The Danish livre is a fraction over 1 lb. avoirdupois. The manufacture of printed cottons has been attempted, but the experiment has but indifferently succeeded; indeed, its present continuance is owing to high protective duties. The chief cotton manufactures may, therefore, be said to consist of old-fashioned, heavy, coarse pieces, brought through the loom by a process at once slow and expensive. There is but one factory in the kingdom—that at Nyhavn—where modern improvements are introduced. The success which has so far attended the operations at this factory may eventually create an extensive demand in Denmark for American cotton.

How far these factories fall short of the demands for home consumption may be gathered from the following figures:

COTTON CLOTHS IMPORTED INTO DENMARK PROPER, FROM 1846 TO 1850.

1846....	1,120,000 lbs.	1849....	1,160,000 lbs.
1847....	1,010,000 "	1850....	1,220,000 "
1848....	730,000 "		

These importations were destined for the kingdom proper. The quantities imported for consumption in the duchies can not be ascertained; but their relative consumption of such manufactures considerably exceeds that of the kingdom proper.

Paper.—At Strandmollen and Silkberg there are several flourishing paper-mills; but the prices rule so high, that, despite the protective duties, paper figures largely in the imports from foreign countries. In 1850 there were imported 217,563 kilogrammes, valued at $58,139 88.

Sugar.—Sugar refineries have reached a high state of prosperity in Denmark. Of upward of 12,000,000 lbs. of refined sugar consumed in the kingdom, or exported, but little is imported from foreign countries. Raw sugars, however, constitute an important item in the importations of the country; indeed, it is known, that if we except England, there is more sugar consumed in Denmark, in proportion to its population, than in any other country in the world. In 1850 raw sugar imported reached 13,186,233 kilogrammes, valued at $1,615,931 65. Of this, there were imported direct from the United States only 77,253 lbs., valued at $3,192.

Porcelain.—There is a factory at Copenhagen, under government monopoly, for manufactures of this description. It contributes but little, however, either to the revenues of the country or the wants of the people. The manufactures are of beautiful fabrication and brilliant colors, but they are not considered durable. Notwithstanding a high protective duty, the markets of Denmark are supplied with manufactures of porcelain from France. In 1850 there were about 40,000 lbs. imported.

Distilleries.—This is the most flourishing branch of manufactures, both in the kingdom and in the duchies. Nearly all the spirits produced in these establishments are from grain. The excise duty, or impost, derived from the distilleries, forms a large item in the revenue of Denmark. In 1850 they produced 21,262,678 Danish cans (over 1 quart each) of spirituous liquors. During the same year, 2,492 gallons of spirits from molasses were imported direct from the United States, at a value in the home market of $1,009.

Breweries.—The number in Denmark is not known, officially; but they can not add much to the internal wealth of the kingdom, as their annual consumption of malt does not exceed 700,000 lbs. In 1850 there were imported direct from the United States 14,617 lbs. of hops, valued at $585.

Glass-works.—There are 4 establishments in the kingdom, 4 in Schleswig, and 1 in Holstein. They are chiefly devoted to the manufacture of bottles, of which they produce, annually, upward of 3,000,000.

Ship-building.—The principal ship-yards in the kingdom are at Copenhagen and Elsinore, and are chiefly used in the repair of vessels. At Apenrade, a capacious port opening into the Little Belt, vessels of the largest class are built. In 1846 12 vessels, and in 1847, 15 were built at this place. In the former year, 30 large class vessels, belonging to this port, entered the harbors of Rio de Janeiro and Montevideo.

Founderies.—Prior to the separation of Norway, Denmark drew all her supplies of iron from that country. Since that event, the efforts to obtain sufficient supplies, even for maritime purposes, have not been crowned with success. The geological formation of the country is not such as to furnish minerals; hence, with the exception of building materials, but little is left for the miner to develop. There are, however, founderies at Garlshytte, near Rendsburg, which employ upward of 250 hands, and produce, annually, 200,000 lbs. of iron; one at Copenhagen, of about equal annual produce, from which considerable quantities of anchors, chains, etc., are obtained; and several others, distributed throughout the duchies, at Altona, Kiel, Flensburg, and Ottensen. Near Elsinore there is a foundery for the manufacture of fire-arms, which produces, annually, about 2,000 muskets. Besides the manufacturing establishments above enumerated, there are in the kingdom 200 tan-yards, and 60 tan-mills, yielding annually, the latter 2,500,000 lbs. of ground tan, and the former 3,080,000 tanned hides. In addition to these, there are 88 currying establishments, in which 164,000 lbs. of skins are annually prepared for hosiery and other uses. At Altona 600,000 lbs. of candles are manufactured each year; 100,000 lbs. of refined wax are annually produced in the kingdom and duchies; soap, oils, chemicals, gunpowder, etc., but the manufacture of these last-named articles is so inconsiderable as scarcely to affect importations from foreign countries.

The only manufactures in Denmark which yield a supply equal, or nearly equal, to the home consumption, are those of refined sugars and tobacco. The former is fully adequate to meet the demands of the home market; and the latter, augmented to some extent by imports from the United States and Cuba, equally so. The quantities annually imported from these countries have already been given. Altona counts 28 tobacco factories, employing 488 hands, and producing, annually, 1,062,068 lbs. of tobacco, 106,487 lbs. of snuff, and 12,000,000 segars. At Copenhagen 425 workmen are employed, and the annual produce reaches 1,000,000 lbs. of tobacco, and 10,000,000 segars. Besides these, there are other tobacco factories, at Flensburg in Schleswig, and Kiel in Holstein, which contribute largely toward the national supply. It has been already shown whence Denmark obtains her supplies of unmanufactured tobacco, and why her manufacturers are forced to purchase it at *second hand* in the neighboring entrepots, instead of importing direct from the countries of production.

It will be easily seen, from the preceding summary, how much Denmark still depends on foreign countries for the supply of her most essential wants. Since she has been induced to profit by the example of England, and other neighboring countries, in abolishing the duty on raw cotton, her spindles have multiplied, and she is now learning to depend on her own capital and industry for the spun cottons which she has heretofore derived, and which, to a great extent, she still derives, from the English spinning-factories. A similar modification in her tariff in respect to unmanufactured tobacco, and other raw material not grown on her soil, would tend not only to augment the importations of such produce from the producing countries, but would eminently contribute to attract investments of her own capitalists, multiply her manufactured productions, and enable her to become an exporter of the same descriptions of merchandise which have so long been an annual drain upon the wealth of the kingdom, and a heavy drawback upon the industry of the people. A more apposite illustration of this truth can not be found than that which the general returns of trade, for any one year, will furnish. Her average annual imports are about $15,000,000 in value, a large portion of which sum is absorbed by manufactured articles, or articles half-manufactured, such as cotton twists, etc.; while her annual exports scarcely cover half that sum (say $7,000,000), two thirds of which are derived from cereals and other agricultural produce. Until the manufacturing industry of Denmark receives greater encouragement from the government, the heavy disproportion between imports and exports which the above figures exhibit, or, in other words, the ruinous balance of trade against Denmark, in her commercial relations with foreign countries, must continue to exist.—*Com. Rel. U. S.*

COMPARATIVE STATEMENT OF THE COMMERCE OF THE UNITED STATES WITH THE DANISH WEST INDIES, EXHIBITING THE VALUE OF EXPORTS TO AND IMPORTS FROM EACH COUNTRY, AND THE TONNAGE OF AMERICAN AND DANISH VESSELS ARRIVING FROM AND DEPARTING TO EACH COUNTRY, DURING THE YEARS DESIGNATED.

YEARS.	COMMERCE.				NAVIGATION.			
	VALUE OF EXPORTS.			VALUE OF IMPORTS.	AMERICAN TONNAGE.		FOREIGN TONNAGE.	
	Domestic produce.	Foreign .produce.	Total.		Entered the United States.	Cleared from the U. States.	Entered the United States.	Cleared from the U. States.
1845	$833,503	$160,926	$994,429	$760,809	28,312	28,920	1,669	1,457
1846	959,452	166,464	1,125,916	752,614	29,018	27.964	969	1,875
1847	836,672	152.631	989,303	846,748	23.898	22,156	2,900	4,315
1848	876,969	76,874	953,843	585,738	19,781	25.579	1.890	4,065
1849	727,197	54,149	781,346	339.141	12.466	25,397	3.514	5.426
1850	867.140	114,818	981,958	267.459	12,940	19.375	956	2,690
1851	902,687	125,602	1,028,289	235.894	10.386	18.233	5,052	4,175
1852	810,439	120.697	931,136	191,745	14.292	20,408	9.062	6,581
1853	913,481	41,160	954,641	184.497	11,618	14,032	4.965	9,571
1854	928,924	34.026	962,950	286,044	12,749	22,846	6.992	7.984
1855	843,111	45,353	888,464	225.308	12,145	24.247	6.441	5,120

Danish West India Colonies.—Prior to the year 1833, the trade between the United States and St. Croix was not regulated by any law or act of the Danish government. The inhabitants were at first allowed, by the local authorities, a limited quantity of sugar or molasses from their estates, to exchange for provisions. Afterward they were permitted to purchase one half of their supplies in this way; and, finally, the privilege was extended so as to enable them to purchase from foreigners all they needed for the supplies of their plantations. St. Thomas was at the same time opened as a free port for the trade of all countries, and, in consequence, became the emporium of an extensive commerce. The duties upon imports and exports are moderate, not exceeding 1½ per cent. ad valorem; and port charges do not exceed 19 cents per ton. This does not apply to vessels from European ports, which pay 45 cents per ton. The distinction is, probably, made to encourage the introduction of provisions, rather than the fancy articles and liquors introduced from Europe. At St. Croix, however, vessels employed in the foreign trade, even if they do not take a pilot on board, are compelled to pay half-pilotage. The full charge is $1 per foot of the vessel's draught, in and out. In 1832 an ordinance of the King of Denmark, dated at Copenhagen, prescribed regulations for foreign navigation and commerce with St. Croix. This was superseded by an ordinance of June 30th, 1850, published at St. Croix 15th of August of the same year, and which is now in force.

Section 1 provides that all vessels, native or foreign, both from national and foreign ports, may trade to St. Croix, and there discharge and load at the two ports of entry, Christiansted and Fredericksted. *Section* 2. Vessels belonging to the Danish West India Islands, trading between Denmark and the colonies, shall enjoy, in future, the same rights and privileges as vessels belonging to the mother country. *Section* 3. Every vessel is to pay tonnage dues according to its tonnage, both on entering and leaving, at the following rates: If the vessel discharge or load to the amount of one half its tonnage, and above, per commercial last 30 cents; if it discharge or load from one quarter to one half of its tonnage, per commercial last 20 cents; if it discharge or load less than one quarter of its tonnage, per commercial last 10 cents. All vessels not discharging or loading are exempt from tonnage dues, as well as vessels belonging to the Danish West India Islands, when trading between St. Croix and the other two islands.

If tonnage dues are paid at one of the custom-houses of this island, or at St. Thomas, additional tonnage dues are to be paid only in case the vessel should again discharge or load, during the same voyage, goods to such an amount that, together with the previous amount discharged or loaded, it shall reach a quantity on which a higher tonnage due is fixed. At Christiansted, vessels are further to pay one half the amount of tonnage dues, at the above rate, for keeping the harbor, with wharves and other appurtenances, in repair. The 5th section provides that, within 24 hours after the vessel has been brought to anchor, the whole cargo, whether intended to be discharged or not, shall be entered at the custom-house, specified, and in writing. If the whole cargo is not to be discharged, the remainder shall, on the vessel's clearing out, be entered for export in the same manner. For duties on imports and exports, articles free of duty, and regulations relative to the trade of St. Croix, reference is made to the tariff, in its proper place. (Part II.) For the descriptions of merchandise entering into the trade between the United States and the Danish West India Islands, see Consular Returns, "St. Croix, 14th June, 1851," Part III. The vessels of the United States arriving at Fredericksted, St. Croix, from July the 1st to December 31st, 1853, were 8 brigs, 3 barks, 2 schooners. The aggregate value of their inward cargoes was $49,902, and that of the outward cargoes, $22,452. There arrived during the same period at Christiansted, 7 brigs and 2 schooners under the American flag. Value of cargoes not stated.

For notice of Danish Exploring Expeditions Round the World, see Hunt's *Mag.*, xxiii., 406; *Edinburg Rev.*, xliv. (article by Sir James Mackintosh); Hunt's *Mag.*, x., pp. 218, 303; *Edinb. Rev.*, vol. ii., p. 287 (by Sydney Smith); *Westminster Rev.*, l., p. 75, viii., p. 469, xlviii., p. 195; *North Am. Rev.*, xxvii., p. 285 (by Henry Wheaton).

The Sound Dues.—Connected with the commercial relations which exist between the United States and Denmark, is the question of Sound dues, to which subject the 5th article of the treaty of 1821 relates. This has long been a *vexata questio* between the two governments. It still continues to be a subject of diplomatic discussion; and is fully laid before Congress in a communication from the Department of State, under date of May 30, 1854. (Executive Document No. 108, House of Representatives, 33d Congress, 1st session.)

In 1848, the Danish Minister of Foreign Affairs admitted to our representative near the court of Denmark "that the principle upon which those dues are collected can not be defended;" yet, the final settlement of the question has been put off, from time to time, under various pretexts, although the government of Denmark has been more than once officially notified that "the United States have thus long submitted to the exaction from deference and respect for Denmark; but it can not be expected, great as is our regard for that ancient and respectable power, that we shall submit to it much longer."

The 10th article of the treaty of 1826 stipulates as follows: "The present convention shall be in force for ten years from the date hereof; and further, until the end of one year after either of the contracting parties shall have given notice to the other of its intention to terminate the same; each of the contracting parties reserving to itself the right of giving such notice to the other, at the end of the said term of ten years; and it is hereby agreed between them, that, on the expiration of one year after such notice shall have been received by either, from the other party, this convention, and all the provisions thereof, shall altogether cease and determine."

The notice required by the foregoing article has been given by the government of the United States, and it is believed that no new treaty will be entered into with the government of Denmark, without a special article stipulating that vessels of the United States, in passing and repassing the Sound and the Belts, shall be forever exempt from the payment of any duties, either upon their tonnage or their cargoes. By virtue of a resolution of the Senate, in executive session, March 3, 1855, Mr. Bedinger was instructed by the President of the United States to communicate, and on the 14th April, 1855, did communicate, to the Minister of Foreign Affairs, of Denmark, notice of the desire of the government of the United States to terminate the treaty of 1826, in accordance with the 10th article of the same, and that at the expiration of 12 months from the date of said notice, said treaty "shall cease and determine." In the communication to Congress from the Department of State, already referred to, the history of the Sound dues is thus given:

"The date of the origin of the Sound tolls has never been, so far as is known to this government, authentically ascertained. They are presumed to be the relics of exactions by the Norman pirates of the dark ages. As civilization advanced, they were enforced upon the plea of protecting the lucrative herring-fishery at Schonen. The coasts of the three straits (Skaggerack, Cattegat, and the Sound) were owned by Denmark until 1658 (with the exception of 36 years in the 14th century), when, by the treaty of peace of Rothschild, the east coast of the Great Belt, including the fortifications of Helsinburg, was transferred to Sweden, and is still owned by her. The right of sovereignty upon which Denmark presumed, in consequence of her ownership on either side of this connecting link of ocean water, necessarily ceased after this occurrence, even if it had been before, in the slightest degree, in conformity with national law. But, nevertheless, she persisted at Cronberg, the key to the Sound, in extorting large sums from every bottom that passed. Previous to the treaty with Sweden in the 14th century, the collection of the Sound tolls was resolutely and successfully resisted by the Hanseatic League. Then, as now, they came in direct conflict with the interests of all the cities upon the Baltic; and that powerful confederacy, at that time in the meridian of its greatness, obtained a free passage for its ships and cargoes through the Sound. In the year 1491, Denmark, perceiving that the Hanseatic League held her authority over the straits in utter contempt, deemed it judicious to invite other nations to engage in the trade of the Baltic; and a convention was entered into with England, and subsequently with Holland, by which their vessels were permitted to pass through the Sound by the payment of mere nominal tolls. In 1515, it appears that the latter country paid no tolls whatever, but stipulated to give a small sum instead thereof. This was, as intended, a blow at the Hanseatic cities; and in their name Lubec demanded the immediate exclusion of the Dutch from the Baltic—a demand, however, that was not complied with. In 1544 a treaty of commerce was concluded between Christian III. of Denmark and Charles V., Regent of the Netherlands, by which the subjects of the high contracting parties were permitted to trade with each other, by paying the sound dues which had been levied 'since days of old.' The Dutch at this period were a great navigating and commercial people, and the stipulations which they entered into imparted dignity to the jurisdiction claimed by the Danes over the Sound. The influence of the Hanse towns began to decline about the beginning of the 15th century, but they exercised a supremacy over the North and Baltic seas until the middle of the 15th. From their unceasing quarrels with Denmark, relative to the Sound tolls, recourse was had to negotiation; and, in 1560, 'the King of Denmark and his subjects on the one part, and the right honorable Hanseatic cities and the merchants thereof on the other part,' concluded the treaty of the Odensee. In 1663, Denmark was involved in a war with Sweden, and she made this circumstance a pretext to increase the Sound tolls against the Hanse towns, notwithstanding her covenant to the contrary three years before, which was still in force; but the Hanse towns, in their declining power, were compelled to submit to this violation of her obligation. In 1570 a treaty was contracted between Denmark and Sweden, at Stettin, by which it was agreed that the latter nation should be exempted from the Sound dues; but this was evaded from time to time by Denmark, in levying the toll upon the wines intended for Queen Christiana's own private use, and by the prohibition of ammunition when Sweden was in absolute want of it for prosecuting the thirty years' war. At length Denmark became so intolerant as to search Swedish vessels, unnecessarily detain them, and, in some instances, convey them to Copenhagen. The Netherlands experienced but little better treatment. The Stadtholder complained, and he was put off with promises. In 1640, the year after the dissolution of the Hanseatic League, the United Netherlands, which had secured their independence, formed a compact with Sweden for the maintenance of their respective rights; and in 1645 a new treaty was concluded between Denmark and Sweden, and on the same day (August 13) one between Denmark and the

Netherlands. In the negotiations which concluded them, the Dutch and Swedish plenipotentiaries demanded free navigation through the Sound for all nations. The Danish plenipotentiaries contended that the Sound was a 'Danish canal,' and that the tolls collected were of a similar character to those exacted at the mouths of certain rivers in Germany and Holland. France, acting as a mediator, held the question under consideration, to be decided at a more convenient period ; and subsequently she sustained the interests of Denmark, for which she was rewarded by the bestowal of the same advantages to her flag as had been bestowed upon the Netherlands, and without any limit as to duration. In 1654 Great Britain concluded a treaty with Denmark, which was renewed in 1670, by which all the advantages were to be enjoyed by her which had been conferred upon the Netherlands. Previous to 1720 (from 1647), Denmark fixed the toll, in her treaties with other countries, 'in conformity to the terms granted to the Netherlands ;' but after that time she placed them upon the footing of 'the most favored nations.' Sweden, in consideration of the restoration of her provinces which had been conquered by Denmark, stipulated to pay, in future, by the treaty of Fredericksburg of June 3, 1720, the same rate of Sound dues that were collected upon the ships and cargoes of the most favored nations, reserving to herself the right to establish a commissary at Elsinore, to prevent impositions upon her navigation and commerce. These conditions and obligations (although several treaties have been made between the two nations since) continue to be observed. During the 18th century, Sweden having been quieted, the Sound tolls seem to have been submitted to by other powers and states without opposition. Denmark concluded several new treaties, but none of them contained provisions prohibitory of the exaction of the dues demanded at Elsinore.

"This was the condition in which Denmark was found when the Congress of Vienna assembled. It was quite naturally expected, at that time, that the Danish Sound tolls would present a legitimate subject for the deliberations of that body, and that, in the settlement of the affairs of Europe, they would be entirely abrogated. But Frederic VI. of Denmark was present at Vienna, and the object of compassion with the representatives of the sovereign most interested, on account of the bombardment of Copenhagen and the destruction of his fleet a few years before ; and out of tenderness to him, as it is reasonable to suppose, this question was permitted to remain *in statu quo*. Vague intimations, it is stated, have occasionally been given at Copenhagen, that the Sound tolls were guarantied to Denmark by the Congress of Vienna, as an indemnity for the surrender of Norway to Sweden. Admitting the truth of this, and that every European government was irrevocably bound by such proceedings, the United States were not a party to it in any way, and no obligation is imposed upon them to respect the arrangement. Nothing has been more remote from the purpose of our government, from the day on which it was ushered into existence, than that of surrendering to any power its right of using the ocean as the highway of commerce. This right it claims, and will use all proper means to secure to itself the full enjoyment of it in every quarter of the globe.

"The fact is notorious, that the Sound dues affect us more sensibly than any European nation. Under their operation, Great Britain has a decided advantage over us, as concerns our chief staple. Raw cotton, according to the most reliable statements before the Department, is charged with about three per cent. *ad valorem* in its transit through the Sound ; while cotton twist, of which Great Britain ships from 30,000,000 to 50,000,000 lbs. to ports of the Baltic, pays only *one* per cent. *ad valorem !* If we quietly submit to such a tax upon the raw material of our fields, Great Britain, as a matter of profit, can well afford to consent to the comparatively moderate one upon the article manufactured from it, because she can not fail to perceive that, were the dues abolished, we should as certainly gain markets for the raw product, as she should lose them for the manufactures of her spinneries. For the five years terminating the 31st December, 1848, 264 American vessels entered the Baltic, upon the tonnage and cargoes of which the Sound tolls amounted to 570,473 Danish bank rixdollars. Since then, no tabular statements have been received of our vessels passing Elsinore, nor the sums annually paid. The Sound toll levied upon our chief products, which find a market in the countries bordering upon the Baltic and beyond them, according to the most reliable information on the subject, is as follows :

Raw cotton, per 100 lbs....................	20 cents.
Rice, per 100 lbs..........................	11 "
Paddy (rice in husks), per 100 lbs.........	3½ "
Raw tobacco, per 100 lbs...................	17½ "
Whale oil, per bbl.........................	6¼ "

"Consequently a cargo of 2,000 bales of cotton pays a tax of about $1,720 ; a cargo of 800 hhds. of tobacco, $1,400 ; a cargo of 1,000 tierces of rice, $700. In addition to the toll on tonnage, the cost of pilotage for a ship drawing 18 feet of water, from Dragon to Elsinore, varies, according to the season of the year, from $20 to $30."

The following statement exhibits the number of American vessels that passed the Sound at Elsinore, to and from the Baltic Sea, from 1837 to 1843, inclusive :

1837.........	104
1838.........	153
1839.........	114
1840.........	143
1841.........	122
1842.........	113
1843.........	152

STATEMENT OF THE NUMBER OF VESSELS OF ALL NATIONS THAT PASSED THE SOUND AT ELSINORE, TO AND FROM THE BALTIC SEA, FROM 1838 TO 1843, INCLUSIVE.

Nationality.	1838.	1839.	1840.	1841.	1842.	1843.
American....	153	114	143	122	113	152
Belgian......	25	34	20	11	6	6
Bremen.,....	45	65	58	68	56	36
Danish.......	1,019	1,139	1,045	1,032	1,070	1,410
Dutch........	955	1,192	950	970	917	1,236
English......	4,009	4,498	3,972	3,777	3,519	3,515
French	268	240	239	218	238	179
Hamburg.....	29	18	23	20	14	27
Hanoverian...	528	819	768	823	765	837
Lubec	107	108	96	88	77	76
Mecklenburg.	842	970	953	958	826	840
Neapolitan...	28	44	48	15	51	67
Norwegian...	1,497	1,691	2,082	1,666	1,848	1,635
Oldenburg....	59	125	83	132	142	183
Portuguese...	....	3	4	3	2	2
Prussian......	2,491	3,045	2,996	2,850	2,311	2,582
Russian.......	759	837	820	831	757	738
Spanish......	17	20	18	14	4	8
Swedish......	1,152	1,252	1,384	1,182	1,278	1,451
Total.......	13,983	16,214	15,702	14,780	13,994	14,980

STATEMENT OF SOUND DUES PAID ON GOODS SHIPPED BY AMERICAN VESSELS TO AND FROM THE BALTIC SEA, FROM 1837 TO 1843 INCLUSIVE.

Year.	ON GOODS SHIPPED			Total Specie Dollars.
	To the Baltic Sea.	From the Baltic to Amer. ports.	From the Baltic to foreign ports.	
1837	75,327	14,230	666	90,224
1838	109,140	17,498	1,526	128,165
1839	72,762	11,238	119	84,119
1840	94,110	18,294	1,010	113,414
1841	72,328	15,967	2,218	90,514
1842	57,254	8,860	1,030	67,144
1843	71,762	7,835	1,916	81,513

The old specie dollar of Denmark is valued in the United States at $1.05. (*United States' Com. Dig.*, 1856-7, p. 300, issued under the orders of Secretary Marcy, of the State Department.)

We find, now and then, full official returns published in the different commercial papers of Europe. From some of these, and from other reliable sources, we have compiled the following tabular statements which will serve to show the amounts of revenue derived by Denmark from the Sound dues, as well as the proportion assigned to each of the leading commercial countries in the same:

1830........	$1,074,000	1838.........	$1,144,644
1831........	1,022,000	1839.........	1,183,332
1832........	1,149,000	1840.........	1,194,306
1833........	1,086,000	1841.........	1,129,950
1834........	983,000	1842.........	1,028,952
1835........	993,000	1843.........	1,162,500
1836........	1,060,200	1844.........	1,186,122
1837........	1,074,708	1845.........	1,208,628

Aggregate........................ $17,690,342
Annual average.................. 1,105,646
1853........ 1,175,478

The following table, exhibiting the number of vessels that passed the Sound from 1750 to 1846, is derived from a statistical work recently published in France:

Years.	Vessels.	Years.	Vessels.
1750......	4,500	1813......	1,426
1763......	5,025	1814......	8,186
1770......	7,736	1815......	8,816
1777......	9,063	1816......	8,871
1778......	8,476	1817......	13,149
1779......	8,272	1818......	12,566
1780......	8,291	1819......	10,667
1781......	8,281	1820......	10,884
1782......	8,375	1821......	9,133
1783......	11,223	1822......	8,486
1784......	10,867	1823......	9,655
1785......	10,183	1824......	10,494
1786......	9,000	1825......	13,142
1787......	9,750	1826......	11,068
1788......	9,216	1827......	12,099
1789......	8,823	1828......	13,263
1790......	9,732	1829......	13,566
1791......	10,452	1830......	13,210
1792......	12,114	1831......	12,942
1793......	9,926	1832......	12,202
1794......	10,511	1833......	10,985
1796......	12,113	1834......	10,605
1797......	9,623	1835......	10,255
1799......	7,848	1836......	11,925
1800......	9,048	1837.....	13,100
1801......	8,988	1838......	13,959
1805......	11,537	1839......	16,175
1806......	7,140	1840......	15,662
1807......	6,240	1841......	14,708
1808......	121	1842......	13,952
1809......	379	1843......	14,940
1810......	2,393	1844......	17,333
1811......	2,393	1845......	15,955
1812......	2,475	1846......	18,710

If we divide the preceding table into periods, we have the following annual average number of vessels for each period:

	Average annual number.		Average annual number.
1750...........	4,500	1811—1820.....	7,943
1763—1770.....	6,380	1821—1830.....	11,502
1777—1780.....	8,525	1831—1840.....	12,781
1781—1790.....	9,545	1841—1843.....	14,533
1791—1800.....	10,204	1844—1846.....	17,333
1801—1810.....	5,257		

From various authorities, the number of vessels that passed the Sound down to 1853 is compiled, as follows:

Years.	From the North Sea.	From the Baltic Sea.	Total.
1847	10,675	10,812	21,487
1848	8,525	8,214	16,739
1849	10,043	8,696	18,739
1850	9,651	9,408	19,059
1851	9,930	9,976	19,906
1852	8,809	8,736	17,545
1853	10,662	10,850	21,512
Annual average number from 1847 to 1853..19,284			

The official reports relative to the navigation of the Sound, in possession of the Department of State, do not come down to a later period than 1853. The annual returns of the foreign commerce of the Hanse towns for 1854, compared with the two preceding years, are, however, at hand; and from these it appears that the number of Hanse vessels which passed the Sound was as follows:

	1854.	1853.	1852.
Hamburg.........	65	83	49
Bremen	7	37	24
Lubec............	109	136	135
Total.........	181	256	208

The late war, of which the Baltic was one of the chief theatres, will explain the diminution in 1854.

The amount of Sound dues paid by the Hanse towns, in the years specified, was as follows:

	Francs.		Francs.
1851............	103,150	1848............	61,600
1850............	66,422	1847............	98,384
1849............	26,608	1846............	115,190

Total, 471,354 francs, equal to $89,557 26; an annual average of 78,559 francs, or $14,926 21.

If we are correctly informed as to the assessment and the bases on which Denmark proposes to raise her revenues under the scheme of capitalization, it would seem quite evident that she has at least taken care of "her own interests" as implicated in this question; and our government, in rejecting the compromise thus tendered, accompanied as it was with the entanglements of the "balance of power in Europe," under whose shield Denmark wishes to place these exactions, pursued the true policy of the country by avoiding any such "dangerous complicity," as Mr. Marcy terms it. The offer of the United States to share liberally in compensating Denmark for her expenditures at Elsinore in the interests of commerce ought, as it seems to us, to satisfy any reasonable demand which she can urge upon our own country or the countries of Europe; and, if all combine to pay a "fair equivalent" for the advantages derived by their commerce from the outlays of Denmark, it should be accepted by her without further delay or protest, and, instead of making the antiquity of her exaction the plea for its continuance, should rather acknowledge the equity of those governments which are willing to meet all her just claims in the future without seeking any indemnity for the past.

The following table exhibits the number of vessels of all nations that have passed the Danish Sound during the years 1854–55:

Nation.	From the North Sea.	From the Baltic.	Total. 1855.	Total. 1854.	Incr'se. 1855.	Decr'se. 1855.
Prussia......	1,416	1,448	2,864	3,095	....	231
Denmark.,..	900	721	1,621	1,898	....	277
Norway.....	1,426	1,414	2,840	3,328	....	488
Sweden.....	1,258	1,205	2,463	2,583	....	120
England	1,219	1,196	2,415	2,032	383	....
Russia......	....	7	7	166	....	159
Mecklenburg	358	379	737	873	....	136
Lubec..	34	36	70	111	....	41
Hamburg....	16	26	43	61	....	19
Bremen.....	16	13	29	11	18	....
Hanover....	341	354	695	497	198	....
Holland.....	798	705	1,593	1,460	133	....
Oldenburg ..	74	76	150	79	71	....
France......	62	63	125	81	44	....
Belgium.....	5	6	11	11	....	....
Italy........	29	24	53	23	30	....
Spain........	....	....	....	....	....	....
Austria......	....	....	....	1	....	1
Portugal....	8	8	16	12	4	....
Peru.........	....	....	....	....	....	....
United States	28	26	54	46	8	....
S. America..	1	1	2	....	2	....
	7,989	7,798	15,787	16,368	891	1,472
Increase............................						891
Decrease in 1855.............						581

It will be seen that the total number of vessels that passed the Sound in 1853 exceeds that of the preceding year by 3,967 vessels. Of the whole number, 18,166 were laden, and 3,346 were in ballast. The countries which contributed most to this augmentation are Prussia, Great Britain, Denmark, Mecklenburg, and Russia. The following table will show the nation, and the number of vessels from each nation, in 1853:

Nations.	No. of vessels.	Nations.	No. of vessels.
England......	4,668	Mecklenburg.	1,067
Prussia.......	3,472	Hanover.....	743
Norway......	3,411	France......	343
Denmark,....	2,094	Oldenburg....	191
Sweden......	1,996	Lubec	156
Holland......	1,874	United States.	96
Russia.......	1,202		

For a sketch of the Danish Exploring Expedition around the World, see Hunt's *Merchants' Magazine*, vol. xxiii., p. 406; viii., 469; *Westm. Rev.* l., 75, xlviii., 195; *N. A. Rev.*, xxvii., 285 (by H. Wheaton.)

TABULAR STATEMENT SHOWING THE NAVIGATION OF THE SOUND, THE PRINCIPAL NATIONS PARTICIPATING THEREIN, THE SHARE ASSIGNED TO EACH, AND THE PROPORTION OF EACH PER CENTUM ON THE WHOLE, FROM 1850 TO 1854, BOTH INCLUSIVE.

Years.	England.	Sweden and Norway.	Denmark.	Russia.	Prussia.	Mecklenburg	Hanse Towns	United States.	France.	Holland.
1850........	5,488	4,535	1,266	1,188	2,391	1,031	175	105	44	1,906
1851........	4,822	5,177	1,540	1,023	2,650	1,053	235	119	292	2,031
1852........	8,902	5,120	1,464	946	2,319	771	204	79	280	1,691
1853........	4,668	5,407	2,094	1,202	3,472	1,067	256	96	343	1,874
1854........	2,046	5,841	1,929	178	3,103	858	181	42	87	1,398
Aggregate..	20,926	26,080	8,293	4,537	13,935	4,780	1,051	441	1,046	8,900
Average...	4,185	5,216	1,659	907	2,787	956	210	88	209	1,780
Proportion per cent..	23·03	28·9	9·2	5	15·5	5·3	1·2	0·5	1·2	9·9

Regulations observed on passing through the Sound into the Baltic.—If the vessel be laden with cotton for Russia, the captain must be provided with a certificate, properly attested by the Danish consul at the port of departure, verifying that the cotton does not come from Egypt or the Levant. Every vessel not thus protected will be subject to quarantine, and may have her entire cargo put ashore.

Every captain must be able to show legal evidence of the nationality of his vessel; must be provided with a manifest and a clearance from the custom-house officers at his last port. Should the vessel come from France, Holland, Belgium, Portugal, or Hamburg, the captain must exhibit his passport. If from Holland or Belgium, destined for Prussia, the certificate of the Prussian consul at the port of departure will suffice.

If the vessel comes from the United States, laden with cotton, the captain must be provided with a manifest of his cargo, custom-house clearance, register of nationality, and the certificate of the Danish consul attesting that the cotton was actually grown in the United States; or if it come from Brazil or any other country, that it was first landed at a port in the United States, and not transhipped from a foreign vessel.

If the vessel comes from Cuba, the captain must be provided with a register attesting the nationality of his vessel, a manifest, passport, and custom-house receipt; and it would be advisable for him to have, also, a bill of health, attested by the Danish consul at the port of departure.

The papers and certificates referred to in the preceding remarks must be in duplicate; and, when the vessel is destined for Russia, should there be any interlineations, or marginal notes, or addenda, the captain's signature must be affixed to each, so as to give it authenticity.—*Com. Rel. U. S.*

Since the preceding article was in type, a convention was held in reference to thefunding of the Sound dues on the part of the several governments interested. For the results of these deliberations, the reader is referred to article entitled "*Sound Dues.*"

Deposit. This term is applied to the sum of money which a man might deposit with the sheriff after he was arrested, instead of putting in special bail. The amount of the deposit was the sum sworn to on the back of the writ. (BLACKSTONE'S *Comm.*) Deposit is also used for any sum of money which a man puts in the hands of another as a kind of security for the fulfilment of some agreement, or as a part payment in advance. The Roman word, depositum, signified any thing which a man put in the hands of another to keep till it was asked back, without any thing being given to the depositarius for his trouble. The depositor was called deponens or depositor. The depositary was bound to take care of the thing, and to make good any damage that happened to it through fraudulent design (*dolus*) or gross neglect (*lata culpa*). The depositor could recover the thing by action; but the depositary was entitled to satisfaction for any loss that he sustained in the matter of the deposit by any default (*culpa*) on the part of the depositor. The depositary could make no use of the deposit, except with the permission of the depositor, either given in express words, or arising from implication. If a man refused to return a deposit, and was condemned in an action of deposit (*actio depositi*), infamy (*infamia*) was a consequence of the condemnation.—DIG., 16, tit. 3; JUVENAL, *Sat.* xiii., 60.

Depot (Fr.), is used to designate a place where all sorts of military stores and provisions are kept, or where recruits are received and trained. It is also applied to that portion of a regiment which remains at home when the rest is ordered upon foreign service. And is used generally to denote any place intended as a place of deposit for merchandise; as the terminus of a railroad. The term station is more proper for places intended merely for passenger accommodation.

Depression of the Horizon, or **Dip of the Horizon,** in Nautical Astronomy, denotes the depression or dipping of the visible horizon before the true horizontal plane, and which arises from the circumstance that the eye of the observer is not placed on the same level with the surface of the sea, but at some distance above it. Hence in observing the altitude of the sun or a star above the horizon with the sextant, the altitude appears greater than it really is. Let $a =$ the radius of the earth, and $x =$ the height of the eye above the horizon; then the cosine of the angle of depression $\frac{a}{a+x}$. At the height of 10 feet this amounts to about three minutes of a degree.

Derrick, in nautical language, used in a variety of meanings, but chiefly for a tackle used at the outer quarters of a mizzen-yard, consisting of a double and single block connected by a fall.

Desert (Lat. *desertum*, participle of *desero, to desert, to leave*), a large tract of barren country; a waste.—E. B. A term generally used to designate an uninhabited place or solitude; in which sense, as has been judiciously remarked, it is equally applicable to the fertile plains watered by the Maranon, and the sandy wastes of Lybia, but applied more particularly to the vast sandy and stony plains of Africa and Asia. In every region of the globe plains are to be found of greater or less extent, which, though marked by strong features of resemblance in their grand outlines, exhibit with the different latitudes in which they are placed a corresponding variety of character, and accordingly the distinguishing peculiarities of each are known by different appellations. Thus we have the *steppes* of Europe, the *deserts* of Asia and Africa, the *savannahs* of the Mississippi and Missouri, and the *pampas* and *llanos* of South America.

The most striking feature of Africa consists of its immense deserts, which have in all ages presented to the speculations of the geographer objects highly worthy of attention. Of these the chief is the *Sahara*, or the *Desert*, so called by way of eminence. This prodigious zone of sand stretches, with few interruptions, from the shores of the Atlantic to the confines of Egypt, and comprehends in its length and breadth a superficies of about 2,200,000 square miles. The sand raised by the burning wind called the simoom is frequently in a state of motion, and as it sweeps along in its career of desolation bears a strong resemblance to the waves of a tempestuous sea. This immense expanse, however, is by no means a uniform surface of loose sand. In many parts the dreary wastes is broken by low hills of naked sand-stone, or by tracts of arid clay, and occasionally it is enlivened by verdant isles or *oases*, which serve as resting-places for the caravans that traverse these dismal regions. But for these *oases*, indeed, the Sahara would be wholly impassable. It presents, says Malte Brun, no traces of a beaten path, and the caravans that traverse it, directing their way by the polar star, describe a tortuous road in order to profit by the oases, which are represented as brilliant with vegetation, but which probably owe a great part of their reputation to the contrast they form with the absolute barrenness of the desert.

The great deserts of Africa are only separated from those of Asia by the valley of the river Nile, and the Red Sea. But upon this subject we can not refrain from transferring to our columns the remarks of Dr. Traill, who has sketched with a masterly hand the grand outlines of the Asiatic deserts. "Soon after quitting the Nile, the traveler by the route of Suez encounters sand, which is continued into the centre of Arabia, where it forms the desert of Nedsjed, extending to the valley of the Euphrates. The sandy zone then inclines northward, enters Persia, and forms the saline deserts of Adjemi, Kerman, and Mekran; it is turned north-east by the valley of the Indus, passes through Caubul and Little Bukharia, till it joins the vast deserts of Cobi and Shamoo, which occupy so large a portion of Central Asia between the Altaian and Mustag chains, and reach to the confines of China. The sandy zone, thus traced throughout the breadth of the ancient continent from western Africa to the 120° of east longitude, has been computed to cover an area of 6,500,000 square miles; but the Asiatic portion of this tract includes many chains of mountains and fertile valleys. It is characterized by the occurrence of arid wastes of sand or clay, sometimes with saline incrustations on the surface, and is remarkably deficient in considerable rivers: except the Nile, the Euphrates, the Indus, and the Oxus, there are no large rivers in a region which embraces almost a fourth part of both Africa and Asia. This portion of Central Asia forms a series of elevated plains, 6,000 miles in length from east to west. Some of these plains, says Humboldt, are covered with herbage; others produce only evergreen saliferous plants, with fleshy and jointed stems; but a great number glitter from afar with a saline efflorescence that crystallizes in the semblance of lichens, and covers the clayey soil with scattered patches like new-fallen snow." Under the head MIRAGE will be found some account of the so-called singular optical illusion so often seen in the desert.

In Scripture, the term desert bears a wholly different interpretation from that usually attached to it in profane writings. It has been fully shown by Reland (*Palest.* 1. i. p. 375) that the Hebrew מדבר (midbar), the *ἐρημος* of the Greeks, and the *desertum* or *solitudo* of the Latins, bear no analogy to each other; the first being appropriated almost exclusively to those thinly-peopled districts of the Holy Land which yielded pasturage for cattle, and were remarkable at once for their beauty and the luxuriance of their vegetation.

"The arid plains and deserts, as well as high mountain ranges, have, it may well be supposed, an influence upon the movements of the great aerial ocean, as shoals and other obstructions have upon the channels of circulation in the sea. The deserts of Asia, for instance, produce a disturbance upon the grand system of atmospherical circulation, which, in summer and autumn, is felt in Europe, in Liberia, and away out upon the Indian Ocean, as far to the south as the equinoctial line. There is an indraught from all these regions toward these deserts. These indraughts are known as monsoons at sea; on the land, as the prevailing winds of the season.

"We perceive how a desert land spreads its influence through the distance upon the winds. The first effects of heating up the plains are necessarily felt by the air nearest at hand, and by that further off at a later period, so that the south-west monsoon influence is in this part of the ocean propagated from the land out upon the sea at the rate before stated. Of course, the vast plains of Asia are not brought up to monsoon heat *per saltem*, or in a day. They require time both to be heated up to this point and to be cooled down again. The monsoon season may be always known by referring to the causes which produce these winds. Thus, by recollecting where the thirsty and overheated plains are which cause the monsoons, we know at once that these winds are rushing with greatest force toward these plains at the time that it is the hottest season of the year upon them. The influence of these heated plains upon the winds at sea is felt for a thousand miles or more. Thus, though the desert of Cobi and the sunburned plains of Asia are, for the most part, north of latitude 30°, their influence in making monsoons is felt south of the equator. So, too, with the great desert of Sahara and the African monsoons of the Atlantic; also, with the Salt Lake country and the Mexican monsoons on one side, and those of Central America in the Pacific on the other. The influence of the deserts of Arabia upon the winds is felt in Austria and other parts of Europe, as the observations of Kriel, Lamont, and others show."—MAURY'S *Physical Geog. of the Sea.*

Desertion by a Seaman. "Desertion from the ship without just cause, and *animo non revertendi*, or the justifiable discharge of a seaman by the master for bad conduct, will work a forfeiture of the wages previously earned; and this is a rule of justice and of policy which generally pervades the ordinances of the maritime nations. By the English statute law, and by the act of Congress, desertion is accompanied with a forfeiture of all the wages that are due, and an absence of forty-eight hours without leave, is made conclusive evidence of desertion; and whatever unjustifiable conduct will warrant the act of the master in discharging a seaman during the voyage, will equally deprive the seaman of his wages. But the forfeiture is saved if the seaman repents, makes compensation or offer of amends, and is restored to his duty. Public policy and private justice here move together, and the maritime ordinances unite in this conclusion. The master has power to remit a forfeiture, and the penalty of forfeiture is not applied to slight faults, either of neglect or disobedience. There must be either an *habitual* neglect, or disobedience, or drunkenness, or else a single act of gross dishonesty, or some other act of a heinous and aggravated nature, to justify the discharging a seaman in a foreign port, or the forfeiture of wages; nor will the admiralty courts, except in cases of great atrocity, visit the offenses of a seaman with the cumulated load of forfeiture of wages and compensation in damages. They stop at the forfeiture of the wages antecedently earned, and in the application of the forfeiture, the advanced wages are made a charge on the forfeited wages, but the hospital money is apportioned ratably on the wages for the whole voyage. In these regulations the moderation of the courts, and the solicitude which the peculiar condition and character of seamen excite, are equally manifest. So, if the seaman quits the ship involuntarily, or is driven ashore from necessity, from want of provisions, or by reason of cruel usage and for personal safety, the wages are not forfeited, and he will be entitled to receive them in full to the prosperous termination of the voyage. On the other hand, it is the duty of the seamen to abide by the vessel as long as reasonable hope remains; and if they desert the ship under circumstances of danger or distress from the perils of the sea, when their presence and exertions might have prevented damage, or restored the ship to safety, they forfeit their wages, and are answerable in damages. And even when a seaman might well have been discharged in the course of the voyage for gross misbehavior, if the master refuses to discharge him, and leaves him in imprisonment abroad, he will, in that case, be entitled to his wages until his return to the United States after deducting from the claim his time of imprisonment."—KENT'S *Commentaries*, Lect. xlvi. There are, however, at times, extenuating circumstances, which will in part authorize a sailor to leave his ship in a foreign port. This subject is discussed with clearness in the work above-mentioned. Judge Story holds that the voyage of a ship is ended when she arrives at her port of destination, and is safely moored, though her cargo be not delivered; and desertion afterward does not forfeit the wages entire, but a partial forfeiture only as compensation for breach of duty.—*Ibid.* See DISCHARGE OF SEAMEN.

Design (Fr. *dessein*, from Lat. *designo*), a scheme or plan; purpose, intention; a representation of a thing by an outline or sketch, etc. *Design*, in the manufactories, expresses the figures with which the workman enriches his stuff or silk, and which he copies after some pattern. *Design* in *Painting*, is the first idea of a large work, drawn roughly, to be afterward carefully executed and finished.

Design, Schools of, are establishments for instructing pupils in the art of drawing. In some the instruction is confined to what is subservient to the fine arts, but in others, especially in the very admirable establishment at Edinburg, under the Board of Trustees of Arts and Manufactures, not only is attention paid to the instruction of the painter and the sculptor, but design is taught, to perfect the mechanic in the principles of his art, wherever ornamental pattern is required. Such schools have been long opened in France and various parts of Germany, from which important benefit has been conferred on the manufacturing industry of those countries. The Edinburg School of Design appears to have been the first established in Britain for the express improvement of manufacturing industry. It is most ably conducted, and has found its pupils in demand for the chief seats of English manufacturing art. In England, besides the establishment at Somerset House, London, there is a branch school of design in Spitalfields that is well attended. Similar schools are now established in Birmingham, Manchester, Coventry, Nottingham, Leeds, York, Huddersfield, Sheffield, Norwich, Stoke-on-Trent, Newcastle-on-Tyne, Hanley, Glasgow, and Paisley. Several have been established in the cities of New York and Boston, and other portions of the United States, and their utility is clearly demonstrated.—BRANDE'S *Enc.*

De-silvering Lead. Nearly all lead ore contains a little silver; and Mr. Pattinson of Newcastle, England, has devised an ingenious and beautiful mode of separating it. His discovery has rendered many lead mines workable which must otherwise have been abandoned. The chief ore whence lead is extracted is galena, a sulphuret of the metal, containing on an average about 80 per cent. of lead and a minute portion of silver; and this silver treasure often determines the working or non-working of the mine. Until recently, 20 ounces of silver to a ton of lead were the least that would pay for the expense of separating; but Mr. Pattinson has enabled the lead smelter to realize a profit from so small a ratio as 3 or 4 ounces to the ton. The lead-smelting at the Allenhead mines, and at the Wanlock lead hills in Dumfriesshire, are both founded on Pattinson's process.

This process is not only scientific in the principle on which it is based, but it is really beautiful to witness. After the ore has been smelted, and the lead run off into the form of blocks or "pigs," these pigs are slowly re-melted in large cast-iron open vessels. The molten lead, while gradually cooling, is stirred uninterruptedly with an iron rod, and crystals of lead gradually form. These crystals, being denser and heavier than the rest of the lead, fall to the bottom, and are thence removed by the aid of a colander or perforated ladle. Now these crystals contain less silver than an equal weight of the uncrystallized lead; and here we begin at once to see the rationale of the process: since none of the silver is actually gone, that which has left the crystals has tended to enrich the remaining portion of the lead. Again are the crystals melted, to get more and more silver out of them; again is the richer lead melted, to increase its richness at the expense of the newly-formed crystals; and thus do the double processes advance until almost every atom of silver is obtained from the lead. But this requires another kind of operation. The very rich lead is brought to an intense heat in a peculiar furnace, and a blast of air is driven upon it; the lead combines with the oxygen of the air to form litharge, while the silver sinks to the bottom in a pure state, forming a slab of delicate silver. A very beautiful appearance presents itself during the process: the molten silver absorbs much oxygen, which escapes again as the metal solidifies; bursting through the gradually hardening surface of the mass, the bubbles of gas force along with them portions of the fluid metal from below. It really affords a very close representation of a volcano; for the same chemical laws are in operation in both cases. This escape of oxygen leaves the surface covered with beautiful and fantastical concretions of pure and brilliant silver—silvery mountains and valleys, formed by a process bearing much analogy with that by which our earth mountains were probably formed. In the recent London Exhibition there was a cake of silver weighing no less than 8000 ounces, obtained from lead in Mr. Beaumont's mines in Northumberland.—*Novelties and Inventions.*

Detroit, a city and port of entry of the United States, capital of the county of Wayne, Michigan, situated on the west bank of the Detroit Strait or River, which connects Lakes Huron, St. Clair, and Erie. Lat. 42° 2′ N., long. 83° 2′ W. The city extends along the river for more than a mile and a half, its central point being 7 miles from Lake St. Clair, and 18 from Lake Erie. The river is here about five eighths of a mile in width; and its depth varies from 12 to 48 feet. The descent from Lake St. Clair to Lake Erie is about 6 feet, or 3 inches per mile; and the velocity of the current at the deepest part, opposite the city, is 2½ miles per hour. Its shores on both sides are highly cultivated; and from its outlet into Lake Erie to its origin at Lake Huron resemble a continuous village, with fine farms, pleasant villas, groves, gardens, and excellent roads. The town is well and regularly built, extending in the form of a rectangle for about 1200 feet from the river, and afterward terminating in a triangle. Some of the principal streets are 200, others 120, and others 60 feet wide. These generally cross each other at right angles. The houses are mostly of wood, but many of them are of brick. The principal of the public buildings are—the old State House, the United States' Buildings (of polished limestone), the State buildings for the supreme court, public offices, county court-house, county jail, city-hall, and market, the new Catholic cathedral, and the cathedral of St. Anne. Detroit is well supplied with water from the river, by means of hydraulic machinery in the upper part of the town. Ship and boat building is a large and important branch of business; and there are several large steam saw-mills, iron founderies, etc. Detroit has a very extensive trade, for which it enjoys many advantages. The harbor is capacious and secure. It is connected by the Michigan Central Railroad with Chicago viâ New Buffalo and Michigan City, a distance of 258 miles, and by the Pontiac with the town of that name, 20 miles distant. The Great Western Railroad, constructed through Canada, brings it into direct communication with the New York and other eastern routes. The population in 1801 was only 770, and in 1830, 2222; in 1840 it amounted to 9193, and 1850 to 21,000, while in the summer of 1853 it was 34,400. This, however, includes only those within the corporate limits, beyond which there is a numerous population, whose entire occupation and interests are in the city.

Dials. Invented by Anaximander, 550 B. C.—*Pliny.* The first dial of the sun seen at Rome, was placed on the temple of Quirinus by L. Papirius Cursor when time was divided into hours, 293 B. C.—*Blair.* In the times of the emperors, almost every palace and public building had a sun-dial. They were first set up in churches in A. D. 613.—*Lenglet.*

Diamond (Ger. Du. Da. and Fr. *Diamant;* Sw. *Demant, Diamante;* It. Sp. and Port. *Diamante;* Rus. *Almas;* Pol. *Dyamant;* Lat. *Adamas;* Hind. *Hira*), a precious stone which has been known from the remotest ages. Pliny has described it (*Hist. Nat.*, lib. 37, § 4); but his account is, in many respects, inaccurate. It is found in different parts of India, and in Borneo; it is also found in Brazil, on which, indeed, Europe may be said to be at present entirely dependent for supplies of diamonds. Hitherto, however, it has not been met with anywhere except within the tropics. It is the most beautiful and most valuable of precious stones. Its most common colors are white and gray, of various shades. It occurs also red, blue, brown, yellow, and green. The colors are commonly pale. It is always crystallized, but sometimes so imperfectly that it might pass for amorphous. It is the hardest body in nature. External, lustre from splendid to glimmering; internal, always splendid. It is brittle; its specific gravity is 3·5. When rubbed it becomes positively electric, even before it has been cut by the lapidary, which is not the case with any other gem.—THOMSON'S *Chemistry.*

Diamonds were first brought to Europe from the East where the mine of Sumbulpour was the first known; and where the mines of Golconda were discovered 1584. This district may be termed the realm of diamonds. The mines of Brazil were discovered in 1728. From these last a diamond, weighing 1680 carats, or 14 ounces, was sent to the court of Portugal, and was valued by M. Romeo de l'Isle at the extravagant sum of 224,000,000 reals; by others it was valued at 56,000,000. Its value was next stated to be 3,500,000; but its true value is £400,000. The diamond called the "mountain of light," which belonged to the king of Caubul, was the most superb gem ever seen. It was of the finest water, and the size of an egg, and was also valued at 3,500,000. The great diamond of the emperor of Russia weighs 193 carats, or 1 oz. 12 dwt. 4 gr., troy. The empress Catharine II. offered for it £104,166, besides an annuity for life to the owner, of £1041, which was refused; but it was afterward sold to Catharine's favorite, count Orloff, for the first mentioned sum, without the annuity, and was by him presented to the empress on her birth-day, 1772. It is now in the sceptre of Russia. The Pitt diamond weighed 136 carats, and, after cutting, 106 carats. It was sold to the king of France for £100,000 in 1720.—*Haydn.*

According to Mr. Milburn (*Orient. Com.*), the color should be perfectly crystalline, resembling a drop of clear spring water, in the middle of which you will perceive a strong light playing with a great deal of spirit. If the coat be smooth and bright, with a little tincture of green in it, it is not the worse, and seldom proves bad; but if there be a mixture of yellow with the green, then beware of it—it is a soft greasy stone, and will prove bad.

Test of Diamonds. Cutting, etc.—To ascertain whether any specimen is a true diamond or not, a fine file may be used; and if the surface of the stone be the least abraded or scratched by its action, it is not a diamond. The difference will also appear upon close examination without this instrument: the rays of light easily pass through other gems, but in the diamond they are refracted to the surface, which occasions its superior brilliancy. If the specimen under examination be very minute, it may be placed between two half-crowns, or other flat metallic surfaces, and pressed with the thumb and finger: if a diamond, it will not be injured; but if otherwise, it will break and fall to powder. On account of the extreme hardness of the diamond, the art of cutting and polishing it was for a long time unknown in Europe. But, in 1456, a young man of the name of Louis Berghen, a native of Bruges, is said to have constructed a polishing wheel for the purpose, which was fed with diamond powder instead of *corundum*, which the Chinese and Hindoos had been long accustomed to employ. Berghen was led to this discovery by observing the action produced by rubbing two rough diamonds together. Diamonds are cut into brilliants and rose diamonds; the former being, for the most part, made out of the octahedral crystals, and the latter from the spheroidal varieties.—JOYCE'S *Practical Mineralogy;* REES' *Cyclopædia, etc.*

Commercial Value of Diamonds.—In the great or wholesale trade there is but little fluctuation in the price of those diamonds which may be termed *stones in general demand.* I will begin with brilliants from one grain to 2½ grains each. Such brilliants double cut, and what may be termed fine, are worth from £7 to £8 per carat. Needy sellers may take 10 per cent. less for cash; but this is the general average price for a lot of 10, 20, or 50 carats of well-made stones, if the quality be good. Brilliants, from two grains to three, may be bought in lots at from £7 7*s.* to £8 per carat. It is to be understood that diamonds in a lot are never all quite free from faults; hence there may arise a difference of 10 per cent. in the price. Stones of 3 grains, if fine and perfect, are always in demand at £8 to £9 per carat. Brilliants from 3 grains to 4, if very fine and well proportioned, are worth from £8 to £9 per carat. Those of a carat each, if very fine and well selected, are worth £9 to £10. Three years ago I offered £12 each for 8, and could not obtain them. Brilliants from 5 grains to 6, if pure, are worth, from £13 to £14; if perfectly fine, and of the full weight of 6 grains, they are worth from £17 to £18 each. I have for such paid £20. Brilliants of 2 carats each, are worth from £27 to £30. Stones of this weight, if well proportioned, are considered of a fine size, and well calculated for pins, or the centre of clusters; indeed, well proportioned diamonds, from 6 grains to 2 carats each, are always in demand, and are retailed at from £20 to £35 each, according to their degree of perfection, or as the retailer may think fit to charge them. For brilliants of 3 carats, if fine and well formed, from £70 to £80 may be obtained. Stones of this size, and larger, are more liable to capricious fluctuations of price than the smaller ones before named, being chiefly required for the centre stone of salable necklaces. Brilliants of 4 carats, if fine, are worth from £100 to £130. I have sold stones, single cut, a little *off color*, of this weight, at 80 guineas. I possessed one of 17 grains, perfectly white, having a surface large as that of a 7 carat stone ought to be; it was, consequently, very thin, but being much in request, on account of its great *spread* or surface, it was sold for £160. Brilliants of 5 carats are not frequently met with in general trade, and are valuable in price: as the dealers exact more if they know that such stones are wanted than they would in the regular course of business. The prices may be said to vary from £180 to £200.

Brilliants of 6 carats, as before stated, are not common: they are suitable for centre stones of expensive necklaces and single stone rings. If perfect and well shaped, they sell for £230 to £250, or more. For estimating the value of peculiarly fine diamonds there is no fixed standard. Rough diamonds, selected as fine, and well formed for cutting, may be estimated as follows: Square the weight of the stone, multiply the product by 2, and the result will be the value in pounds sterling. Brilliants, if fine, may be estimated by squaring the weight in carats, and multiplying the product by 8, which will give the amount in pounds sterling. As a very large property, both in Great Britain and in other countries of Europe, is vested in diamonds, it may be interesting to be informed, that not only the price of these gems has for several years been, upon the whole, gradually rising, but that it is likely to continue on the advance. At the present time, indeed, and for the last few years, there has been a dull sale of diamonds in England, nor did the coronation occasion a demand worth notice; but on the Continent the trade has been steady, and rough diamonds have been constantly rising in price. That this advance will be progressive may be assumed from the fact, that the best diamond ground now known, the Serro do Frio in Brazil, has assuredly passed the zenith of its prosperity. I went over the greater part of what is yet reserved, and still remains to be worked, and I conceive that there would be no difficulty in calculating the length of time in which the present number of working may reduce it to a state of exhaustion, like that of the far-famed Golconda. The average annual produce of future years may be estimated by the amount obtained from that portion which has been already worked. Brazil may be said to furnish Europe with 25,000 or 30,000 carats per annum of rough diamonds, which, if reduced to brilliants, may make an influx into the market of 8000 or 9000 carats annually.—MAWE's *Treatise on Diamonds*, 2d ed. pp. 9–14, and p. 60.

The rule stated by Mr. Mawe, and adopted by the jewelers, for estimating the value of diamonds (multiply the square of the weight in carats by 2, and the product is the value in pounds sterling), can only hold in the case of those that are of a small size, or do not weigh more than 20 carats. The value of the largest diamonds, which are exceedingly rare (*non nisi regibus et iis admodum paucis cognitus*, Pliny), can, it is clear, depend upon nothing but the competition of the purchasers. The diamond belonging to the emperor of Brazil is the largest in the world. It is still uncut, and weighs 1680 carats; so that, according to the jewelers' rule, it must be worth the enormous sum of £5,644,800! It may, however, be doubted whether his imperial majesty would have any disinclination to part with it for the odd sum of £644,800. The famous diamond belonging to the emperor of Russia, which the jewelers tell us is worth £4,804,000 did not cost £150,000.

Diamonds are not used exclusively as articles of ornament or luxury. They are frequently employed with great advantage in the arts. "Bad, discolored diamonds," says Mr. Mawe, "are sold to break into powder, and may be said to have more extensive sale than brilliants, with all their captivating beauty. In many operations of art they are indispensable; the fine cameo and intaglio owe their perfection to the diamond, with which alone they can be engraved. The beauty of the onyx would yet remain dormant, had not the unrivaled power of the diamond been called forth to the artist's assistance. The carnelian, the agate, or cairngorm, can not be engraved by any other substance. Every crest or letter cut upon hard stone is indebted to the diamond. This is not all; for without it blocks of crystal could not be cut into slices for spectacles, agate for snuff-boxes, etc." The carat grain used in weighing diamonds is different from the troy grain, 5 diamond grains being only equal to 4 troy grains. See *Westminster Rev.*, xxi., p. 297; HUNT's *Magazine*, xv., p. 600; FRAZER, xv. (by CARLISLE); *Bankers' Magazine*, N. Y., vol. v., 270, 369.

Diaper. (Ger. *Drell;* Du. *Drel;* Fr. *Linge-ouvré;* It. *Tela tessuta a opere;* Sp. *Manteles alemaniscas;* Rus. *Salfetotsschnoe*), a sort of fine flowered linen, commonly used for table-cloths, napkins, etc., brought to the highest perfection in the manufactories in the north of Ireland, in Germany, and Scotland. It sometimes resembles an inferior kind of damask. It is said to have been originally manufactured at Ypres, in Flanders; whence the term d'Ypres, corrupted into diaper.

Dice (Ger. *Würfel;* Du. *Taarlingen;* Fr. *Des (à jouer);* It. *Dadi;* Sp. *Dados;* Rus. *Kosti*), cubical pieces of bone or ivory, marked with dots on each of their sides from 1 to 6, according to the number of the face. They are used in various games of chance, by being thrown from a box.

Dicker (probably from *δεκα, ten*), in our old writers, is used to denote the number or quantity of ten, particularly ten hides or skins, of which twenty made a last; and is sometimes applied to other things, as a dicker of gloves or ten pairs, a dicker of iron or ten bars, etc.

Dictionary, in its original acceptation, is the arranging of all the words of a language according to the order of the alphabet, and annexing a definition or explanation to each word. When arts and sciences began to be improved and extended, the multiplicity of technical terms rendered it necessary to compile dictionaries, either of science in general, or of particular sciences, according to the views of the compiler. Hence dictionaries may be said to be of two sorts, of *words*, and of *facts* or *things;* in the former sense, the term *dictionary* being equivalent to *lexicon*, in the latter, to *encyclopædia*. A standard dictionary of the Chinese language containing about 40,000 characters, most of them hieroglyphic, or rude representations, somewhat like our signs of the zodiac, was perfected by Pa-out-she, who lived about 1100 B. C.—*Morrison.* Cyclopædias were compiled in the fifteenth and sixteenth centuries. The first dictionary of celebrity, perhaps the first, is by Ambrose Calepini, a Venetian friar, in Latin; he wrote one in eight languages, about A. D. 1500.—*Niceron.* The *Lexicon Heptaglotton* was published by Edmund Castell, in 1659. Bayle's dictionary was published in 1696, "the first work of the kind in which a man may learn to think."—*Voltaire.* Chambers' Cyclopædia, the first dictionary of the circle of the arts, sciences, etc., was published in 1728. The great dictionary of the English language, by Samuel Johnson, appeared in 1755. Francis Grose's Dictionary of the Vulgar Tongue, was compiled in 1768; and from this period numerous dictionaries have been added to our store of literature. Noah Webster's great American Dictionary of the English language, in two quarto volumes, was first published at New Haven in 1828. It was reprinted in London in 1832. Numerous abridgments and new editions of the whole work have since been published in London and New York.—*Haydn.*

Die (Fr. *dé*), in coinage, is the instrument by which the impressions are given upon the various denominations of coin. The following is an outline of the *die manufacture:* The engraver selects a forged plug of the best cast steel of proper dimensions for his intended work; and having carefully annealed it, and turned its surfaces smooth in the lathe, proceeds to engrave upon it the intended device for the coin. When this is perfect the letters are put in, and the circularity and size duly adjusted; it is then hardened, and is termed a *matrix*. Another plug of soft steel is now selected; and the matrix being carefully adjusted upon it, they are placed under a very powerful fly-press, and two or three blows so directed as to commence an impression of the matrix upon the plug; this is then annealed, and the operation repeated till the plug receives a perfect impression of the work upon the matrix. This impression is of course in *relief*, the original work upon the matrix being indented, and produces what is termed the *punch*. This, being duly shaped in the lathe, is hardened, and is employed in the production of impressions in soft steel or *dies*, which, being properly turned or hardened, are exact *facsimiles* of the original matrix, and are used in the process of *coinage*. When a pair of dies are made of good steel, duly hardened and tempered, and are carefully used, they will sometimes yield from two to three hundred thousand impressions before they become so far worn or injured as to require to be removed from the coining presses.

Dieppe, a commune and seaport town of France, capital arrondissement, Department Seine Inferieure, at the mouth of the Arques on the English Channel, and 38 miles north of Rouen, and by railroad 125 miles from Paris. Lat. of light-house, 49° 55′ 7″ north, long. 1° 5′ 2″ east. Population 17,000. It is divided into the town proper, and the suburb le Pollet, which communicate by a flying bridge, both being well furnished with water from an aqueduct supplying nearly 200 fountains. Principal edifices, an old castle on a cliff west of the town, 2 churches, the town hall, commune college, theatre, public library, baths, and a school of navigation. The port, inclosed by two jetties, and bordered by quays, can accommodate from 60 to 80 vessels under 600 tons; but it dries at low water, and it is otherwise inconvenient. Dieppe has an active general trade, ship-building docks, manufactories of ivory wares, watches, lace, etc., and it is a packet station, communicating daily, by steamboats with Brighton; the traffic having increased considerably since the opening of the Paris and Rouen Railroad. It is also resorted to by summer visitors; but its inhabitants depend chiefly on its fisheries of herrings, mackerel, and oysters.

Digit, or *Monade*, in *Arithmetic*, any integer under 10, as, 1, 2, 3, 4, 5, 6, 7, 8, 9, and by means of which all numbers are expressed. *Digit*, in *Astronomy*, the twelfth part of the diamerer of the sun or moon; a term used to express the quantity of an eclipse. Thus, an eclipse is said to be of six digits when one half of the disk is hid.

Dike, or *Dyke*, in its primary sense, denotes a ditch or drain. The word seems to have been formed from the verb *to dig;* though others derive it from the Dutch *dÿk*, a dam, sea-bank, or wall. It is generally used to signify a work of stone, timber, or fascines, raised to oppose the entrance or passage of the waters of the sea, a river, lake or the like. Junius and Ménage conceive the Flemish to have borrowed their word from the Greek *τεῖχος*, *wall;* but Guichard derives it from the Hebrew *daghah.*

Dimity (French, *Basin;* Italian, *Dobletto;* Spanish, *Dimite*), a species of cross-barred stuff entirely composed of cotton, similar in fabric to fustian. Dimity was originally imported from India. Dr. Johnson calls it *dimmity*, and describes it as a kind of fustian. The distinction between fustian and dimity seems to be, that the former designates a common tweeled cotton cloth of a stout fabric, which receives no ornament in the loom, but is most frequently dyed after being woven. Dimity is also a stout cotton cloth, but not usually of so thick a texture; and is ornamented in the loom, either with raised stripes or fancy figures, is seldom dyed, but usually worn white, as for bed and bedroom furniture. The striped dimities are the most common, they require less labor in weaving, than the others; and the mounting of the loom being more simple, and consequently less expensive, they can be sold at much lower rates.

Dime, a silver coin of the United States, weighing, according to the act of Congress of 1853, 38 40-100 grains. The half-dime weighing one half, or 19 20-100 grains; both legal tenders to the amount of five dollars. See BANKERS' *Magazine*, *New York*, 1853-1856.

Dipping-Needle, a magnetic needle that dips or inclines to the earth; an instrument for ascertaining the amount of the magnetic inclination at the different points of the earth's surface. This fact was first observed by one Robert Norman, an Englishman, and a maker of compasses for mariners, about the year 1576, who, finding that he was always obliged to counterbalance that end which turns to the north by a bit of wax or such other substance, though the balance had been ever so exact before, published an account of his discovery as a matter of importance. The subject was instantly attended to; and instruments were not only contrived for ascertaining the quantity of the dip, but various speculations were formed concerning the cause of so surprising a phenomenon. The general phenomena of the dipping-needle are, that in the equatorial regions it remains in a horizontal position, but as we recede from the equator toward either pole, it dips; the north end, if we go northward, and the south end, if we proceed southward; and the further north or south we go, the greater is the inclination. Its inclination is likewise found to vary very considerably at different times in different places of the earth.—E. B.

In the most improved form of construction of the dipping-needle, the axis, instead of being a cylinder, is a knife-edge, resting perpendicularly, like the supports of a pendulum, on two agate planes. A needle thus supported, however, must necessarily make small oscillations; consequently it must be so adjusted that when it points in the direction of the magnetic force, the knife edges may be perpendicular to the agate planes. The mean value of the angle of the dip must therefore be known previously to its construction; but it is the best adapted, on account of its delicacy, for ascertaining the minute variations of the dip at the same place. The angle of the dip, like that of the variation, changes its value when at the same place, following, of course, the motion of the magnetic poles, which, from the observations made by Scoresby, Parry, Ross, and others, in high latitudes, appear to have a motion westward, the annual amount of which is about 11′ 4″. In the summer of 1831, Commander Ross, in an excursion from the vessel in which his party were so long detained in the polar seas, reached a spot on the continent of North America, which had been calculated to be the position of the magnetic pole. There he found the dip of the needle to be 89° 59′, within one minute of the vertical; and compass-needles suspended in the most delicate manner possible exhibited no polarity whatever. The latitude of this spot is 70° 5′ 17″ north, and its longitude 96° 46′ 45″ west. For a description of some other forms of the dipping-needle, see BREWSTER'S *Treatise on Magnetism.*

Diplomacy, in its most restricted sense, is used to express the art of conducting negotiations or arranging treaties between nations by means of their foreign ministers, or written correspondence; but in its most extended signification, it embraces the whole science of negotiation with foreign states as founded on public law, positive engagements, or an enlightened view of the interests of each. But, upon this subject, we can not do better than embody in our pages some remarks from the Introduction of Marten's *Manuel Diplomatique*, in which a distinct view is exhibited of the importance and main objects of diplomacy. Diplomacy, says that able statesman, must be placed in the foremost rank of the useful sciences. The fate of nations, in the present state of the world, depends greatly on their relations with others; and these again are materially influenced and determined by the nature of their foreign policy, that is, by the success with which they have cultivated and applied the principles of this science. Diplomacy embraces—1. The law of nations, by which the relations of one state with another are determined both in peace and war. 2. The political principles of individual states, as deduced from a regard to their peculiar interests; and a knowledge of the way in which these interests may be reconciled with, and made subservient to, the law of nations. 3. An acquaintance with the privileges and duties of diplomatic agents. 4. The conduct of negotiations, or the course to be pursued in treating of the interests of different states. 5. The moral and physical statistics of each power. 6. The political and military history of the states having diplomatic relations; and the projects, tendency, and policy of their respective governments. 7. The various systems of government, supremacy, concession, retention, equilibrium, centralization, confederacy, etc., that may be brought into operation. 8. The art of composing diplomatic despatches. To this multifarious information the diplomatist should unite the powers of calculation and application peculiar to strong minds—the "tact des convenances," which may be felt, but can not be expressed—circumspection, address, and perfect integrity. The combination of these various qualities will procure for the diplomatist such a character for sagacity, rectitude, and straightforwardness, and will, sooner or later, obtain for him an ascendency over the minds of others, and give great weight to his opinions.

It must be remembered that the diplomacy of every nation is more or less within the range of casualties; being subject to the versatility inseparable from human affairs, the fickleness and passions of man, and the uncertainty of events—an unlooked-for death, a change of ministry, treacherous designs, undue influence from any quarter, a false calculation, corruption—each of these causes may change the policy or course of a government; and this will more or less affect every other government, in proportion to the extent of its influence. In addition to these numerous causes of variation, if ambitious projects be entertained by any great power, diplomacy becomes still more intricate and difficult. Every state desires to be protected against the storm which its rulers imagine they can prognosticate, and of whose bursting they are apprehensive. Again, we must remark, that the schemes of a government, how admirably soever contrived, have often miscarried, either from subordinate persons or those intrusted with putting them in execution having misapplied or misunderstood the instructions of their superiors.

From what has been said, it will be easily understood, that in diplomacy, false estimates are frequently formed of the merits of original plans or designs from looking at their results only. The diplomatist is, of course, exempted from all responsibility in regard to operations mixed up with the events of war—he is answerable only for the success of his projects under the conditions on which he proposed them.

A diplomatist of moderate capacity, if favored by circumstances, may accomplish much more than the man of genius who has to contend with adverse fortune; but this difference of success makes no change in their relative ability, and those acquainted with the circumstances readily discriminate between sagacity and accident.

Diplomacy has been practiced in substance ever since mankind have been formed into independent states, though it is difficult to ascertain the precise period at which the term came into use. The system, however, of the regular and uninterrupted residence of foreign ministers during peace at the European courts, as at present practiced, is said to have originated with the Cardinal de Richelieu. Before that time embassies had been only sent on special occasions, but attended with much greater show and retinue than has been the fashion in modern times; while the substantial business of states at the neighboring courts was transacted by agents of a lower stamp and character. Diplomatic agents are now ranked, in Europe, in the following order, according to the regulations of the Congress of Vienna:—1. Ambassadors; 2. Envoys extraordinary and ministers plenipotentiary; 3. Ministers resident; 4. Chargés des affaires; 5. Secretaries of legation and attachés; the latter, however, have no precise diplomatic character, and are only considered by courtesy as attached to the legation.

Among the best works on this important subject are the *Traité complet de Diplomatie, ou Theorie generale des Relations exterieures des Puissances de l'Europe*, par M. le Comte de Garden (Paris, 1833), 3 vols. 8vo.; and *De Wicquefort's Ambassadeur et ces Fonctions* (Ed. Opt.) 1746, 12 vols., 4to. See also the *Manuel Diplomatique*, by Von Marten (Paris, 1825); Flassan's *Hist. Gen et Raisonn. de la Diplom. Française*, 7 vols. (Paris, 1811), and Von Marten's (senior) *Grundriss einer Diplom. Geschichte der Europ. Staatshandel, etc.*, (Hamburg, 8vo.) Brande's *Enc.* See *N. A. Rev.*, xxxix. 302 (by E. Everett); xxiv., p. 82 (by T. Pitkin); *U. S. Lit. Gaz.*, v., p. 1 (by C. Cushing); Fraser's *Magazine*, xli., p. 605; *Foreign Quarterly*, xiii., p. 1.

Discharge of Seamen. Whenever a ship or vessel belonging to a citizen of the United States is sold in a foreign country, and her company discharged, or when a seaman or mariner, a citizen of the United States, is with his own consent discharged in a foreign country, it is the duty of the master or commander to produce to the consular officer the certified list of his ship's company, and pay to such consular officer for every seaman or mariner so discharged, being designated on such list as a citizen of the United States, three months' pay, over and above the wages which may then be due to such mariner or seaman, two thirds thereof to be paid by such consular officer to each seaman or mariner so discharged, upon his engagement on board of any vessel to return to the United States, and the other remaining third to be retained for the purpose of creating a fund for the payment of the passages of seamen or mariners, citizens of the United States, who may be desirous of returning to the United States, and for the maintenance of American seamen who may be destitute, and may be in such foreign port. The several sums retained for the seamen's fund are to be accounted for to the Treasury Department by the consular officers receiving the same.—*Statutes at Large*, U. S. See Hunt's *Mag.*, xi., p. 344; *Ibid.*, p. 230; Kent's *Commentaries;* Parsons' *Mercantile Law.*

According to the laws of the United States, consular officers are not to discharge a seaman for slight or venial offenses, and certainly not for a single offense unless of a very aggravated character. If the charge be negligence, drunkenness, disobedience, or dishonesty, the question should be, whether the misconduct was of such a degree as to show a habitual inattention to or unfitness for duty, having always in view the particular station of the party and the nature of his duty. If the allegation be that the seaman is a dangerous person, from a spirit of insubordination, or hostility to the master, it has been held that the master must show that the danger is such as would affect the mind of a man of ordinary firmness. But even in cases of aggravated offenses, or of a continued course of conduct which would justify the discharge of a seaman, if he repents and offers amends, the principle which is always operating in his favor against all kinds of forfeiture, with very rare exceptions, intervenes to restore him to his rights, and he is ordinarily entitled to be received again on board. To deprive a mariner of the benefit of this rule, it should appear that the misconduct amounts to a radical disqualification, as dishonesty and habitual drunkenness in a steward; or that the party is really dangerous to the peace and safety of the ship. These principles receive additional force from the general policy of the laws of the United States, which discountenances the discharge of seamen in foreign ports. The various enactments in respect to destitute seamen sufficiently show the paternal solicitude of the government for the preservation and protection of the seamen of the country.—*Manual for Consuls.* See Desertion by Seamen.

"The right of the seaman to be brought back to his own home, is very jealously guarded by our laws. The master should always present his shipping articles to the consul, or commercial agent of the United States, at every foreign port which he visits, but does not seem to be required by law to do this, unless the consul desires it. He must, however, present them to the first boarding officer on his arrival at a home port.

And if upon an arrival at a home port from a foreign voyage, it appears that any of the seamen are missing, the master must account for their absence. If he discharges a seaman abroad without his consent, he must pay to the American consul three months' wages, of which the consul gives two to the seaman, and remits one to the Treasury of the United States to form a fund for bringing home seamen from abroad. This obligation does not apply when the voyage is necessarily broken up by a wreck, or similar misfortune. But proper measures must be taken to repair the ship, if possible, or to obtain the restoration, if captured. And the seaman may hold on for a reasonable time for this purpose, and if discharged before, may claim the extra wages. Our consuls and commercial agents may authorize the dicharge of a seaman abroad for gross misconduct, and he then has no claim for the extra wages. They may also send our seamen home in American ships, which are bound to bring them for a compensation not exceeding ten dollars each, and the seamen so sent must work and obey as if originally shipped. Besides this, if a master discharges a seaman in a foreign port, he is liable to a fine of 500 dollars, or six months' imprisonment. And a seaman may recover full indemnity or compensation for his loss of time, or expenses incurred by reason of such discharge."—Parsons' *Mercantile Law*, p. 393.

Discount, a sum of money deducted from a debt in consideration of its being paid before the usual or stipulated time. The circumstance on which its fairness is founded is, that the creditor, by receiving his money before it comes due, has the interest of the money during the interval. Consequently he should only receive so much as, put out to interest during the period in question, will realize the amount of his debt at the time when it would have become due. For instance, £100 is to be paid at the end of 3 years; what should be paid now, interest being 4 per cent.? Here it is evident, that if we divide the whole debt into 112 (or 100+3×4) parts, 100 of these parts will make the other 12 in three years (at simple interest), whence the payment now due is the 112th part of £10,000, or £89 5s. 9d. The rule is, n being the number of years (a fraction, or number and fraction), r the rate per cent, and D the sum due,

$$\text{Present value} = \frac{100\,D}{100 + n\,r};$$

$$\text{Discount} = \frac{D\,n\,r}{100 + n\,r}.$$

In practice, it is usual not to find the real discount, but to allow interest on the whole debt in the shape of abatement. Thus it would be considered that, in the preceding example, three years' discount upon £100, at 4 per cent., is £12, or £88 would be considered as the present value.

In transactions which usually proceed on compound interest, as in valuing leases, annuities, etc., the principle of discount is strictly preserved. The present value in the preceding case is, in its most usual form,

$$\frac{D}{(1+\rho)^n}, \text{ and the discount } D - \frac{D}{(1+\rho)^n};$$

where ρ is the rate per pound (not per cent.: thus it is ·04 for 4 per cent.). But recourse is usually had to the tables of present values which accompany all works on annuities or compound interest.

The name of discount is also applied to certain trade allowances upon the nominal prices of goods. In some branches of trade these allowances vary according to the circumstances which affect the markets; and what is called discount is in fact occasioned by fluctuations in prices which it is thought convenient to maintain nominally at unvarying rates. This system is practiced in some branches of wholesale haberdashery business, and we have now before us a list of prices furnished to his customers by a manufacturer of tools at Sheffield, in which the nominal price of each article is continued the same at which it has stood for many years, while to every different species of tool there is applied a different and a fluctuating rate of discount, this fluctuation constituting in fact a difference of price between one period and another. The rates of discount in this list vary from 5 to 40 per cent. upon the nominal prices of the different articles.

The term discount is also employed to signify other mercantile allowances, such for example as the abatement of 12 per cent. made upon the balances which underwriters, or insurers of sea risks, receive at the end of the year from the brokers by whom the insurances have been effected. The word discount is further used, in contradistinction to premium, to denote the diminution in value of securities which are sold according to a fixed nominal value, or according to the price they may have originally cost. If, for example, a share in a canal company, upon which £100 has been paid, is sold in the market for £98, the value of the share is stated to be at 2 per cent. discount.—Bohn.

Discriminating Duties. The discriminating duty of 10 per cent., under the 11th section of the U. S. tariff law of 1842, is an additional duty of 10 per cent. on the rate of legal duties chargeable on the imports, and not a duty of 10 per cent. on the value of the goods; as, for example, an import chargeable with a regular duty of 20 per cent., and also with the discriminating duty of 10 per cent., under the 11th section of tariff act of 1842, would become chargeable with a duty of 22 per cent., and not 30 per cent.

It has been decided that a discriminating duty exacted on a Spanish vessel clearing from a port of the United States for Cuba or Porto Rico, under the 2d section of the act of 30th June, 1834, "concerning tonnage duty on Spanish vessels," can not be refunded, although the vessel may never arrive at her destination, being wrecked on the voyage.—*Manual for Consuls.*

Dispensary, a place where medicines are made up and distributed; but used more generally for a charitable institution, where the poor are supplied with medicines and advice. Institutions of this nature are of comparatively recent origin; though they are now to be met with in every town of any importance, both in this country and in Europe. To every dispensary there are always attached one or more physicians, surgeons, and apothecaries, whose duty it is respectively to prescribe and dispense medicines to the poor, and to visit them in their own houses in the event of their being too ill to attend personally at the institution. In most cases dispensaries are supported by voluntary contributions.

Distaff, the staff to which hemp, flax, wool, or other substances to be spun, is fastened. The art of spinning with it at the small wheel, first taught to English women by Anthony Bonavisa, an Italian, 20 Hen. VII., 1505.—Stowe. The distaff is used as an emblem of the female sex.—Howell. The distaff formerly occupied the place in the drawing-room or *boudoir* of the English ladies that the harp or piano does now.

District of Columbia occupies a space of 60 square miles, and is situated on the left bank of the Potomac River, 120 miles from its entrance into Chesapeake Bay, and at the head of navigation. The territory was formerly 10 miles square, and was ceded by the States of Maryland and Virginia for the purpose of becoming the seat of government of the United States. The portion west of the Potomac was retroceded to Virginia in 1846. The District, which is under the immediate jurisdiction of Congress, contains the cities of Washington and Georgetown, and is entirely comprehended in the county of Washington. Population in 1800, 14,093; 1810, 24,023; 1820, 33,039; 1830, 39,834; 1840, 43,712; and in 1850, 51,687: whites, 38,027; free colored, 9,973; and 3,687 slaves.

In 1850, there were 16,267 acres of land improved, and 11,187 of unimproved land, in farms. Cash value of farms, $1,730,460; and the value of implements and machinery, $40,320.

Live Stock.—Horses, 824; asses and mules, 57; milch cows, 813; working oxen, 104; other cattle, 123; sheep, 150; swine, 1,635; value of live stock, $71,643.

Agricultural Products, etc.—Wheat, 17,370 bushels; rye, 5,509; Indian corn, 65,230; oats, 8,134; barley, 75; buckwheat, 378; peas and beans, 7,754; potatoes, 28,292; sweet potatoes, 3,497. Products of the orchard, $14,843. Produce of market gardens, $67,222. Pounds of butter made, 14,872; of cheese, 1,500 pounds. Hay, 2,279 tons. Tobacco, 7,800 pounds; wool, 525. Clover seed, 3 bushels. Hops, 15 pounds; beeswax and honey, 550. Wine, 803 gallons. Value of home-made manufactures, $2,075; and the value of slaughtered animals, $9,038.

Georgetown is the principal port, and is a port of entry, situated at the head of the Potomac navigation, 120 miles from the sea, and is divided from Washington by Rock Creek. It is built on a range of hills, and commands a magnificent landscape. The city is one of the handsomest in the country, and the seat of several well-known educational establishments, and is the residence of many persons of distinction. Its manufactures are increasing, and perhaps no other place is so celebrated for its fisheries of shad and herring, thousands of barrels of which are packed in the fishing season. The Alexandria branch of the Chesapeake and Ohio Canal here crosses the Potomac on a magnificent aqueduct, 1,446 feet long, and 36 feet above the ordinary tide. The tonnage of Georgetown in 1856, was 20,966 tons.

Alexandria, formerly in the District of Columbia, is situated 6 miles below Washington. It has a good harbor, and considerable trade in flour and coal. Since 1850 the commerce has nearly doubled. The tonnage in 1856 was 7,221 tons.

The foreign commerce of the District has been decreasing since 1831, and is now confined to the imports of West India produce.

FOREIGN COMMERCE OF THE DISTRICT OF COLUMBIA, FROM OCTOBER 1, 1820, TO JULY 1, 1856. INCLUDING ALEXANDRIA TO JUNE 30, 1846.

Years ending.	Exports.			Imports.	Tonnage Cleared.		District Tonnage.	
	Domestic.	Foreign.	Total.	Total.	American.	Foreign.	Registered.	Enrolled and Licensed.
Sept. 30, 1821.......	$848,609	$49,843	$898,452	$398,984	15,035	....	8,492	10,263
1822.......	1,031,475	11,955	1,043,430	470,613	15,025	173	....	....
1823.......	779.502	21,793	801,295	275,083	12.586	128	....	....
1824.......	696,853	25,552	722,405	379,958	12,167	221	....	....
1825.......	749,159	9.208	758,367	277,297	12,342	....	....	....
1826.......	620,391	3,840	624,231	269,630	11,664	59	....	....
1827.......	1,182.142	....	1,182,142	327,623	17.349	485	....	....
1828.......	705.581	1,862	707,443	181,665	13.269	990	....	....
1829.......	914,285	13,812	928,097	205.921	13,466	261	....	....
1830.......	746,591	7,382	753,973	168,550	13,803	....	....	....
Total....	$8,274,588	$145,247	$8,419,835	$2,955,324	136,706	2,817	....	....
Sept. 30, 1831.......	1,207,517	13,458	1,220,975	193,555	19.362	878	6,072	8,749
1832.......	1,146,066	8,408	1,154,474	188.047	14.748	3,089	....	....
1833.......	981,866	21,450	1,002,816	150.046	12,962	2,140	....	....
1834.......	806,902	13,492	820;394	196,254	10,792	2,269	....	....
1835.......	514,571	3,068	517.639	111,195	9.296	1,133	....	....
1836.......	323,692	3,182	326,874	111,419	4.650	512	....	....
1837.......	467,766	1,443	469.209	102,225	3,894	3,600	....	....
1838.......	366,760	6,353	373,113	122,748	4,464	1,063	....	....
1839.......	497,965	5,752	503.717	182,511	6,698	1,547	....	....
1840.......	751,429	2,494	753.923	119,852	12,815	2.689	....	....
Total....	$7,064,034	$79,100	$7,143,134	$1,427,852	99,681	18,920	....	....
Sept. 30, 1841.......	764,835	4,496	769,331	77,263	11,472	3,361	8,433	7,916
1842.......	498.820	2,855	501,675	29,056	7,055	4.197	....	....
9 mos., 1843*......	284.763	185	284,948	95.442	5,242	3,001	....	....
June 30, 1844.......	550.298	9,254	559,552	65,628	9.301	3.983	....	....
1845.......	509,429	735	510,164	70,529	10.772	2,529	....	....
1846.......	913.701	1,213	914,914	79,770	15,390	3,502	....	....
1847.......	124,269	....	124.269	25,049	2,123	298	....	....
1848.......	83,666	....	83.666	25.938	1.552	....	....	....
1849.......	111,607	....	111,607	35,668	2,320	....	....	....
1850.......	80,388	200	80,588	59,819	1,520	200	....	....
Total....	$3,921,776	$18,938	$3,940,714	$564,162	66,747	21,071	....	....
June 30, 1851.......	72,560	....	72,560	80,813	1.859	....	2,903	20.001
1852.......	79,005	....	79,005	54,142	2.014	....	....	....
1853.......	75,456	....	75,456	71.494	1,681	....	....	....
1854.......	37.992	....	37,992	48.108	841	....	....	....
1855.......	36,143	....	36,143	24,699	912	....	....	....
1856.......	20,001	....	20,001	55,017	840	....	....	....

* Nine months to June 30, and the fiscal year from this time begins July 1.

Distillation (Lat.), the evaporation and subsequent condensation of liquids by means of a *still* and *refrigeratory*, or a *retort* and *receiver*. The discovery of the art of distillation is generally ascribed to the alchemists; but it was doubtless known in more remote ages to the Arabians, and by them probably derived from nations further east. The process of distillation, though in continual use in the chemical and pharmaceutical laboratory, is carried on upon the most extensive scale for the production of ardent spirits in the *distilleries*. Under the words ALCOHOL, BRANDY, FERMENTATION, WINE, etc., will be found some details bearing upon the nature, sources, and production of spirituous liquors; in the present article, therefore, we shall limit ourselves to an outline of the different processes which are conducted in the distillery. There are two distinct operations in the production of ardent spirits: the one is the conversion of certain vegetable principles into alcohol; and the other, the separation of the alcohol from the other substances with which it is necessarily blended during its production. The vegetable principle which is essential to the formation of alcohol is *sugar*; and this is sometimes used *directly*, as where molasses and analogous saccharine products are subjected to immediate fermentation; or it is *indirectly* obtained by subjecting amylaceous grains to certain processes, by which the starch they contain is first converted into sugar, and then that sugar afterward alcoholized.

In many distilleries the latter alternative is adopted; and various kinds of grain, but chiefly barley, wheat, and rye, with more or less malt, are subjected to the operation of *mashing*. For this purpose the ground grain and the bruised malt are duly mixed, and infused under constant agitation in a proper quantity of hot water in the *mash-tun;* the wort is then run off, and fresh water added, till the soluble materials of the grain are extracted. In this way the mixed worts or *wash* is obtained, which is afterward to be subjected to fermentation. When the wash is adjusted as to density, it is run into the fermenting-vats, where, mixed with a small quantity of yeast, it is subjected to the process of fermentation, which continues from 6 to 10 or 12 days—the time required for its completion varying. The *proof spirit* of commerce, and that of the Pharmacopœia, is generally stated to be of the specific gravity of 0·920 at 62° and is considered as a mixture of *equal weights of absolute alcohol at the specific gravity of* 0·791 *at* 60° *and of water.* The *rectified spirit* of commerce, or rather that of the Pharmacopœia, is directed to be of the specific gravity of 0·838 at 60°, and may be regarded as a mixture of about 82 parts of absolute alcohol and 18 of water.—BRANDE'S *Cyclo.* See also *Ency. Brit.*, 8th edition.

Divan (Arabic *diwan*), among the Arabs, Persians, and Turks, is a word that bears very various significations. It primarily denoted a book of accounts, a muster-roll of troops, etc.; and hence came to be applied to a collection of lyric poems (called *gazelles*) arranged in a kind of alphabetical order. Thus we have the *Diwan of Sadi*, the *Diwan of Hafiz*, etc.; a practice which has been imitated by Goethe in his *Westöstlicher Diwan*, a collection of poems in the Oriental style. The word among the Orientals denotes also a council-chamber, a tribunal of justice, and in like manner is applied to the general council of state. Under the khaliffs of Bagdad, the diwan was a court of justice over which the khaliff presided in person. At Constantinople in the present day the term is used to denote the great council of the empire. It is also a common application among the Turks for a saloon or chamber of reception, or in which business is transacted, or used as a place of occasional repose. The divan more properly is a kind of stage, raised about a foot above the floor of the saloon, covered with rich tapestry, and furnished with a number of embroidered cushions leaning against the wall; and on this the master of the house is seated when he receives visitors. Hence the word is frequently applied by other nations to a kind of public coffee-room, furnished in a manner somewhat similar.—E. B.

Divi Divi, the commercial name of the pod of the *Cæsalpinia coriaria*, a leguminous plant, found in low marshy situations on the north coast of South America, and in some parts of the West Indies. It is used both for dyeing and tanning, but chiefly for the latter purpose. The pod is from 2 to 3 inches in length by ¾ inch in breadth, and when in perfection is of a rich brown color. It contains a few small seeds; but the only valuable portion is a resinous matter, of a bright yellow color, easily pulverized, which lies betwixt the outer skin and the husk that incloses the seed, and contains a large quantity of tannin. About 9-10ths of the imports into England come to Liverpool, where the following quantities were received during the last four years, viz.: In 1849, 3660 tons; 1850, 2700 tons; 1851, 2280 tons; 1852, 2030 tons. It might be supposed from this statement that the article was going out of favor; but such is not the case. When, however, the price in England is under £10 per ton, the imports decrease; and it has latterly been below this limit. Recently, however, its price has risen considerably; and with this rise the imports may be expected to increase. Maracaibo, Rio de la Hache, and Savanilla are almost the only places whence this article is imported. That brought from Maracaibo is the best, that from Savanilla the most inferior. During the last 4 years prices have ranged between £8 10*s.* and £14 per ton for Rio Hache and Maracaibo, and £7 and £10 15*s.* for Savanilla, the highest quotations being now current (September, 1853). Divi Divi is used by dyers, not for the coloring principle which it contains, but for its strong astringent qualities as a mordant. For this purpose it is at present used, to some extent, instead of sumach, which is scarce and dear; and hence the recent high price of the article. In tanning, it accelerates the process, and imparts to the leather a clean and healthy apearance.

Dividend, in commerce, is a word which has two very distinct meanings. In its more general employment it is understood to express the money which is divided, *pro rata*, among the creditors of a bankrupt's estate, out of the amount realized from his assets. The other meaning attached to the word dividend signifies the periodical division of profits among shareholders of insurance, railroad, bank, and other corporations.

Diving-bell. First mentioned, though obscurely, by Aristotle, 325 B. C. The diving-bell was first used in Europe A. D. 1509. It is said to have been used on the coast of Mull, in searching for the wreck of part of the Spanish Armada, before A. D. 1669. Halley greatly improved this machine, and was, it is said, the first who, by means of a diving-bell, set his foot on dry ground at the bottom of the sea. Smeaton applied the condensing-pump to force down air. Mr. Spalding and his assistants going down in a diving-bell in Ireland were drowned, June 1, 1783. The *Royal George* man-of-war, which was sunk off Portsmouth in 1782, was first surveyed, by means of a diving-bell, in May, 1817. Lately, and particularly in 1840, it has been employed in sub-marine surveys. The first diving-*belle* was the wife of Captain Morris, at Plymouth, who descended in one a few years ago.—HAYDN. It is an apparatus by means of which persons are let down and enabled to remain under water, and execute various operations; such as leveling or clearing the bottom of harbors, preparing a foundation for buildings, bringing up sunken materials, etc. The principle of the diving-bell depends on the impenetrability of atmospheric air, and may be illustrated by a very familiar experiment. Bring the edge of an inverted tumbler, or any close vessel, to the surface of the water, and, keeping the mouth horizontal, press it down in the water. It will be seen that, though some portions of water ascend into the tumbler, the greater part of the space remains empty, or only filled with air; and any object placed in this space, though surrounded on all sides with water, would remain perfectly dry. In fact, the quantity of air remains the same, but is compressed into a smaller volume, in proportion to the depth to which it is made to descend. Now, if we conceive a vessel of wood or iron, sufficiently capacious to hold several men, to be suspended by a chain, and lowered, by means of weights attached to it, to any moderate depth under water, it is evident that they may remain there for a considerable time, and perform any operation that could be executed on land in the same confined space. The machine, however, as thus described, is liable to two great defects, which must be obviated by other contrivances before any great advantages can be derived from it. In the first place, as the air by its compressibility allows the water to enter the lower part of the bell, the dry space is not only diminished, but the bottom on which the bell rests, and where the operations are to be carried on, is also covered with water to a proportional depth. In the second place, the air within the bell, by the repeated respiration, soon becomes mephitic, and unfit to support life; so that it is necessary to elevate the apparatus after short intervals to admit a fresh supply.

It is not known at what period the diving-bell was invented. Beckman, in his "History of Inventions," mentions that at Toledo, in the 16th century, two Greeks, in the presence of the emperor Charles V. and several thousand spectators, let themselves down under water in a large inverted kettle, with a burning light, and rose again without being wet. George Sinclair, the author of "Satan's Invisible World Displayed," in his work entitled "Ars Nova et Magna Gravitatis et Levitatis," mentions some attempts that were made about the year 1665 to raise, by means of a diving-bell, the treasure from the ships of the Invincible Armada that went to the bottom near the Isle of Mull, in the Hebrides, and describes the kind of bell that was employed. But on account of the defects to which we have alluded, the diving-bell continued to be of very little use till the time of Dr. Halley, who contrived a means of introducing fresh air into the bell while under water, and of allowing the mephitic or breathed air to escape. The bell he made use of he describes as having been of wood, containing about 60 cubic feet in its cavity, and of the form of a truncated cone, whose diameter at the top was 3 feet, and at the bottom 5. This was coated with lead, so heavy that it could sink empty, and the weight so distributed about its bottom that it could only descend in a perpendicular direction. In the top a clear glass was fixed, to let in the light from above, and a cock to let out the air that had been breathed. To supply the air to the bell, he caused a couple of barrels, of about 36 gallons each, to be cased with lead, so as to sink empty, each of them having a bung-hole in its lower part, to let in the water as the air in them condensed on their descent, and to let it out again when they were drawn up full from below. To a hole in the uppermost part of the barrels a trunk or hose was fixed, long enough to fall below the bung-hole, and kept down by a weight, so that no air could escape by the hose till its end was raised up. The barrels thus prepared were let down by the side of the bell. A man stationed on a stage suspended from the bell was ready to take up the hose; and as soon as their ends were brought to the surface of the water in the barrels, all the air that was included in the upper parts of them, was blown with great violence into the bell, while the water entered at the bung-holes below and filled the barrels. By means of this contrivance the air was not only kept fresh, but another great advantage was gained, namely, that by admitting a sufficient quantity of it the whole of the water was expelled from the inside of the bell, and the bottom of the sea laid dry.

By means of this contrivance for the admission of fresh air, it was now possible to remain for any length of time under water; but the use of the apparatus was still found to be attended with some inconveniences, and even considerable danger. The divers within the bell having no power over it, its rising or sinking depends entirely upon the people at the surface of the water; and as the bell, even when in the water, has considerable weight, there is always a possibility of the chain by which it is raised breaking, which would inevitably be attended with the destruction of the divers. Another danger, still more to be apprehénded, is, that if the mouth of the bell, in its descent, should come upon a sunken ship, or a rock projecting abruptly from the bottom, it might be overset before any signal could be given to those above. These defects were obviated by the very ingenious contrivances of Mr. Spalding of Edinburg. In order to avoid the risk of being upset when the bell descends on a rocky or uneven bottom, he suspended a considerable weight, which he called a *balance-weight*, below the bell, by a rope passing over a pulley fixed in the inside; and the other weights attached to the bell being so adjusted that they could not sink it without the balance-weight, as soon as the latter rested on the ground the bell remained suspended in the water. In case of the mouth of the bell being caught by any obstacle, the balance-weight is immediately lowered, till it rests on the bottom; and as the bell, when thus relieved, is buoyant, the divers, having disengaged it from the rock, have it in their power either to descend, by pulling in the rope, or, by allowing it to run, to ascend to the surface. Another contrivance of Mr. Spalding deserves mention. He divided the bell into two compartments, the one above the other, and communicating by means of a stop-cock. The divers are stationed in the lower one, and the weights are so adjusted that when the cavity above is empty, the bell is buoyant; when it is filled with water, the bell sinks. Immediately above the partition are some slits in the sides of the bell; and at the top is an orifice, which can be opened or shut at pleasure. Suppose, now, this orifice being open, the bell is required to be lowered; as it descends, the water enters at the slits, and the air escapes by the orifice. When the apparatus is entirely under water, and the cavity consequently completely filled, let the orifice be shut. The bell will now continue to descend; but if the stop-cock communicating with the upper compartment be opened, the air will rush from the under to the upper, and displace a quantity of the water, and the apparatus will be lightened by the whole of the water so displaced. The divers have it thus in their power to regulate the descent or rise as they please. By admitting a certain quantity of air into the upper cavity, the descent of the bell is arrested; by admitting a greater quantity, it becomes buoyant, and rises to the top. This method of constructing the diving-bell has not, however, been adopted.

The greatest improvement on the diving-bell, since that of Halley, was made by the celebrated Mr. Smeaton, and consists in forcing down a continued stream of air, by means of an air-pump, through a flexible tube; and this plan is now always adopted. In the year 1788, Smeaton constructed a diving-bell, to be used in the operations then contemplated at Ramsgate harbor, on a new and improved plan. Instead of a bell-shaped vessel sunk by weights, his apparatus consisted of a square chest of cast-iron, 4½ feet long, 4½ feet high, and 3 feet wide, affording sufficient room for 2 men under it. It was cast of such a thickness that its own weight was sufficient to sink it; and its thickness was greater near the mouth or lower part, to prevent it from being easily overset. This construction of the diving-bell gave the men within it no power of raising or sinking it; but as the apparatus was made to be used at a place where the nature of the bottom was known, this disadvantage was not considered of great consequence; and, in fact, it is found by experience that it is better to leave the bell to be entirely guided from above. On account of the facility with which water conveys sound, the strokes of a hammer on the inside of the bell can be heard at a great distance; and the sound coming through the water has a peculiar character, which can not be mistaken. By previous arrangement, any directions can be given in this manner. For instance, 1 blow may denote more air; 2, stand fast; 3, heave up; 4, lower down, and so on. With these successive improvements, the diving-bell is found to be a most important machine in all the great operations to be performed under water. It was used with great advantage by Mr. Rennie in the construction of the various harbors he projected; and it has recently been successfully employed in deepening the Clyde between Glasgow and Greenock, and improving the navigation of the river. See the article DIVING-BELL, in the new edition of the *Encyclopedia Britannica*. See *Am. Jour. Science*, xxii., p. 325; *Blackwood*, xvii., 336; LITTELL'S *Museum*, vi., p. 515.

Djidda, a town of Arabia, on the Red Sea, about 21 miles from Mecca, of which it is the seaport, in lat. 21° 29′ N., long. 39° 14′ E. It is well built. The streets are unpaved, but spacious and airy; the houses high, and constructed, for the most part, of madrepores and other marine fossils. The supply of water is scanty, and its quality indifferent. Small vessels approach close to the quays; but large vessels are obliged to anchor in the roads, about 2 miles off, loading and unloading by means of lighters. The entrance to the roads is difficult, and should not be attempted without a pilot. Djidda is a place of considerable commercial importance. It is the *entrepôt* in which is centered the greater part of the commerce between India, Egypt.

and Arabia. Many of its merchants possess large capitals: some of them as much as from £150,000 to £200,000. The trade in coffee brought from Mocha and other ports in Yemen, is the most considerable, but it is said also to be the most hazardous. The returns are principally made in cash. The trade with India and the Gulf of Persia is safer than the coffee trade, and is very considerable. Djidda has also a good deal of intercourse with the ports of Cosseir, Souakin, and Massouah, on the opposite coast of the Red Sea. The imports from the last two principally consist of slaves, gold, tobacco, dhourra or barley, hides, butter (of which immense quantities are made use of in Arabia), mats, etc.; in return for which the Africans receive Indian goods suitable for their markets, dresses and ornaments for their women, dates (which are not produced in any part of Nubia), iron, etc. The principal article of import from Cosseir is wheat; and not only Djidda, but the whole Hedjaz, or Holy Land of Arabia, is almost entirely dependent upon Egypt for corn. Coffee is the principal article sent in return. Business is transacted at Djidda with ease and expedition. The number of ships belonging to the port is estimated at 250. Owing to the scarcity of timber, none of them are built at Djidda—those belonging to it being either purchased at Bombay or Muscat, or at Mocha, Hodeida, or Suez. For a considerable period each year, before and after the feast of Ramadhan, when pilgrims come from all quarters to visit Mecca, the town is thronged with strangers, and a great deal of mercantile business is transacted. Djidda is at present, and has been for a number of years, under the government of the Pacha of Egypt. The *moneys*, *weights*, and *measures* of the latter country (for which see ALEXANDRIA) are now generally used in Djidda, the commerce of which has been much improved and extended in consequence of the comparative security and good order enforced by the pacha.—BURCKHARDT, *Travels in Arabia*, vol. i., pp. 1–100.

Dock, an inclosed place for the reception of ships, either for their security or for the convenience of building or giving them repairs. This word has been derived by some, absurdly enough, from the Greek δεχομαι, to receive. That we had it, along with almost the whole of our sea terms, from the northern continental nations, is sufficiently obvious. Thus, in Flemish, it is *dok;* Teutonic, *dock;* Swedish, *docka;* Suio-Gothic, *docka;* perhaps originally from *dekken*, to cover, protect, secure, inclose. The *dock* for inclosing the prisoner in a court of justice is evidently from the same origin.

Docks for the reception of ships are of two kinds, *wet* and *dry*. A *wet-dock* may either have gates to retain the water in it, so that ships shall constantly remain afloat, or be left open for the tide to flow into and ebb out of it at pleasure, either leaving it dry at low water, or with a certain depth of water remaining in it, according to its construction and situation with regard to the low-water mark, and to the ebbing of the sea at spring or neap tides. A wet-dock without gates is generally distinguished by the name of a *basin*, which, however, is sometimes indiscriminately applied to a wet-dock, whether with or without gates. A *dry-dock* either becomes dry by the ebbing of the tide when the gates are left open, or by shutting the gates at low water, and pumping out whatever water may remain in it at that time, by the power of men, horses, wind, or by the steam-engine.

Wet-docks.—A *wet-dock* may be defined to be "a basin of water, in which ships may be kept afloat at all times of the tide;" a *dry-dock*, a "receptacle in which every part of a ship can be examined, and its defects repaired." Ships may also be conveniently built in dry-docks, and floated out by opening the gates; though in all dockyards there are places set apart for this purpose, under the name of *slips*. A wet-dock is called by the French *un basin;* a dry-dock, *une forme;* and a slip, *une calle*. The digging out the earth, and building the surrounding walls of masonry to prevent the sides falling in, and the preparation of the mortar and puzzolana, in the construction of a wet-dock, are attended with great labor and expense. The two wet-docks or basins of Cherbourg (see BREAKWATER), which are among the finest specimens that exist in the world, are estimated to have cost £3,000,000 sterling. The labor of excavation may sometimes be spared, and a series of wet-docks or basins conveniently made, by turning the course of a tide-river through an isthmus, and placing a pair of gates at each end of the old channel. In this way, were the new docks of Bristol constructed out of the bed of the Avon. Wet-docks are an improvement in navigation and commerce of the utmost importance, but of very modern date in this country; indeed, they owe their introduction entirely to a spirit of individual enterprise in commercial speculation. Liverpool might still have remained a poor fishing-village but for its convenient docks, which not only produce to the town and corporation a large revenue, but insure to the merchant every possible facility in refitting, loading, and discharging his ships, whatever their burden or their cargo may be, without being exposed to the risk of losing both ship and cargo in a rapid tide-river; and at all events, to an unavoidable delay, occasioned by distance, the weather, or the state of the tides.

London, though unquestionably the first city in the world for its opulence, its commerce, and public spirit, and possessing within itself the powerful internal means of supporting docks, and all other conveniences that trade and shipping may require on the most extensive plans; London was the last to try the experiment of docks, except in the case of two spirited individuals, Mr. Perry, at Blackwall, and Mr. Wells, at Greenland Dock, both private ship-builders. Notwithstanding the total inadequacy of legal quays, which subjected the merchants to incalculable losses and delays, and in many cases proved absolutely ruinous; notwithstanding the effect of the heavy, expensive, and fatal embarrassments experienced regularly on the arrival of the West India fleets, and the annual losses, by plunder in the river, on West India produce, which alone were calculated to amount to £150,000 to the proprietor, and £50,000 to the revenue, and more than the double of those sums, including other branches of commerce; it was not till the year 1799 that prejudices and private interests were so far removed as to enable the merchants concerned in the West India trade to obtain an act of Parliament to carry into execution a plan of docks, quays, and warehouses, for the convenience of that trade on the Isle of Dogs. Since that time the London Docks, St. Katharine Docks, and various others, have been completed, to the incalculable benefit of the shipping interest and the commerce of the metropolis.

The docks of Liverpool were the first of the kind that were constructed in this kingdom, by virtue of an act of Parliament, passed in 1708; and from that period the town of Liverpool has rapidly raised itself from a poor fishing-village, and a port for coasting-vessels, to be the second commercial town and port in the empire; and the improvements carried out for the enlargement and better arrangement of the docks, rendered it, for convenience and appearance, in this respect the very first, not even London excepted.

It appears from a statement, apparently authentic, that in the ten years ending with 1808 the number of ships which entered these docks was 48,497, tonnage 4,954,204; and the dock duties received, £329,566; and that in the following ten years, ending in 1818, the number of ships was 60,200, the tonnage 6,375,560, and the amount of duties, £666,438; while for a single year, ending June, 1853, no less than 20,490 vessels entered the docks, the tonnage of which was 3,889,981, and the amount of duties, £256,702—the largest amount yet received—the following being the return for the last ten years:

Year.	Number of vessels.	Tonnage.	Amount of duties received.
1843................	16,606	2,445,278	£188,286
1844................	18,411	2,632,712	185,164
1845................	20,521	3,016,531	223.247
1846................	19,951	3,096,444	213,423
1847................	20,889	3.351,539	244,435
1848................	20,311	3,284,963	197,617
1849................	20,733	3.639.146	224.224
1850................	20,457	3,536,337	211,743
1851................	21,071	3,737,666	235,527
1852................	21,473	3,912,506	246,686
1853................	20,490	3.889,981	256,702

It may also be observed, that this extraordinary increase has taken place since the abolition of the slave-trade, which, it was formerly asserted, would be the ruin of Liverpool.

The *West India Docks*, on the River Thames, were commenced in February, 1800, and opened in August, 1802. They consist of an outward and a homeward-bound dock, and communicate by means of locks with a basin of five or six acres on the end next to Blackwall, and with another of more than two acres at the end next to Limehouse, both of which basins communicate with the Thames. The outward-bound dock is about 870 yards in length, by 135 in width, containing consequently an area of more than 24 acres; the homeward-bound dock is of the same length, and 166 yards in width, its area being little short of 30 acres; and the two together will contain with ease at least 500 vessels of from 250 to 500 tons. The whole are surrounded with a high wall, and, as a security against fire, the moment that a ship enters the dock the crews are discharged, and no person whatever is allowed to remain on board, or within the premises, the gates of which are closed at a certain hour. They are surrounded by immense warehouses, which are estimated to contain nearly 10,000 hogsheads of sugar, and an immense quantity of rum. The sum authorized by Parliament to be raised for completing these docks and warehouses was £1,200,000, and the total expense was probably not far short of £1,500,000; yet on this captital the subscribers have been receiving from a very short period after their opening, 10 per cent., which, by the terms of the act, is not to be exceeded, and the term granted is limited to 21 years; but, like most other property, these docks have been greatly depreciated in value, and at present barely pay 8 per cent.

The next set of docks that were undertaken for the advantage of the trade of the capital were the *London Docks*. These docks are situated in Wapping, and are appropriated for the reception of all ships arriving in the port of London with wine, spirits, tobacco, and rice on board, but not exclusively, ships having on board other cargoes being admitted on the payment of certain fees. The act of Parliament for incorporating the Dock Company was passed in 1800, authorizing them to raise a capital of £1,200,000; but such was the number of houses to be purchased (we believe not less than 1200) occupying the site of the dock, that this capital, by subsequent acts, was extended to £2,-200,000, the dividends on which are limited, as in the West India Docks, to 10 per cent. The great dock is 420 yards in length, and 230 yards in width, covering an area of 20 acres. A basin of 3 acres nearly, connects it with the river. The warehouses are very magnificent; and the tobacco warehouse is the grandest and most spacious building of its kind in the world, being capable of containing 25,000 hogsheads of tobacco, and the vaults underneath as many pipes of wine. This single building, under one roof, is said to occupy upward of 4 acres of ground. These docks were opened in February, 1805.

The *East India Docks*, for the exclusive reception and accommodation of the East India ships, were the last in succession. The act for the incorporation of the company was passed in July, 1803, authorizing them to raise a capital of £200,000, which was afterward increased to £600,000, the dividend, as in the case of the two others, to be limited to 10 per cent. These docks are situated at Blackwall. That for the reception of homeward-bound ships is 470 yards in length by 187 in width, containing a surface of rather more than 18 acres; the outward-bound dock is 260 by 173 yards, and is consequently something more than 9 acres. An entrance-basin of 3 acres nearly, and a spacious lock, connect them with the Thames.

Besides these there are the London Docks, the St. Katharine's Docks, and the Victoria Docks, in course of construction; of these, detailed accounts will be found under the article, London.

In other portions of England and Scotland, there have been costly docks constructed of late years, viz.: *Hull* has 5 docks, occupying, with their basins, a water area of 49¾ acres. A timber-pond of 9 acres was constructed in 1853. The tonnage of shipping in 1852 was 799,866 sailing-vessels, and 305,021 steam-vessels; the amount of dock dues, £433,755. *Southampton*, the station for the West India mail and Lisbon and Alexandria steamers, is now constructing extensive docks and quays to accommodate their great and increasing traffic. *Grinsby Harbor* has lately been greatly improved. Wet and dry docks have been constructed, on the most approved principles, at the expense of £250,000, and a canal cut into the Humber calculated to admit vessels of 1,000 tons' burden. *Hartlepool* has also been of late years greatly enlarging its harbor and dock accommodation. *Sunderland* has new docks of 18 acres' extent, which were opened in 1850, and which can accommodate 300 sail. *Dundee* has lately immensely improved her harbor and docks; besides two smaller docks, the wet-dock now constructing will occupy 14½ acres, the lock of which will be 60 feet broad. *Aberdeen* has a wet-dock, where the largest vessels may float in safety; it covers nearly 40 acres, with quay room of about 9,000 feet. *Leith*, the port of Edinburg, has 3 wet-docks, containing about 15 acres of water room. *Detailed accounts of these docks will be given under the names of the respective ports.*

The naval dry-docks of the United States are among the most stupendous mechanical enterprises of the country; they are constructed at the navy-yards of New York, Charlestown, Norfolk, etc. By far the most extensive and magnificent of these structures is the granite dry-dock at Brooklyn; 80,000 tons of stone have been used in its construction; the masonry foundations are 400 feet in length, and 120 in breadth. The main chamber is 286 feet long, and 30 feet broad on the bottom; 307 feet long, and 98 feet broad at the top within the folding-gates; the height of the wall is 36 feet. The work was commenced in 1841, and took 10 years to complete it; the aggregate expenditure was above $2,100,000.

Dry-docks.—A dry-dock, requiring to be perfectly water-tight, demands the greatest care in its construction. It is sometimes lined all around with wood, but more generally with masonry, mostly of hewn granite. The expense is very considerable, as the foundation, by means of piles or otherwise, must be well secured, all leakage prevented, and the culvers or drains properly constructed, to let in and carry off the water without its undermining the quays or piers. The cost of a complete dry-dock will vary probably from £20,000 to £100,000, according to the size of the ships it is intended to admit, and the nature of the ground on which it is to be constructed. A dry-dock may be *single*, or made to contain only one ship; or *double*, to contain two ships; but the former is the most common, because most convenient. As it is of the utmost importance to preserve the water *in* a wet-dock, and to keep it *out* of a dry-dock, it may be proper to describe the different kinds of *gates* which are in use for this purpose.

Dock Gates.—The most common, and on the whole perhaps the best and most convenient, are swinging-gates, which open in the middle, and lie flat, one part against each wharf or side-wall of the passage leading into the dock or basin. This kind of dock-gate requires to be made of great strength, with sound timber and good iron, and the gudgeons on which the hinges turn to be well secured into the stone abutments. Care also must be taken to make the bottom of the passage and the bottom of the gates perfectly plane and parallel, to prevent leakage, and give facility to their opening and shutting, which is usually assisted by rollers fixed in a groove, and performed by means of a small capstan on each pier. Attached to the top of the gates is usually a foot-bridge with railing, which, separating in the middle, opens and shuts with the gates.

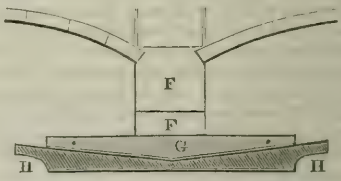
The most simple but by no means the most effective contrivance for keeping out the water, is the wicket-gate. It consists of three parts, which when opened are removed separately. This gate is rarely made use of unless where the abutments are not sufficiently strong, or their foundation sufficiently secure, to bear the weight of a pair of swinging-gates.

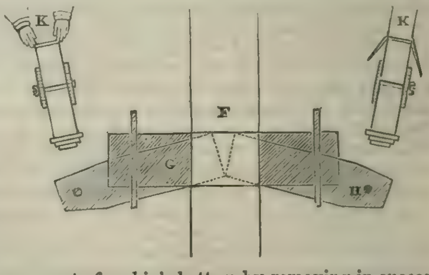
A third kind of gate consists of a floating-dam or caissoon, first introduced into this country by General Bentham, and first applied to the great new basin in Portsmouth dockyard. They are built somewhat in the shape of a Greenland fishing-boat, sharp at the two ends, narrow, and deep in proportion to the depth of water at the entrance of the dock. The keel fits into a groove at the bottom of the passage, and the two slanting ends rise and fall in corresponding grooves cut into the two abutments. By letting in the water, the caissoon sinks in the grooves, and acts as a closed gate; and by pumping out the water, or letting it out to a certain depth, the dam floats as the tide rises, and the narrow part, rising to the top, is readily disengaged from the grooves, and easily floated away as a boat. The advantages of these floating-dams, as stated by General Bentham, are, that they are cheaper of construction than the gates heretofore in use for closing docks or basins; that they occupy less space, are more easily repaired, and one and the same dam is capable of being used, as need may require, in different places at different times. These caissoons have also the advantage of serving as bridges of communication for loaded carriages across the entrances they close, and they require much less labor than gates in opening or shutting up passages into docks or basins, since their occasional buoyancy may be obtained without pumping water or unloading ballast.

Docking a Ship.—When a ship is brought into a dry or graving dock, she gradually subsides as the water flows out, till her keel rests upon the line of square blocks which are placed to receive it along the middle for the whole length; and on these blocks she is kept steady and upright by a number of shores or poles on each side, one of their ends being placed on the *altars* or steps of the dock, the other under the ship's bends and bottom. As a ship under repair generally requires something to be done to the main or false keel, or at any rate these parts require to be inspected, sometimes to shift the main keel, or to add to the whole length of the false keel, it was always found necessary in such cases to remove the blocks, in order to get at the bottom of the ship; but this operation could not be performed without the more serious one of first *lifting* bodily the ship clear of all the blocks, and suspending her as it were in the air. This process was performed by driving wedges simultaneously under the ends of all the shores that supported the ship; an operation that required from four to five hundred men to enable them to suspend a ship of the first rate. When the San Josef, a large three-decker, required her bottom to be examined in 1800, the assistance of almost every artificer in the dockyard was found necessary to perform this process of lifting her; nor was this the only inconvenience; the ship, thus suspended, suffered very material injury by the pressure of her own enormous weight against the ends of the shores that supported her, such as forcing in her sides, straining the knees and all her fastening, breaking the treenails, etc.

To remedy these glaring inconveniences and very serious injuries that ships thus placed were apt to sustain, and to effect a saving of time and expense in the operation, Mr. (afterward Sir Robert) Seppings, then master shipwright, and afterward surveyor of the navy, contrived, several years ago, an improvement, as ingenious as it simple, by which twenty men will suspend the largest ship in the navy, or rather, which amounts to the same thing, will disengage any one block that may be required, in the space of two or three minutes, without the necessity of suspending her at all; and, as a first rate in dock sits upon about fifty blocks, these twenty men will clear her of the whole of these blocks in about two hours; and as the saving of a day in completing the repairs of a ship is frequently the saving of a whole spring-tide, the docking and undocking of a ship may make, and frequently has made, by this new method the difference of a fortnight in the time of equipping her for sea.

The block of Mr. Seppings, instead of being one solid piece, consisted of three wedges, or, more properly speaking, of one obtuse wedge and two inclined planes, which, when put together and placed under the ship's keel, appear as under, when viewed in the direction or line of the keel, where G is the wedge on which the keel rests, having its obtuse angle equal to 170°, and HH are the two inclined planes, each having an acute angle of 5°. The wedge is of hard wood, having its two sides lined with iron; the two inclined planes are of cast iron. When one of these blocks is to be disengaged from under a ship's bottom, nothing more is required than a few smart blows alternately on the two sides of the two inclined planes, when they fly out, and the middle part or wedge drops; and the facility of thus disengaging any of the blocks is in proportion to the quantity of pressure upon that block. The strokes are usually given by a kind of catapulta or battering-ram, being a thick spar or pole moving on a pair of wheels, as KK. This simple contrivance to get at any part of a ship's bottom by removing in succession all the blocks, without the necessity of lifting the ship, which the removal of any one block required to be done by the old method, is now universally adopted in all the dockyards; and the lords of the admiralty marked their sense of the great utility of the improvement, by bestowing on Mr. Seppings a reward of £1000 for the invention.





Roofing the Docks.—Another very material improvement introduced is that of covering the dry-docks and building slips with roofs. The rapid decay of ships of war by that species of disease known by the name of the *dry rot*, attracted very general attention; its effects were well known, but a variety of opinions were entertained as to its causes and its cure. It was quite obvious, however, that exclusion of air and moisture were the two great operating causes in giving activity to the progress of the disease (see DRY ROT); and that a ship in dock, stripped of her planking, and open to the weather in every part, alternately exposed to frost, rain, wind, and sunshine, must at least have her timbers differently affected, some swelled and water-soaked, others shrunk with heat, and others rifted with the wind and frost; and, if closed up with planking in this state, might be expected, at no great distance of time, to exhibit symptoms of decay. The workmen, too, in the open docks or slips, suffered from the vicissitudes of the weather no less than the ships, and their labor was frequently suspended, to the great detriment of the naval service. The measure of roofing over the docks and slips had long and repeatedly been suggested, but, either from prejudice or a false economy, it was only of late years carried into practice, but is now universal in all the yards. These roofs are generally constructed so as to be capable of having the sides and ends occasionally closed, according to the quarter from which the wind may blow; and by this contrivance the timber is prevented from rifting, as it is liable to do, by the action of a thorough draught of wind, and the health of the artificer is prevented from injury. The light is admitted through numerous windows placed in the roof. These roofs are in general supported on a row of pillars, and covered with plates of iron. The same roof, with little or no repair, serves as a covering for eight or ten different ships in succession. General Bentham, who, in his statement of *Services rendered in the Civil Department of the Navy*, seems to claim to himself all the inventions and improvements which have been introduced into the dockyards for the last forty years, carries his invention beyond a mere covering, and proposes to house over the docks and ships so completely as to afford "means of heating, warming, ventilating, and artificially lighting the interior at pleasure; the introduction of boilers or steam-kilns for bending the planks within the inclosure; the introduction of machinery for assisting in various operations, particularly the more laborious ones; the providing room for carrying on all the shipwright's work within the building; besides a variety of lesser works, such as it is found very inconvenient during the building or repairing of a ship to have executed, for example, in a smith's or carpenter's shop at a distance." Such buildings would not only be enormously expensive, but, in the present crowded state of the dockyards, utterly impracticable. With regard to the invention of covered docks and slips, they have been used in Venice from time immemorial; and it appeared from the evidence given by Mr. Strange, the British consul at that port in the year 1792, before the commissioners of land revenue, that two-and-twenty large ships had been under covered slips, some of them for sixty years nearly. At Carlscrona, also, there are several covered docks, and both are strongly recommended for the building of ships under cover.

Hauling up Ships.—Among other experiments which were made in the dockyards for facilitating and expediting the repairs of ships, one may be mentioned, of which many persons were sanguine enough to think that the successful result was likely to be attended with most important benefits to the naval service. It was that of hauling up ships of war, of any dimensions, on building slips, instead of taking them into docks. It is no uncommon practice, at various ports of this kingdom, where there are neither artificial basins, nor natural harbors, to haul vessels of the burden of fifty to two hundred tons, or probably larger, upon the beach, by means of capstans, to give them repairs; in like manner, most of the large fishing smacks are hauled up for security in tempestuous weather; but the practicability of hauling up ships of war, especially of the larger classes, was a matter of some doubt. Several frigates had, at various times, been hauled upon slips, when the docks were all occupied; and the ease with which the operation was performed induced the officers of the dockyard to propose the hauling up of a line-of-battle ship. The *Kent* of 74 guns was selected for this purpose. It was necessary, in the first place, to take her into a dock, to have proper bilgeways prepared, and to be stripped, so as to be made as light as possible; her weight being, according to a calculation made from the water she displaced when afloat, about fourteen hundred tons. To heave up this weight fourteen capstans were employed, and the number of men to work these were as under:

Nine men to each bar and swifter	1,512
Eight men to hold on at each	112
Three men to each capstan, to attend the fall	42
Men on board the ship, and employed in other operations	450
Total of men employed	2,116

The time occupied in hauling her up, after all the purchases were brought to bear, was forty minutes. The expense of preparing her, and the loss and wear and tear of the materials, was estimated at somewhere about £2,000.

The advantages which slips are supposed to possess over dry-docks are many and important. They can be constructed at one twentieth part of the expense; they occupy less space; they can be constructed on a steep or a shelving shore; and ships can be hauled upon them either in spring or neap tides; whereas a dry-dock can only be made in particular situations, and, when made, ships can only be docked and undocked in certain states of the tides; from which circumstance a considerable delay and inconvenience are frequently experienced. It should be recollected, however, that a large ship must necessarily go into a dock preparatory to her being hauled up on a slip.

It has been considered as not at all impossible, as was suggested some time ago by Mr. Perring, then the ingenious clerk of the check in Plymouth dockyard, that the whole ordinary might hereafter be laid up on slips, which, if housed over, would unquestionably be the best means of increasing their durability, and preserving them from partial decay. Nor is it certain that in the end it would not be the most economical mode of preserving them. The expense, as appears from the *Estimates of the Ordinary of the Navy* for the year 1817, is £187,000 for harbor victuals, harbor moorings and riggings, etc., besides £135,000 for wages; the chief part of both which sums is on account of ships of war laid up in ordinary, none of which would be required by placing them on slips. It would indeed form a singular revolution in naval management, if ships hereafter should be laid up in ordinary on dry land, while the timber of which they are built was considered to be the best preserved under salt water; a process which, from some experiments recently made, promises fair to be the most effectual prevention of, and a probable cure for, the dry rot. (See DRY ROT.) This method of preserving timber has long been practiced at Brest, Carthagena, and several other places on the continent; and the only objection to it in some of our ports appears to be the attack of the worm known to naturalists by the name of *Teredo navalis*, whose bite is almost as destructive as the dry rot.

On the other hand, there are very many and serious objections, even were the measure practicable, of hauling up ships of the line in particular, to be laid in ordinary on slips. In the first place, the length of sea-beach which would be required is greater than probably all the dockyards in the kingdom could furnish. Secondly, the three warrant officers who are now employed in each ship, and who are the best men in the service, being no longer necessary, would be turned adrift, and, in all probability, utterly lost to the navy. Thirdly, no large ship could be hauled on the slips without being previously taken into a dock to have her bilgeways fitted, and her bottom prepared for placing her on the slip. The time taken for this purpose must necessarily interfere with the other works of the yard; and after taking her out, the preparations for heaving her up, the capstans, blocks, purchase-falls, chains, and a variety of other articles, amount to a very large expense, not less, with the expense of the roof to cover the ship, than £10,000 for each ship so hauled up.

Dockyards.—Previously to the reign of Henry VIII. the kings of England had neither navy arsenals nor dockyards, nor any regular establishment of civil or naval officers to provide ships of war, or to fight them. They had admirals, however, possessing a high jurisdiction and very great powerr And it would appear, from a very curious poem in *Hackluit's Collection*, called *The Policie of Keeping the Sea*, that Henry V. had both ships, officers, and men exclusively appropriated to his service, and independently of those which the Cinque Ports were bound, and the other ports were occasionally called upon to furnish, on any emergency. By this poem it also appears that Little Hampton, unfit as it now is, was the port at which Henry built

> ————————his great *Dromions*
> Which passed other great shippes of the commons.

But what these *dromions* were no one can now tell; nor is it easy to conceive how the building and repairing of the Great Harry, which in the reign of Henry VII. was launched at Portsmouth, and cost £15,000, was managed, considering the very rapid strides made at once from the small Cinique Port vessels, manned with 21 men and a boy, to this enormous floating castle. At that time it is well known that they had no docks, nor even substitutes for them.

The foundation of a regular navy, by the establishment of dockyards, and the formation of a board, consisting of certain commissioners for the management of its affairs, was first laid by Henry VIII., and the first dockyard erected under his reign was that of Woolwich. Those of Portsmouth, Deptford, Chatham, and Sheerness, followed in succession; and the last, excepting the new and unfinished yard of Pembroke, was Plymouth, which was founded by William III.

From the first establishment of the dockyards to the present time, most of them have gradually been enlarged and improved by a succession of expedients and make-shifts, which answered the purposes of the moment; but the best of them possess not those conveniences and advantages which might be obtained from a dockyard systematically laid out on a uniform and consistent plan, with its wharfs, basins, docks, slips, magazines, and workshops, arranged according to certain fixed principles, calculated to produce convenience, economy, and despatch.

Neither at the time when dockyards were first established, nor any subsequent periods of their enlargement as the necessities of the service demanded, could it have been foreseen what incalculable advantages would one day be derived from the substitution of machinery for human labor; and without a reference to this vast improvement in all mechanical operations, it could not be expected that any provision would be made for its future introduction; on the contrary, the docks and slips, the workshops and storehouses, were successively built at random, and placed wherever a vacant space would most conveniently admit them, and in such manner as in most cases to render the subsequent introduction of machinery and iron railways, and those various contrivances found in the large manufacturing establishments of private individuals, quite impossible, even in the most commodious and roomy dockyards.

The perfection of a dockyard, independently of the advantages of machinery, which are but contingent, may be considered to depend upon one or more extensive basins, surrounded by spacious wharfs or quays. By means of these a prodigious saving of time, labor, and expense may be saved, in every stage of the progress of fitting out a ship for sea, from the moment she is launched from the slip, or taken out of a dock, as well as in dismantling a ship on returning to port to be paid off and repaired, or laid up in ordinary. For this purpose the docks and slips should occupy one of the sides of the basin, with working-sheds for carpenters and joiners, smiths' shops, saw-pits, and seasoning-sheds between them. The ship, when completed on the slip and launched into the basin, may then be taken immediately into the adjoining dock to be coppered. From this she proceeds to the second side of the basin, in the corner of which is the ballast-wharf. The remainder of the side will probably be occupied by the victualing department, with appropriate stores in the rear for various kinds of provisions, and behind these the bakery, brewery, and slaughter-houses; on the wharf the iron tanks for holding water, now universally used for the ground tier in lieu of wooden casks. These are taken on board next after the ballast, and, together with the superincumbent casks, would be filled in the ship's hold by means of flexible pipes to convey the water into them. The provisions would at the same time be taken on board at the same wharf, in front of the victualing stores. The third side might be appropriated to the ordnance department, with the gun-wharf extending along the whole side, and the gun-carriage storehouses, magazines, etc., in the rear. The fourth side would be occupied as the anchor wharf, with the cable storehouses, the sail-lofts and stores, rigging-loft, and magazines for various stores, in the rear. Behind these, again, on the first side, containing the dry-docks, and building-slips, the ground would be appropriated to the reception, berthing and converting of timber, from whence iron railways would lead to the saw-mills, saw-pits, and workshops, all of which would be placed on that side. On the second side a pond or basin for the victualing lighters and craft, with wharfs communicating with the manufactories and storehouses; the same on the ordnance or third side; and on the fourth side might be placed the ropery, hemp storehouses, tar-houses, with a basin for hemp-vessels, lighters, and the like. Communicating with the great basin on the building side, and also with the river or harbor on the shore of which the dockyard is to be formed, should be a mast-pond, with a lock for the storing of spars. In front the mast-houses, top-houses, capstan-houses, and a slip to launch the masts into the pond. Here also might be placed the boat-houses and boat-pond.

A Systematic Dockyard.—A peninsular situation, having at least three fourths of its shore surrounded with deep water, is peculiarly favorable for some such arrangement as is here mentioned, as any number of locks and canals might be made to communicate with the river, so that ships coming into the basin might not interfere with those going out, nor the lighters and other craft bringing their several species of stores, with either or with one another. By such an arrangement a ship would be equipped for sea at half the present expense, and within half the usual time. A ship fitting out for an anchorage distant from the dockyard, is liable to every inconvenience and delay, as all her guns, stores, provisions, and water, must be carried to her in dockyard lighters and other craft, into which and out of which they must be hoisted and re-hoisted; liable to delay from bad weather and contrary winds; to be stove alongside the ship, to the total loss or damaging of their cargoes. Added to which is the loss of time in going backward and forward, especially to the artificers; the desertion of the men; the accidents from the upsetting of boats; and many other evils, of a magnitude not easily to be calculated, and exceeded only by the disappointment and vexation that unavoidably occur when ships are preparing for some particular and pressing service; all of which, when ships are fitted out in a basin for sea, are avoided. Here no delay, no embezzlement, no desertion can take place. A ship in returning from sea may be docked and undocked into the basin with all her stores on board; and if to be paid off, instead of keeping the crew on board for weeks, till all the stores have been delivered into the dockyard, the ship, by the proposed plan of basins, would remain securely in the basin, to be stripped at leisure by the riggers and laborers of the yard, and the crew become immediately available for other ships.

Portsmouth Dockyard.—Portsmouth dockyard will always be considered as the grand naval arsenal of England, and the headquarters or general rendezvous of the British fleet. The dockyard, accordingly, is by far the most capacious; and the safe and extensive harbor, the noble anchorage at Spithead, the central situation with respect to the English Channel and the opposite coast of France, and particularly with regard to the naval arsenal at Cherbourg, render Portsmouth of the very first importance as a naval station; and in this view of it, every possible attention appears to have been paid to the extension and improvement of its dockyard. The noble steam-basin, which was opened by the Queen, in May, 1848, with great ceremony, is one of the most important of the recent improvements. The sea wharf-wall of this yard, extending in the direction of north and south, along the western shore of the harbor, is about 3,900 feet in length, and the mean depth may be 2,000 feet; and it incloses an area of more than 100 acres.

In the centre of the wharf-wall, facing the harbor, is the entrance into the great basin, whose dimensions are 380 by 260 feet, and its area 2½ acres. Into this basin open 4 excellent dry-docks, and on each of its sides is a dry-dock opening into the harbor; and all of these 6 docks are capable of receiving ships of the largest class. Besides these, is a double dock for frigates, the stern dock communicating, through a lock, with the harbor, and the head dock with another basin about 250 feet square. There is also a chamber, with a wharf-wall on each side, 660 feet in length, and of sufficient width to admit of transports and merchant-ships bringing stores to the dockyard. In the same face of the yard are 3 building-slips, capable of receiving the largest ships, and a small one for sloops, besides 2 building-slips for frigates on the northern face of the yard, and a smaller slip for sloops. The range of storehouses on the north-east side, and the rigging-house and sail-loft on the south-west side of the chamber, are magnificent buildings, the former occupying nearly 600 feet in length, exclusive of the two intermediate spaces, and nearly 60 feet in width, and the two latter 400 feet. The two hemp-houses and the two sea-store houses occupy a line of building which, with the three narrow openings between them, of 25 feet each, extend 800 feet. The rope-house, tarring-house, and other appendages of the ropery, are on the same scale. The two sets of quadrangular storehouses, and the two corresponding buildings, with the intervening timber-berths and saw-pits, at the head of the dry-docks, issuing from the great basin, are all excellent. and conveniently placed. The smithery is on a large scale, and contiguous to it is an iron-mill, a copper-mill, and a copper-refinery, at which is re-melted and rolled all the old copper which is taken from ships' bottoms; and here, also, are cast bolts, gudgeons, and various articles of copper used in the navy. The number of sheets manufactured in one year of the war, amounted to about 300,000, weighing above 12,000 tons; on which it has been calculated that a saving of at least £20,000 was effected for the public, besides obtaining a good, pure article. Most of these were constructed under the direction of General Bentham. (Bentham's Services.) At the head of the north dock are the wood-mills, at which every article of turnery, rabetting, etc., is performed for the use of the navy, from boring the chamber of a pump to the turning of a button for a chest of drawers. But the principal part of these mills is the machinery for making blocks, contrived by that ingenious artist, Mr. Brunell (see TREDGOLD'S CARPENTRY), which can not be regarded without exciting the highest respect for the talents and skill of the inventor.

The northern extremity of the dockyard is chiefly occupied with seasoning-sheds, saw-pits, and timber-berths, the working boat-house, and boat storehouse. On the eastern extremity are situated the houses and gardens of the superintendent and principal officers of the yard, the chapel, and the royal naval college.

Capacity of a Dockyard.—The capacity of a dockyard for building, repairing, and refitting ships of war, depends upon so many circumstances that it scarcely admits of calculation; chiefly, however, on the facilities afforded by a suitable arrangement of dry-docks, building-slips, and basins, and on the number of shipwrights and other artificers borne on the strength of the yard. In building new ships, where the materials are at hand, and no interruptions occur, the capacity may be ascertained to a tolerable degree of accuracy. To complete the building of a 74-gun ship, it is calculated that the labor of one man would be required for 18,000 days, or of 18 men for 1,000 days, or about 54 men to finish her in the space of one year. A dockyard, therefore, with 500 good shipwrights, might be expected to launch from 8 to 10 74-gun ships every year, if the conveniences of the yard admitted them all to be employed on the building; but this kind of ship is now supplanted by ships of 120 and 130 guns, requiring a relative increase of hands. With regard to repairs, they are so various and so uncertain, that it would be next to impossible to form any calculation that should at all approach to the truth. A writer well versed in naval matters, in attempting to prove the sufficiency of our dockyards, without having recourse to private merchant-yards during war, has stated, that by a uniform system of management, "the annual regeneration of ships-of-the-line may be safely reckoned at *twelve sail*, and that of frigates, at *eight sail*; and that, besides, there might be docked for casual repairs, in the course of one year, *two hundred and sixty-seven sail* of ships and vessels of war."—*Letter to Lord Melville on the General State of the British Navy.*—E. B.

The Brooklyn Navy Yard is the most extensive naval dépôt in the United States, situated on the south side of Wallabout Bay, at the north-eastern part of the city, and contains 45 acres of land. It is inclosed by a substantial brick wall on the land side, and on the left hand, as you enter its gate, there is a flower-garden most tastefully arranged.

This spacious yard affords sufficient room for the residence of the officers, machine-shops, storehouses, etc. The most conspicuous buildings are two large edifices, 250 feet long by 125 feet wide, and 120 feet high, capable of containing the largest ships of war while being built. In time of peace several national vessels are usually to be seen here, either laid up or undergoing repairs. A vast amount of cannon, cannon-balls, bombs, and all kinds of munitions of war, is always on hand at this dépôt. The Brooklyn dry-dock is located at the Navy Yard, and is capable of receiving the largest ships of war. This is a magnificent work, unequaled by any of the kind in America, and scarcely surpassed by any in the world. The foundation is 406 feet long by 120 wide, and the main chamber or basin is 286 feet long by 30 wide at the bottom, and 307 feet long and 98 wide at the top. The weight of the iron folding-gates is 150 tons; the pumps discharge 40,000 gallons per minute. The engine-house is a fire-proof building, containing machinery of the most perfect kind. The whole occupied 16 years in the course of construction. See APPLETON'S *Dictionary of Mechanics.*

Dogwood (*Cornus Florida*). The wood of this tree is hard, compact, heavy, and fine-grained, and is susceptible of a brilliant polish, from which circumstance it may be substituted for numerous purposes to which boxwood is applied The sap-wood is perfectly white, and the heart-wood is of the color of chocolate. In the United States, it enters into the construction of many articles, both for utility and ornament, such as the handles of light tools, mallets, toys, etc. It is sometimes used by farmers for harrow teeth, for the hames of horse-collars, and also for shoeing the runners of sleds; but to whatever purpose it is applied, being liable to split, it should never be wrought till it is perfectly seasoned. The shoots, when three or four years old, are found suitable for the light hoops of small casks, and in the Middle States, the cogs of mill-wheels are made of them, and the forked branches are converted into the yokes which are put upon the necks of swine, to prevent them from breaking into inclosed fields. In the parts of the country where it abounds, it serves for excellent fuel. The inner bark of this tree is extremely bitter, and is used as a good substitute for the Peruvian bark. The bark also may be substituted for galls in the manufacture of ink, and from the bark of more fibrous roots, the American Indians obtain a scarlet dye. An infusion of the flowers of this tree is also used by them in the cure of intermittents. The fruit is sometimes taken as a tonic, in the form of a spirituous impregnation, and it likewise forms a favorite repast for various species of birds. In England the sole use of this species is an ornamental shrub, and from its large, white flowers, "emulous of the purity of snow," which finely contrast with the "forest green," it richly deserves a place in every collection where it will thrive.—BROWNE'S *Trees of America.*

Doldrums. Seafaring people have, as if by common consent, divided the ocean off into regions, and characterized them according to the winds; *e. g.*, there are the "trade-wind regions," the "variables," the "horse latitudes," the "doldrums," etc. The "equatorial doldrums" is another of these calm places. Besides being a region of calms and baffling winds, it is a region noted for its rains and clouds, which make it one of the most oppressive and disagreeable places at sea. The emigrant ships from Europe for Australia, have to cross it. They are often baffled in it for two or three weeks; then the children and the passengers who are of delicate health suffer most. It is a frightful grave-yard on the way-side to that golden land. —MAURY'S *Phys. Geog. of the Sea*, p. 209.

Dollar, the name of a silver coin of Spain and of the United States; worth 100 cents. The dollar appears to have been originally a German coin; and in various parts of Germany there are coins of different values so called. This word corresponds to the German *thaler*, the Low-German *dahler*, the Danish *daler*, the Italian *tallero.* All these words, together with our *dollar*, are derived from the name of the Bohemian town *Joachims-Thal* (Joachim's Valley), where, in 1518, the Count of Schlick coined silver pieces of an ounce weight. These, indeed, were not the first of the kind coined; yet, as they were numerous and very good they became generally known by the name of *Joachim's-thaler*, which is the German adjective of *Joachim's thal*, and also Schlickenthaler from the name of the Counts. As these coins were in good repute, *thalers* were also coined in other countries, but of different value; thus originated the *laub-thaler* (leaf-dollar), *Phillipps thaler*, the Swedish copper dollar etc. In Russia, a dollar is called *jephimock*, from *Joachim.* —E. A. See COINS.

Dolphin, in nautical language, a rope or strap fastened round the mast of a ship to give support to the *puddening* (a mass of yarn or oakum used to prevent chafing), where the lower yards rest on the slings. *Dolphin* is also applied to a spar or buoy furnished with a large ring, and anchored, to which a vessel may bend its cable.

Domicil. In regard to the states not Christian, not only the Mohammedan states, but all the rest, the true rule appears to be, that contracts of citizens of the United States in general, and especially the contract of marriage, are not subject to the *lex loci*, but must be governed by the law of the domicil; and that, therefore, in such countries, a valid contract of marriage may be solemnized, and the contract authenticated, not only by an ambassador, but by a consul of the United States. The English authorities come to substantially the same conclusion, for similar reasons. "Nobody can suppose," says Lord Stowell, "that while the Mogul empire existed, an Englishman (in Hindostan) was bound to consult the Koran for the celebration of his marriage." In most of the Asiatic and African countries, indeed, law is personal, not local, as it was in many parts of modern Europe in the formative period of its present organization. Hence, in British India, Hindoos, Parsees, Jews, Mohammedans, Christians, all marry according to the law of their religion. The ecclesiastical law of England goes further than this, for it recognizes the marriage of Englishmen, celebrated according to the English law, that is, by a clergyman, in British factories abroad, though situated in Christian countries, but countries of the Roman Catholic or Greek religion.—*Manual for Consuls, U. S.*

Merchants.—The national charactor of merchants residing in Europe and America, is derived from that of the country in which they reside. In the eastern parts of the world, European persons, trading under the shelter and protection of the factories founded there, take their national character from that association under which they live and carry on their trade. This distinction arises from the nature and habits of the countries. In the western parts of the world, alien merchants mix in the society of the natives; access and intermixture are permitted, and they become incorporated to nearly the full extent. But, in the East, from almost the oldest times, an immiscible character has been kept up: foreigners are not admitted into the general body and mass of the nation; they continue strangers and sojourners, as all their fathers were. Thus, with respect to establishments in Turkey, the British courts of prize, during war with Holland, determined that a merchant carrying on trade at Smyrna, under the protection of the Dutch consul, was to be considered a Dutchman, and condemned his property as belonging to an enemy. And thus in China, and generally throughout the East, persons admitted into a factory, are not known in their own peculiar national character; and not being permitted to assume the character of the country, are considered only in the character of that association or factory.

But these principles are considered not to be applicable to the vast territories occupied by the British in Hindostan; because, as Sir W. Scott observes, "though the sovereignty of the Mogul is occasionally brought forward for the purpose of policy, it hardly exists otherwise than as a phantom; it is not applied in any way for the regulation of their establishments. Great Britain exercises the power of declaring war and peace, which is among the strongest marks of actual sovereignty; and if the high and empyrean sovereignty of the Mogul is sometimes brought down from the clouds, as it were, for the purposes of policy, it by no means interferes with the actual authority which that country, and the East India Company—a creature of that country—exercise there with full effect. Merchants residing there, are hence considered British subjects."—WHEATON'S *International Law*, Part iv., ch. 1, p. 408.

Dominica, one of the Leeward group of islands in the West Indies, belonging to Britain, and lying between the French islands of Martinique and Guadaloupe, 24 miles north of the former, and about the same distance south of the latter. Dominica was so named by Columbus from his having discovered it on a Sunday (in 1493). It was ceded to England by the peace of Paris, in 1763, but was taken by the French in 1778. At the peace of 1783 it was restored to England, in whose possession it has since remained. Dominica is 29 miles in length from north to south, and 16 in breadth, and has an area of about 186,436 acres. The principal town Roseau, situated on the S.W. side of the island, is in lat. 15° 19′ N., long. 61° 28′ W. The surface is generally rugged and mountainous, interspersed with fertile and well-watered valleys. The highest point is 5,314 feet above the level of the sea. The origin of this island is volcanic, and sulphur and other volcanic products are abundant. The soil is light and well adapted for the growth of coffee. The hills are covered with valuable timber trees of the kinds commonly found in the West Indies. Game is abundant, and the fisheries on the coast are very productive. The principal productions are sugar, molasses, rum, coffee, cocoa, and oranges. The cultivation of cotton has lately been introduced to a small extent, and has been found to answer very well, particularly on land near the sea-coast. The principal staple products exported in the years ending 5th January, 1852, and 5th January, 1853, were as follows:

	1852.		1853.	
Sugar	62,168	cwts.	65,788	cwts.
Rum	30,927	galls.	35,794	galls.
Molasses	95,600	"	81,016	"
Coffee	58,063	lbs.	67,594	lbs.
Cocoa	33,884	"	69,296	"
Lime juice	4,280	galls.	5,062	galls.
Arrow root	5,944	lbs.	8,525	lbs.
Oranges	1,019,800		1,354,020	
Cotton Wool	2,000	lbs.	3,250	lbs.

The value of exports and imports, and the revenue for the years 1849, 1850, and 1851, were as follows:

	1849.	1850.	1851.
Imports	£50,616	£57,656	£71,828
Exports	48,070	58,265	62,527
Revenue	8,913	10,275	12,901

The population in 1844 was 22,200, of whom 11,604 were females. The principal harbors are Roseau and Prince Rupert's Bay.—E.B.

Dornock is a species of figured linen of stout fabric, which derives its name from a town in Scotland, where it was first manufactured for table-cloths. It is the most simple pattern of all the varieties of the diaper or damask style, and therefore the goods are usually of coarse quality for common household wear. It receives the figure by reversing the flushing of the warp and woof at certain intervals, so as to form squares or oblong rectangles upon the cloth. The most simple of these is a succession of alternate squares, forming an imitation of a checker board or mosaic work. The coarsest kinds are generally woven as tweels of three leaves, where every thread floats over two, and is intersected by the third in succession. Some of the finer are tweels of four or five leaves, but few of more; for the six or seven leaf tweels are seldom or never used, and the eight leaf tweel is confined almost exclusively to damask.

Dort, or **Dordrecht**, an important commercial city of Holland, capital of a cognominal district in the province of South Holland, 10 miles south-east of Rotterdam. It is situated on an island of the Meuse, said to have been separated from the mainland in 1421, by an inundation which swept away 72 villages, and about 100,000 inhabitants. This is one of the oldest cities of Holland, but the period of its rise is uncertain. It was surrounded by walls in 1231 by Florent IV., Count of Holland, who made it his residence, and granted it many important privileges. In 1457, almost the entire town, including the church of Notre Dame, founded in 1366, and other public buildings, was destroyed by fire. It was one of the first towns to embrace the Reformed religion, and to throw off the yoke of the Spanish king. In 1572 a meeting of deputies was held here, when the independence of the United Provinces was first declared; and in 1618 and 1619 sat the celebrated Synod of Dort. The town-hall is a handsome building; and the principal church is an old Gothic structure 300 feet long by 125 feet wide, with a heavy square tower, and numerous monumental stones, some of great antiquity. The hall in which the synod was held is now a public house. The houses are generally of an antique fashion, with the gables turned outward, and many of them date from the period of the Spanish occupation. Dort possesses a good harbor, from which two canals lead to the centre of the town, and thus facilitate the conveyance of goods to the warehouses. It carries on an extensive trade in corn, flax, salt fish, train oil, and timber, brought down the Rhine; and has ship-building docks, saw-mills, sugar and salt refineries, tobacco factories, linen-bleaching and white-lead works. Dort is the birthplace of the brothers De Witt. Population (1850), 20,878.

Doubling, in navigation, the act of sailing round or passing beyond a cape or promontory.

Doubloon, or **Doblon**, a Spanish and Portuguese coin, being the double of a pistole.—E. B. See Coins.

Dover, Straits of, the narrow channel between Dover and Calais, which separates Great Britain from the French coast. Britain is supposed by many to have been once a peninsula—the present straits occupying the site of the isthmus which joined it to Gaul. "The correspondency of strata," says Mr. Pennant, in his *Arct. Zoology*, "on part of the opposite shores of Britain and France, leaves no room to doubt that they were once united. The chalky cliffs of Blancuez, between Calais and Boulogne, and those to the westward of Dover, exactly tally. The last are vast and continued; the former short, and the termination of the immense bed. Between Boulogne and Folkestone (about 6 miles from the latter) is another memorial of the junction of the two countries: a narrow submarine hill, called the *Rip-raps*, about a quarter of a mile broad, and 10 miles long, extending eastward toward the Goodwin Sands. Its materials are boulder-stones, adventitious to many strata. The depth of water on it, in very low spring-tides, is only 14 feet. The fishermen from Folkestone have often touched it with a 15-feet oar, so that it is justly the dread of navigators. Many a tall ship has struck on it, and sunk instantly into 21 fathoms of water." In July, 1782, the *Belleisle*, of of 64 guns, struck, and lay on it during three hours, but by starting her beer and water, got clear off. These celebrated straits are only 21 miles wide in the narrowest part; from the pier of Dover to that of Calais, 24 miles. It is said that their breadth is diminishing, and that they are two miles narrower than they were in ancient times. An accurate observer for 50 years, remarks that the increased height of water, from a decrease of breadth, has been apparent, even in that space. The depth of the channel, at a medium, in the highest spring-tides, is about 25 fathoms: the bottom is either coarse sand or rugged sears, which have, for ages unknown, resisted the attrition of the currents.—E. A.

Down (Ger. *Dunen, Flaumfedern*; Du. *Dons*; Fr. *Duvet*; It. *Penna matta, Piumini*; Sp. *Flojel, Plumazo*; Rus. *Puch*; Lat. *Plumæ*), the fine feathers from the breasts of several birds, particularly those of the duck kind. That of the eider duck is the most valuable. These birds pluck it from their breasts, and line their nests with it. Mr. Pennant says that it is so very elastic, that a quantity of it weighing only ¾ of an ounce, more than fills the crown of the largest hat. That found in the nest is most valued, and termed *live down*; it is much more elastic than that plucked from the dead bird, which is comparatively little esteemed. The eider duck is found on the western islands of Scotland, but the down is principally imported from Norway and Ireland.

Downs, a bank or elevation of sand, which the sea gathers and forms along its shores, and which serves it as a barrier. The word is formed from the French *dune*, or the Celtic *dun*, a mountain. Charles de Visch (*Compend. Chronolog. Exord. et Progress. Abbat. Clariss. B. Mariæ, de Dunis*) says, *Vallem reperit arenarum collibus, quos incolæ* Duynen *vocant, undique cinctam.* It is also applied to a large open plain, primarily on elevated land.

Downs is particularly applied to a famous roadstead for ships along the eastern coast of the county of Kent, from Dover to the North Foreland, where both outward and homeward-bound ships frequently make some stay, and squadrons of men-of-war rendezvous in time of war. It affords excellent anchorage, and is defended by the castles of Deal, Dover, and Sandwich.

Dragoman, or **Drogueman**, an interpreter; a term of general use in the Levant and throughout the East. There are dragomans attached to the embassies and consulates of Christian nations residing at the Porte. The word is formed from the Arabic *targeman* or *targiman*, of the verb *taragem*, "he has interpreted." From *dragoman* the Italians formed *dragomanno*, and, with a nearer relation to its Arabic etymology, *turcimanno;* whence comes *trucheman*, as well as *dragoman* and *drogueman.* See TURKEY.

Dragon's Blood (*Sang dracon*, Fr.; *Drachenblüt*, Germ.) is a resinous substance, which comes to us sometimes in small balls about the size of a pigeon's egg, sometimes in rods like the finger, and sometimes like irregular cakes. Its color, in lump, is dark brown-red; in powder, bright red; friable; of a shining fracture; sp. grav., 1·196. It contains a little benzoic acid, is insoluble in water, but dissolves readily in alcohol, ether, and oils. It is brought from the East Indies, Africa, South America, as the produce of several trees, the *Dracæna Draco*, the *Pterocarpus santalinus*, *Pterocarpus draco*, and the *Calamus rotang.* Dragon's blood is used chiefly for tinging spirit and turpentine varnishes, for preparing gold lacquer, for tooth tinctures and powders, for staining marble, etc. According to Herbenger, it consists of 9·07 parts of red resin, 2 of fat oil, 3 of benzoic acid, 1·6 of oxalate, and 3·7 of phosphate of lime.

Drake, Sir Francis, a celebrated English admiral, was born near Tavistock, Devonshire, in 1545. His father, who had been bred a sailor, obtained a naval chaplaincy from Queen Elizabeth, and was afterward vicar of Upnor church, on the Medway. Young Drake was educated at the expense and under the care of Sir John Hawkins, who was his kinsman; and, at the age of eighteen, he had risen to be purser of a ship trading to Biscay. At twenty he made a voyage to Guinea; and at twenty-two he was made captain of the *Judith.* In that capacity he was in the harbor of San Juan d'Ulloa, in the Gulf of Mexico, where he behaved most gallantly in the actions under Sir John Hawkins, and returned with him to England, having acquired great reputation, though with the loss of all the money which he had embarked in the expedition. Having next projected an attack against the Spaniards in the West Indies, to indemnify himself for his former losses, he set sail in 1572, with two small ships named the *Pasha* and the *Swan.* He was afterward joined by another vessel; and with this small squadron he took and plundered the Spanish town of Nombre de Dios. With his men he penetrated across the Isthmus of Panama, and committed great havoc among the Spanish shipping. In these expeditions he was much assisted by a nation of Indians, who were then engaged in a desultory warfare with the Spaniards. Having embarked his men and filled his ships with plunder, he bore away for England, where he arrived in August, 1753.

In 1589, Sir Francis Drake commanded the fleet sent to restore Don Antonio, King of Portugal, the land forces being under the orders of Sir John Norris; but they had hardly put to sea when the commanders differed, and thus the attempt proved abortive. But as the war with Spain continued, a more formidable expedition was fitted out, under Sir John Hawkins and Sir Francis Drake, against their settlements in the West Indies, than had hitherto been undertaken during the whole course of it. Here, however, the commanders again disagreed about the plan; and the result, in like manner, disappointed public expectation. These disasters were keenly felt by Drake, and were the principal cause of his death, which took place on board his own ship, near the town of Nombre de Dios, in the West Indies, January 28th, 1595.—E. B. See *Edinb. Rev.*, lxxx., 197; *Dublin Univ.*, xxiii., p. 551; *N. Am. Rev.* [PEABODY], lix., p. 70; LITTELL'S *Living Age*, iii., p. 289.

Drawback, a term used in commerce to signify the remitting or paying back of the duties previously paid on a commodity on its being exported. A drawback is a device resorted to for enabling a commodity affected by taxes to be exported and sold in the foreign market on the same terms as if it had not been taxed at all. It differs in this from a bounty, that the latter enables a commodity to be sold abroad for *less* than its natural cost, whereas a drawback enables it to be sold exactly at its natural cost. Drawbacks, as Dr. Smith has observed, "do not occasion the exportation of a greater quantity of goods than would have been exported had no duty been imposed. They do not tend to turn toward any particular employment a greater share of the capital of the country than would go to that employment of its own accord, but only to hinder the duty from driving away any part of that share to other employments. They tend not to overturn that balance which naturally establishes itself among all the various employments of the society, but to hinder it from being overturned by the duty. They tend not to destroy, but to preserve, what it is in most cases advantageous to preserve—the natural division and distribution of labor in the society." Were it not for the system of drawbacks, it would be impossible, unless when a country enjoyed some very peculiar facilities of production, to export any commodity that was more heavily taxed at home than abroad. But the drawback obviates this difficulty, and enables merchants to export commodities loaded at home with heavy duties, and to sell them in the foreign market on the same terms as those fetched from countries where they are not taxed. Most foreign artictles imported into this country may be warehoused for subsequent exportation. In this case they pay no duties on being imported, and, of course, get no drawback on their subsequent exportation. Sometimes a drawback exceeds the duty or duties laid on the article; and in such cases the *excess* forms a real bounty of that amount, and should be so considered.

Dredging Machine. A machine for clearing out or deepening the beds of navigable rivers, harbors, canals, etc., by the removal of deposited matter.

Dresden China. The fine porcelain ware known as Dresden china was discovered by M. Bœticher, who was at the time an apothecary's boy, 1700. Services of this ware have cost many thousands of pounds each. A costly service, each piece exquisitely painted, and the battles represented, and subjects all different, was presented to the Duke of Wellington by the King of Prussia, in 1816, and is the finest in England.

Dressing. A term applied to gum, starch, and other articles used in stiffening or preparing silk, linen, and other fabrics.

Drift, in navigation, the angle which the line of a ship's motion makes with the nearest meridian, when she drives with her side to the wind and waves, and is not governed by the helm. It also implies the distance which the ship drives on that line. *Drift*, in mining, a passage cut between shaft and shaft, or a way wrought under the earth.

Drift of Bottles. It is a custom often practiced by seafaring people to throw a bottle overboard, with a paper, stating the time and place at which it is done. In the absence of other information as to currents, that afforded by these mute little navigators is of great value. They leave no tracks behind them, it is true, and their route can not be ascertained. But knowing where they were cast, and seeing where they are found, some idea may be formed as to their course. Straight lines may at least be drawn, showing the shortest distance from the beginning to the end of their voyage, with the time elapsed. Admiral Beechey, R. N., has prepared a chart, representing, in this way, the tracks of more than 100 bottles. From it it appears that the waters from every quarter of the Atlantic tend toward the Gulf of Mexico and its stream. Bottles cast into the sea midway between the Old and New Worlds, near the coasts of Europe, Africa, and America; at the extreme north, or further south, have been found either in the West Indies or the British isles, or within the well-known range of Gulf Stream waters. Of two cast out together in south latitude on the coast of Africa, one was found on the island of Trinidad, the other on Guernsey, in the English Channel. In the absence of positive information on the subject, the circumstantial evidence that the latter performed the tour of the Gulf is all but conclusive. And there is reason to suppose that some of the bottles of the admiral's chart have also performed the tour of the Gulf Stream; then, without being cast ashore, have returned with the drift along the coast of Africa into the inter-tropical region; thence through the Caribbean Sea, and so on with the Gulf Stream again. Another bottle thrown over off Cape Horn by an American master in 1837, has been recently picked up on the coast of Ireland. An inspection of the chart, and of the drift of the other bottles, seems to *force* the conclusion that this bottle too went even from that remote region to the so-called *higher* level of the Gulf Stream reservoir.—MAURY, *Phys. Geog. of the Sea.*

Drift-sail, a sail used under water, veered out right a-head by sheets, as other sails are. It serves to keep the ship's head right upon the sea in a storm, and to prevent her driving too fast in a current.

Drift-wood, trees or timber carried out to sea by rivers when in flood; timber drifted or floated by water.

Driving, in sea language, is said of a ship when her anchor fails to hold her fast, and she floats away with the wind or tide. A vessel is also said to drive when she scuds before a gale.

Droits of Admiralty. The perquisites resulting chiefly from the seizure of the property of an enemy at the commencement of a war, and attached to the office of Lord-high-admiral, or to the crown when that office is vacant. These perquisites were originally vested in the sovereign, to enable him to provide for the expense of defending the realm, and clearing the seas of pirates; and their value and importance will be at once perceived from the following brief statement. In 1798, one ship which had been captured brought £55,000; in 1800, another brought £65,000; in 1804, one captured ship was worth £105,000; and in 1806, several taken at once netted £155,000. During the last war, also, the Dutch ships at one seizure brought £1,030,000; the Spanish ships, £2,200,000; and so large were the sums made at one and the same moment in this rich fund, that the crown one year, after paying many hundreds of thousands to captors, and large sums to different branches of the royal family, gave a million out of the residue to the public service. (*Edinb. Rev.*, vol. xxxiii., p. 482.) By the civil list, introduced on the accession of William IV., it was arranged that all droits of admiralty which might accrue during his reign should be paid into the exchequer for the benefit of the public service; and the civil list of her present majesty has made no alteration in that arrangement.—BRANDE.

Drowned Persons. *Directions for Restoring Persons Apparently Drowned.* From R. B. FORBES, Esq., of Boston, an officer of the Massachusetts Humane Society.—Convey the body to the nearest house, with head raised. Strip, and rub dry; wrap in blankets; inflate the lungs by closing the nostrils with thumb and finger, and blowing into the mouth forcibly, then pressing with hand on the chest. Again blow in the mouth and press on the chest, and so on for TEN MINUTES, or until he breathes. Keep the body warm, extremities also. Continue rubbing. Do not give up as long as there is any chance of success.

Drugs, Inspection of. By an act of Congress, passed June 26, 1848, to prevent the importation of adulterated and spurious drugs and medicines, it was provided, that all drugs and medicines, medicinal preparations, including medicinal essential oils and chemical preparations used wholly or in part as medicine, imported into the United States from abroad, shall, before passing the custom-house, be examined and approved, as well in reference to their quality, purity, and fitness for medicinal purposes as to their value and identity specified in the invoice.

Also, that all medicinal preparations, whether chemical or otherwise, usually imported with the name of the manufacturer, shall have the true name of the manufacturer, and the place where they are prepared, permanently and legibly affixed to each parcel, by stamp, label, or otherwise; and all such medicinal preparations imported without such names, affixed as aforesaid, shall be adjudged to be forfeited.

That if, on examination, any drugs, medicines, medicinal preparations, whether chemical or otherwise, including medicinal essential oils, are found, in the opinion of the examiner, to be so far adulterated, or in any manner deteriorated, as to render them in strength and purity inferior to the standard established by the United States, Edinburg, London, France, and German pharmacopœias and dispensaries, and thereby improper, unsafe, or dangerous to be used for medicinal purposes, a return to that effect shall be made upon the invoice; and the articles so noted shall not pass the custom-house, unless, on re-examination of a strictly analytical character, called for by the owner or consignee, the return of the examiner shall be found erroneous; and it shall be declared as the result of such analysis, that the said articles may properly, safely, and without danger, be used for medicinal purposes.

That the owner or consignee shall at all times, when dissatisfied with the examiner's return, have the privilege of calling, at his own expense, for a re-examination; and depositing with the collector such sum as the latter may deem sufficient to defray such expense, it shall be the duty of that officer to procure some competent analytical chemist possessing the confidence of the medical profession, as well as of the colleges of medicine and pharmacy, if any such institutions exist in the State in which the collection district is situated, a careful analysis of the articles included in said return, and a report upon the same, under oath; and in case the report, which shall be final, shall declare the return of the examiner to be erroneous, and the said articles to be of the requisite strength and purity, according to the standards referred to in the next preceding section of this act, the entire invoice shall be passed without reservation, on payment of the customary duties; but in case the examiner's return shall be sustained by the analysis and report, the said articles shall remain in charge of the collector, and the owner or consignee, on payment of the charges of storage and other expenses necessarily incurred by the United States, and on giving of bond, with sureties satisfactory to the collector, to land said articles out of the limits of the United States, shall have the privilege of re-exporting them at any time within the period of six months after the report of the analysis; but if the said articles shall not be sent out of the United States within the time specified, it shall be the duty of the collector, at the expiration of the said time, to cause the same to be destroyed, holding the owner or consignee responsible to the United States for payment of all charges, in the same manner as if said articles had been re-exported.

Drugget, a coarse and flimsy woolen texture, chiefly used for covering carpets. It was formerly extensively employed as an article of clothing among the poorer classes, more especially of females; but this and similar fabrics are now almost wholly superseded by cotton goods, which induce greater cleanliness.

Drummond Light. The three angles of the enormous triangles by which a topographical survey is primarily conducted, sometimes 80 or 100 miles asunder, must be visible one from another; but how to produce the visibility? In the earlier surveys, where such daring distances were not attempted, a signal light was in some cases obtained by reflecting the light of the sun from a well-adjusted surface of polished tin, or by Bengal lights being fired at night, or by a powerful Argand lamp being placed behind a lens or before a parabolic reflector; but Lieutenant Drummond, during the progress of the Irish survey, made a happy suggestion which eclipsed in efficiency all others. In what is called the *Drummond* or *Lime Light*, a small ball of lime is exposed to the action of a spirit-flame fed by pure oxygen gas; the flame, in a highly-vivid state, heats the lime to an intense degree, and in this heated state, it emits a light of surprising brilliancy, far exceeding that of any flame yet seen. So beautifully was Drummond's apparatus constructed, that the lamp fed itself with spirit and with oxygen, supplied itself with balls of lime as each one slowly wasted, and reflected its surpassing light from an exquisitely-polished parabolic surface of silvered copper. It was not merely figuratively but literally true, that a piece of lime, not bigger than a boy's marble, emitted a light at Londonderry which was visible at Belfast—a distance in a direct line of nearly seventy miles. On a later occasion Colonel Colby made a lime-light signal visible from Antrim in Ireland to Ben Lomond in Scotland, a straight-line distance of 95 miles. See LIGHT-HOUSES.

Dry Distillation. This term is applied to the distillation of substances *per se*, or without the addition of water: thus if we put wood into a retort or other distillatory apparatus, and subject it to heat, it yields tar, vinegar, water, and various gaseous and other matters. See DISTILLATION.

Drying Machines. The drying process, by centrifugal agency, is of very wide application. Bleachers, dyers, and calico-printers use it. The wet mass of cloth or yarn is put into a hollow cylinder; this cylinder is made to revolve from 1 to 2 thousand times in a minute; the moisture is driven from the cloth with great violence; openings are left to afford an exit for this water into an outer vessel, and in a few seconds the cloth is nearly dry. Nothing but actually witnessing the process, can convey an adequate idea of the rapidity of this drying process. In some of the baths and laundries now established, machines of this kind are employed to supersede the hard necessity of "wringing" the wet linen—a great boon to the poor women who avail themselves of these advantages.

Dry Rot. A most destructive, and apparently infectious disease in timber, which, by decomposing the fibres, deprives it of all strength, and in no great length of time, reduces it to a mass of dry dust; a circumstance from which it seems to have derived its name, which, perhaps, would be better expressed by that of *sap rot*.

Though this disease must from its nature have been co-existent with the timber-trees, it would not seem to have excited much attention, and perhaps was not known, certainly not by its present name, before the middle of the last century; at some period, we rather think, of Sir John Pringle's presidency of the Royal Society of London. But for a long time after this little notice appears to have been taken of it; its ravages being, in all probability, inconsiderable, in comparison with what they have been of late years. Even now, the disease is, in fact, chiefly confined to modern-built houses and modern-built ships, and more particularly to the ships of the navy. The proximate cause of it has, therefore, rightly enough, as it would seem, been ascribed to the unseasonable state of the timber, when placed in certain situations, and under particular circumstances. It could not fail, in the course of the late long-protracted war, to become a matter of general observation, that a more rapid decay than usual had become almost universal throughout the fleet, and especially among the newest and most recently repaired ships. Many anxious inquiries were instituted, and experiments made, with the view of ascertaining the real cause of a decay, the further prevention of which was so highly important to the national welfare and security. The alarm was greatly increased when, in 1810, the *Queen Charlotte*, a first rate ship of war, shortly afterward launched at Deptford, was discovered, after a close examination, to have all her upper works infected with the *dry rot;* or, in other words, the ends of most of the beams, carlings, and ledges, the joinings of the planks, etc., were observed to be covered with a mouldy, fibrous, and reticulated crust, and the parts of the timber so covered to be perfectly rotten. All the newspapers and journals of the day were filled with this alarming fact, and, in consequence thereof, a multitude of *dry rot* doctors proffered their assistance: one having a nostrum for eradicating the disease where it had made its appearance, and another for preventing its further approach. Some of these specifics were expensive and inconvenient, many of them impracticable of application, and most of them futile and objectionable in one way or another. These doctors, in fact, like the physicians for the human body, when the seat of the disease is unknown, were laboring altogether in the dark, having no other guide to direct them than their own whims and fancies, each being ignorant of the effect of the respective experiments which they wished to try on this diseased machine.

Process of the Common Rot.—Authors are at variance among themselves, whether the *common rot* in timber, or the *dry rot*, be not one and the same disease. A little reflection, however, will, we conceive, lead us to consider them as essentially different, both in the symptoms, the progress, and the causes, though the *effect* of destroying the fibre of the wood is pretty nearly the same. If a post of wood, for instance, be driven into the ground, seasoned, or unseasoned, it will speedily begin to decay just at the surface of the ground, or, as it were, between the earth and the air; if driven into the earth through water, as in a pond, the decay will commence at the surface of the water, or, as it is technically expressed, between wind and water, while all above water, and all that is constantly immerged in the water, as well as the part in the earth, will remain sound. Thus, also, a beam of wood let into a damp wall, will begin to rot just where it enters the wall; so will wooden bannisters when they are let through the top and foot-rails. In these, and similar cases, the rot begins externally, and its progress is inward, and is more or less accelerated by the alternate action of wind, heat, and moisture, being *greatest* when the alternatives of exposure to wet and drought are most frequent, and *least* when constantly immersed in water, or constantly preserved in a dry atmosphere. Such we believe to be the usual process of the *common rot* in wood, and it is evidently occasioned by alternate exposure to the vicissitudes of the weather, to moisture and dryness, to heat and cold.

Process of the Dry Rot.—If the same post be well charred, or covered over with a thick coating of paint, or varnish, or tar, no such effect will be produced *externally*, the coating being sufficient to protect it against the action of the weather; but if it should happen to be a green, or unseasoned piece of wood so tarred or painted, in no great length of time the wood will be found to have begun to decay *internally*, while the outer surface appears uninjured, but at length it will also yield to the disease. If this piece of wood had been placed in a warm cellar or close room, where there is little or no circulation of air, and more particularly if the room or cellar were damp, there would be perceived, in no great length of time, a fine mouldy coating spread over its surface, of a brownish yellow or dirty white; and shortly afterward it would be found, on examination, to resemble in its form and structure some of the beautifully ramified *algæ*, or sea weeds; which, in process of time would become more compact, the interstices being so completely filled up as to give the whole mass the appearance and consistence of leather. "At first," says one writer, "its appearance is that of fine fibres running on the surface in endless ramifications, resembling the nervous fibres of leaves; presently the interstices are filled up with a spongy or leather-like substance, assuming the character of cryptogamous plants distinguished by the name of *fungus*."

By Mr. Wade, the general symptoms of *dry rot* are thus described: "The wood at first swells; after some time it changes its color, then emits gases which have a mouldy or musty smell. In the more advanced stages of it the mass arises, and cracks in transverse directions. Lastly, it becomes pulverulent, and forms vegetable earth; and, generally, in some of these stages of decay, the different species of fungus are found to vegetate, on the mass."—*Treatise on the Dry Rot in Timber*, by THOMAS WADE.

These appearances do not invariably take place, the surface of the diseased timber sometimes remaining unchanged, while the process of rotting is going on within; they are, however, pretty constant. But however sound the surface may be, it will appear, on examining the piece of wood, placed in a situation similar to those above mentioned, that the whole of the interior fibres are decomposed, and become a mass of dust inclosed within a thin external shell. No charring of the surface, no paint, tar, or varnish, will prevent this process from taking place, when the seeds of the dry rot exist, and are placed in a situation favorable for their growth, though they may prevent the external character of mouldiness from taking place on the surface.

Characteristic Difference of the two Rots.—The symptomatic difference, then, between the common rot and the dry rot may perhaps be thus defined: *Common rot* is a disease in timber, occasioned by the alternations of the weather acting on its surface, and destroying its fibres externally inward. *Dry rot* is a disease in timber, occasioned by being shut up in warm, close, and moist situations, the effect of which is to destroy its fibres by a process acting internally outward.

Causes of the Dry Rot.—Without stopping to inquire in what manner, and by what agency, chemical or mechanical, or both, the common rot acts on the external fibres of the wood, the effect of alternate exposure to the weather is too well known to require any further proof as to its being the immediate cause. The immediate cause of the dry rot is equally obvious; but the predisposing state of the timber to contract the disease is not so clear a problem. Accordingly, theories without end have been hatched to explain the phenomenon. A writer in a public journal, who has slightly touched on the subject, thus explains it: "It is well known," he observes, "that if a piece of green wood be laid across a fire, the air within, expanded by the heat, will drive out at each extremity a viscous fluid, possessing the property of disposing itself on the surface in reticulated filaments. The same appearance of nervous foliation is not uncommon in the intermediate spaces of the concentric layers of the *alburnum* of wood; and the core or heart of trees, and particularly of the pitch-pine, after its passage in the heated hold of a ship, is often enveloped with a membranous corticle, like that which lies immediately beneath the bark. All these appearances are certain indications of the *dry rot*; and they point out, with sufficient clearness, that the *sap*, or principle of vegetation, brought into activity, is the *cause* of the disease; the *effect*, though infinitely more rapid, is the same as that of the common rot. It is still a problem, in what manner this sap circulates; but there is no doubt that the tubes and cells of the alburnum, or sap-wood, are filled with it in the spring of the year, and that they are empty in the winter; that it is organized matter, developing itself by heat in all the various forms of new bark, leaves, and branches. The stem of a tree cut down, will, on the return of summer, make an effort to push out leaves; a more feeble effort of this organized sap ends in the production of *fungus* only."—*Quarterly Review*, No. xv.

The real efficient cause of the dry rot, is that of the juices of the timber being brought into a state of putrefaction, occasioned generally by exposure to a moderate degree of heat and moisture in a stagnant atmosphere. "To favor this process," says Mr. Wade, "as much as possible, the air and water should not be renewed, as they undergo a decomposition, which takes place very slowly." From the structure of timber being composed longitudinally of an assemblage of pipes or tubes, it is only necessary that one end of a log of wood should be placed in a damp or wet situation, to occasion the moisture to be conveyed to the opposite end by capillary attraction; and hence arises the infectious nature of the disease, which will always spread wherever the moisture finds its way; and even where there is no moisture, it will be created by the filaments of the fungi working their way through the tubes of the dry wood and carrying it with them. Hence, also, the rapid decay in ships of war, from the great internal heat occasioned by the number of men, the moisture, and the close air. Hence, also, in houses, the *dry rot* always first appears in the lower apartments, where the floors, partitions, skirting-boards, etc., are supplied with moisture from the wet walls on the ground. In the London houses there is generally a room on the basement story, called the house-keeper's room, which is boarded, and carefully covered over with an oiled floor-cloth. In such a room the dry rot is sure to make its appearance. The wood absorbs the aqueous vapor which the oil-cloth will not allow to escape, and being assisted by the heat of the air in such apartments, the decay goes on most rapidly; and, as Mr. Wade observes, "if the seed of fungus be present, the plant is developed in all the superfluity of vigor exhibited in a hot-house, where the same means are resorted to, namely, an atmosphere scientifically and artificially heated, and highly charged with aqueous vapor." Timber may, in fact, have the seeds of dry rot within it, and yet by proper treatment be kept sound for a great length of time. Thus, ships laden with particular cargoes, afford remarkable instances of the effects of such cargoes on their duration. The warm moisture created by a cargo of hemp is communicated to the timber, and promotes a rapid putrefaction. Mr. Chapman says, that the ship *Brothers*, built at Whitby, of green timber, proceeded to Petersburg for a cargo of hemp. The next year it was found, on examination, that her timbers were rotten, and all the planking, excepting a thin external skin. A lading of cotton is always injurious to the ship, and even teak is affected by a cargo of pepper. The timber which is brought from America in the heated hold of a ship, is invariably covered over, on being landed, with a complete coating of fungus. It was the too general use of this timber in ships of the royal navy that at one time increased the disease to such an alarming degree. Those ships, on the contrary, which are employed constantly in the coal and lime-trade, are very durable, and have been known to last for a century. These effects are obviously to be ascribed to the exclusion of air in the one case from, and the free admission of it in the other to, the interior surface of the ship, assisted in the latter instance by the absorption of moisture by the coals and lime from the timber and planking.

Prevention of Dry Rot.—If we arrive at the right conclusion as to the *cause* of *dry-rot* in timber, we can be at no loss with regard to the mode of treatment for the *prevention* of the disease. The experiments for this purpose have been very numerous, but may be classed under three general heads; desiccation or seasoning; immersion in earth, sand, or water; and impregnation with some foreign matter, which will resist putrefaction.

The most simple and common mode of preventing the decomposition of vegetable matter, is by depriving it of moisture. Various schemes have been put in practice for drying the juices in large logs of timber. Time alone will do it when the wood is placed in favorable situations, that is to say, in a dry atmosphere, and constantly exposed to a free circulation of air; but time will also produce the rot in timber when piled up in stacks in the open air, imbibing moisture from the earth, and exposed to the vicissitudes of the seasons, and the alternatives of weather; scorched at one time by the heat of the sun, at another drenched with rain, and rent and split in every possible way by the freezing of the water which has insinuated itself into the pores and crevices of the wood. It was formerly, and, indeed, till very lately, the practice to let ships of war remain on the stocks *in frame* for two, three, or four years, to *season*, as it was called; but there never was so mistaken a notion. "When a ship," says Mr. Wade, "is built, exposed to the weather, the lower part forms a grand reservoir for all the rain that falls; and as the timbers in that part are placed as close together as possible, the wet escapes very slowly. Those timbers are always soaked with moisture, and, to some distance from the keel, exhibit a green appearance; their green matter, when viewed through a microscope, is found to be a beautiful and completely formed moss, which vegetates at the expense of the timber. If to season timber be only to dry it, the sooner it is dried the better; and when completely dry, it can not too soon be employed in ship-building, when it should be kept dry. It can not answer any end to have seven years' wear out of a ship on the stocks." At length our shipwrights are convinced of this truth, and the plan now generally adopted in ship-building is to protect the vessel by a roofed structure, with the sides open to admit a free current of air, but to exclude all moisture, as well as the rays of the sun (see DOCKYARDS); a practice which we have tardily adopted from the Swedes and the Venetians. A new system seems also to have been adopted in the piling of the timber stacks. Instead of their being placed on old, useless, and often rotten logs of timber resting on the ground, they are now insulated from the earth on stone or iron pillars; and in place of their surfaces coming in contact with each other, pieces of wood are placed between them so as to admit of a circulation of air. Nothing further appears to be wanting but to protect the tops and the ends of the stocks or piles from the effects of the weather.

Of the various modes of artificial and rapid desiccation, that of charring is perhaps the best; but it is liable to two objections; the first is, that if the surface be completely charred, it diminishes very much the strength of the timber; and, secondly, it the more readily attracts moisture. The juices of timber may be drawn off or hardened by kiln-drying; but this also disturbs the arrangement of the fibres, and deprives the wood of a great part of its strength.

Experiments—Seasoning Timber.—The experiments made by Mr. Lukin for the rapid seasoning of green oak timber, promised at one time much success, but ended in disappointment. He conceived, that if the acid and the watery particles were driven out of a piece of oak timber by some process which should prevent the surface from splitting, the fibres would be brought closer into contact, and whilst the log lost in weight it would gain in strength. With this view he buried a piece of wood in pulverized charcoal, in a heated oven. The log wore a promising appearance; the surface was close and compact; it had lost in its weight and dimensions; but when divided with the saw, the fibres were discovered to have started from each other, exhibiting a piece of fine net-work, resembling the inner bark of a tree.

The bad effects of applying artificial heat to the seasoning of green timber, were strongly exemplified by a practice introduced very generally into our ships of war which had exhibited indications of the dry rot, particularly in the *Queen Charlotte.* Enormous fires were made in stoves placed in various parts of the ship, and the heat led in tubes to the cavities between the timbers, etc. The consequence of which was, as might be expected, an increase of the mischief they were intended to prevent. Every part of the ship was converted into a hot-house, and every part where the seeds of fungi had been deposited began to throw out a luxuriant crop of mushrooms; and where these did not appear, the juices of the wood were thrown into a state of fermentation, and, in the course of a twelve-month, a great part of her upper works became a mass of rottenness. After staving the powder magazines of some of the ships, there appeared under their floors, which are contiguous to much moisture, numbers of large excrescences of a leathery consistence, of the size and shape of a quart glass-decanter; and in all such parts where two surfaces of the wood were imperfectly brought into contact, were whole masses of fungi.

Winter-felled Timber.—Another mode, of very ancient standing, was practiced for getting rid of the juices of timber. This was supposed to be effected by felling the tree in the winter season, when the sap had descended and the vessels were empty. By this practice the bark of the oak, so valuable in the process of tanning, was lost, as it will strip only from the wood in the spring of the year, when the sap is said to be rising. The supposed superior quality of the wood, when winter-felled, and the general practice of felling oak timber at that season, may be inferred from a statute of James I., by which it is enacted, that no person or persons shall fell, or cause to be felled, any oaken trees meet to be barked, when bark is worth 2s. a cartload (timber for the needful building and reparation of houses, ships, or mills, only excepted), but between the first day of April and the last day of June, not even for the king's use, out of barking-time, except for building or repairing his majesty's houses or ships.

The old *Sovereign of the Seas* is the standing example generally quoted to prove the beneficial effects of winter-felled timber. We are informed by one writer that, when taken in pieces, after 47 years' service, the old timber was still so hard that it was no easy matter to drive a nail into it, and all future writers have taken it for granted that this was owing to its being winter-felled. Mr. Pett, however, who built her, takes no notice of any such circumstance. He merely says he was commanded by the king, on the 14th of May, 1635, to hasten into the north to procure the frame-timbers, plank, and treenails, for the great new ship at Woolwich. But he left his son behind to ship the moulds, provisions, and workmen, in a hired ship, to transport them to Newcastle; that the frame, as it was got ready, was sent in colliers from Newcastle and Sunderland; and that, on the 21st December, *in the same year*, the keel was laid in the dock; and in less than two years after this she was launched. Now, as it was the middle of May before Mr. Pett received his majesty's commands to procure timber for this ship, and as she was on the stocks the same year, it is not very probable that the timber procured and sent in colliers from Newcastle to Woolwich, was felled in the winter; much less could it have been "stripped of its bark in the spring, and felled the *second* succeeding autumn," as Mr. Wade has it.

Neither is there the least proof of the old *Royal William*, recently broken up, when a century old, being built of winter-felled timber. The fact is, that she was rebuilt half a dozen times, and the only old and original timber remaining in her was in the lowest part of her hull, always immersed in the salt-water externally, and washed with the bilge-water internally; and the wood from this part of her, when broken up, was perfectly sound, but quite black, having the appearance of being charred.

As far as experiments have been made, there is no reason to conclude that timber felled in the winter is at all more durable than that which is felled at the usual time. In the year 1793, the *Hawke*, sloop-of-war, was ordered to be built, one side being of timber that had been barked in the spring and felled in the winter, and the other side with timber felled at the usual time. In 1803 she was reported to be in so bad a state of rottenness, that she was ordered to be taken in pieces, when no difference whatever could be discovered in the state of the timbers of the two sides. It is said, however, in Derrak's *Memoirs of the Navy*, "that the timber had been stripped in the spring of 1787, and not felled until the autumn of 1790," and this is given as an explanation of the failure. Why the barking in the spring should add to the durability of timber, is not easily conceived, if the object be to fell the timber when all the sap-vessels are empty, as, if the sap *descends* at all, which is doubtful, it might be expected to descend more freely when the bark is on than off the tree. This subject has not escaped the attention of the commissioners of the royal woods and forests, and various experiments have been made with a view to throw more light on a subject so vitally important to the British Navy. In France, so long ago as 1669, a royal ordinance limited the felling of timber from the 1st October to the 15th April; and the conservators of the forests directed that the trees should be felled when the "wind was at north," and "in the wane of the moon;" and we find an instruction of Bonaparte, that "as ships built of timber felled at the moment of vegetation must be liable to rapid decay, and require immediate repairs, from the effect of the *fermentation of the sap* in those pieces which had not been felled at the proper season;" the agents of the forests should abridge the time for felling naval timber, which should take place "in the decrease of the moon, from the 1st November to the 15th March."

Immersion in Earth, Sand, or Water.—The facts are so numerous and so strong in favor of the durability of timber when steeped in water, or buried in earth or sand, that no doubt whatever can be entertained of the efficacy of such a practice. At Brest, all the timber used in ship-building is deposited in the narrow creek of the harbor which runs through the middle of the dockyard, and it is said that the Brest-built ships never had the dry rot. The same practice prevailed at Cadiz and Carthagena. Indeed there is reason to think that steeping in fresh water is a preventive of dry rot, probably by dissolving the juices of the timber. It was an ancient practice, and we believe it is still followed in some parts of England, to place the timber intended for threshing-floors in the midst of a stream of water to *harden* it; and all the oak planks intended for the wainscoating of the old mansions were previously steeped in running water.

It is said, and there seems to be no reason for doubting the fact, that the planks of ships near the bows, which are obliged to be boiled in water or steam in order to bend them, are never infected with the dry-rot: if the water in which they are boiled be strongly impregnated with salt, the effects would probably be more durable and decisive.

In a lecture read by Mr. Ogg, a salt-refiner, to the Plymouth Institution, on the prevention and cure of dry rot in ships of war, common salt is strongly recommended, for its cheapness, its wholesomeness, and its easy application; but he proposes a saturated solution of salt, in which he would steep not only single logs or planks, but the whole frame of a ship, or even the ship itself. "Let every ship in the navy," says the salt-refiner, "be immersed a sufficient time in this fluid, and let every new ship be prepared in the same way, and dry rot would be heard of no more. But how is this to be accomplished? I answer, provide a dock or docks sufficiently capacious to receive five, ten or twenty ships, and the work is done." As common sea-water will answer the purpose equally well, the apparatus of extensive docks and water saturated with salt are wholly unnecessary. But Mr. Ogg, like Mr. Bowden, appears to mistake the real cause of dry rot. "I affirm," says he, "that dry rot is occasioned by the vegetative principle; brine will destroy this principle; then sink the ship in brine." The experiments in the case of the *Resistance* and the *Eden* show that brine is not necessary.

The Dutch having observed that their busses, in which the herrings were caught and stowed away in pickle, lasted longer than any other craft, adopted the practice of filling up the vacancies between the timbers and planks of ships with salt, and of boring holes in the large timbers and cramming them full of salt. The Americans also found, that the ships employed in carrying out salt for their fisheries and domestic purposes, were the most durable; and both they and the Dutch are glad to get a cargo of salt into a new ship, as the surest means of preserving her. The carpenter of the *Franklin*, an American 74 gun ship, when at Spithead, told some of her visitors, that at the junction of the beams, and at the butt end of the timbers, pieces were cut, and the hollow part filled with salt, and covered with felt, for the purpose of preserving those parts where two surfaces are imperfectly brought together, from the dry rot, where it is always most prevalent.

There are, however, very serious objections to the immersion of ships in a strong solution of salt, and the practice of inserting salt in the vacant space between the timbers, which may not, perhaps, apply with equal force to their immersion in sea-water. It is observed by a writer in the *Quarterly Review* for October, 1814, that "the attraction for moisture which salts and acids possess, would keep the whole interior of the ship dripping wet; which would not only destroy the ship with the wet rot, but the ship's company also, whose health, experience has proved, is best preserved by keeping the ship as dry as possible; and thus the remedy would be worse than the disease." These bad effects have unquestionably been experienced, the muriate of magnesia, which exists in sea-water, being one of the most deliquescent salts; but whether the abstraction of moisture from the atmosphere be of long duration, is a fact which remains to be proved. In corroboration of the injurious effects above described, Mr. Strange in his *Evidences*, observes, "that the practice at Venice of the fresh cut timber being thrown into salt water prevents its ever becoming dry in the ships, and that the salt water rusted and corroded the iron bolts." Mr. Chapman also observes that "the *Florida*, a 20 gun ship, taken from the Americans, and subsequently commissioned in the British service, had been salt-seasoned; and the result was, that in damp weather every thing became moist, the iron-work was rusted, and the health of the crew was impaired; in fine," he adds, "vessels so circumstanced are perfect hygrometers; being as sensible to changes of the moisture in the atmosphere as lumps of rock salt, or slips of fuci, or the plaster of inside walls where sea-sand has been used."

Mr. Chapman, however, is of opinion, that vessels impregnated with bay-salt, or the large grained salt of Limington or of Liverpool, (being pure muriate of soda, without admixture with the bitter deliquescent salts), will possess decided advantages, as would also vessels laden with saltpetre, if it has been dispersed among their timbers; and Mr. Ogg sees no difficulty in refining salt so as to deprive it of its deliquescent quality. But if a very weak solution of salt, or even fresh water, shall be found to answer the purpose, the objection against immersing timber in sea-water seems to be got rid of. That it will immediately destroy all vegetable life in the delicate fibres of the fungus, and also prevent its future growth, is quite clear; and if it shall be found to prevent also the putrefactive process, it may be considered the most advisable way to prepare timber for all purposes of house carpentry, and ship-building.

Impregnation of Timber with Foreign Substances.—A great variety of substances besides common salt, indeed almost any salt or acid, will destroy and prevent the growth of fungus. Sir Humphrey Davy recommends a weak solution of the corrosive sublimate as the most efficient. A solution of sulphate of iron or copperas, is much used in Sweden for hardening and preserving wood for wheel-carriages, etc. It is boiled in this solution for three or four hours, and then kept in a warm place to dry, by which process it is said to become so hard and compact that moisture can not penetrate it. "The wooden vessels," says Mr. Chapman, "in which the sulpho-ferruginous solution is finally placed for the copperas to crystallize, become exceedingly hard and not subject to decay." A solution of alum has been recommended; but Mr. Chapman seems to think that its earthy basis would become a nidus of putrefaction. The wood, however, which is used about alum works, becomes hard and durable, and resists fire in an extraordinary manner. All timber, in fact, when completely saturated with saline matter, is more or less indestructible, and absolutely incombustible. A solution of arsenic has not been found to prevent the dry rot. With regard to the impregnation of oils, there are various opinions, some thinking them beneficial, and others injurious to the durability of timber. It is known, however, that ships in the Greenland trade have their timbers and planks preserved as high up as they are impregnated with whale oil from the blubber; and Mr. Chapman says, that one of the masters of a Greenland ship having payed her upper works with twelve or more successive coats of whale oil in hot weather, they became covered with a thin varnish, much harder and more compact than if filled with successive coats of turpentine. Resinous substances, however, are probably better than oil.

After a variety of experiments and sensible observations, Mr. Chapman sums up the three great operations by which timber may be brought to resist the tendency to dry rot. 1. To deprive the timber of its mucilage, which is very liable to fermentation. 2. To impregnate timber with any strongly antiseptic and non-deliquescent matter. 3. To dry timber progressively by the sun and wind, or by the latter alone; and then to close its pores completely with any substance impervious to air and moisture, and at the same time highly repellant to putrescency.

Mr. Wade recommends the impregnation of timber with sulphates of copper, zinc, or iron, rejecting deliquescent salts, as they corrode metals, and would destroy the bolts and metal fastenings of a ship. He observes, that timber impregnated with saline matter is no longer capable of fermentation, and that, of course, the gases necessary for the nutriment of fungi are not evolved. Selenite is recommended as being insoluble, or nearly so, and not liable to any alteration in the ordinary temperature of the atmosphere; but all salts, he observes, composed of barytes, should be rejected, because, though they are plentiful, cheap, and have some qualities eminently fitting them to be employed for this purpose, yet they are, without any exception, very poisonous.

From all experiments that have been made, it appears that the most effectual method of preventing the dry rot, and of giving durability to timber, is that of depriving the sap of its mucilage, more especially in the alburnum, where it most abounds; for though seasoning in the dry way will coagulate and harden the extractive matter of timber, yet when exposed to heat, moisture, and a stagnant air, the process of putrefaction will commence, and all the symptoms of dry rot will speedily make their appearance. It will be preferable, therefore, that such timber as is likely to be exposed to the vicissitudes of weather, should be seasoned by immersion or impregnation, rather than by the dry way.

Cure of the Dry Rot.—In this disease, as in those incident to animal life, prevention is much easier than cure. In fact, there is no other cure for the part affected than excision, and the sooner it is done the better, as the disease spreads most rapidly when fungi are propagated, throwing their minute fibres into the tubes of the contiguous sound wood, and producing that moisture which is a condition absolutely necessary to the putrefactive process. If, however, the fibre of the wood is still sound, and the roots of the fungi extend not beyond the alburnum near to the surface, immersion in sea-water, as in cases of the *Resistance* and *Eden*, or impregnation with some of the solutions above mentioned, may stop the progress of the disease; but the only safe cure, we apprehend, is that of cutting out the infected part. The sinking of the *Royal George* at her moorings has not been the means of preserving her timbers. On being visited in the diving-bell, her oaken sides were broken down into a confused mass of timber and black mud; having, no doubt, been too far gone in decay, when the fatal accident happened; but her fir deck appeared as sound as the day when she sunk.

Miscellaneous Observations.—It is a great mistake to suppose that the ancients were unacquainted with the dry rot or premature decay of timber. Pliny has a number of valuable observations on the preservation of timber, and on its decay occasioned by the juices; and, among other things, recommends that a tree should be cut to the heart all round, in order to let the juices escape, and that it should not be felled until the whole had run out. He knew that the sappy part of oak was more subject to rot, and advised that it should be cut away in squaring. He knew, too, that resinous and oleaginous matter in wood preserved it; observing, that the more odoriferous a piece of timber is, the more durable. He knew that much depended on the close texture of timber, and that box, ebony, cypress, and cedar might almost be considered as indestructible. We also know that cedar, teak, and mahogany, are very durable woods.

The felling of timber while young and full of vigor, making use of the sap-wood or alburnum, and applying it to ships and buildinge in an unseasoned state, have, no doubt, contributed to make the disease of dry rot infinitely more common and extensive than it was in former times, when our ships were "hearts of oak," and when in our large mansions the wind was suffered to blow freely through them, and a current of air to circulate through the wide space left between the panneled wainscoat and the wall. In those old mansions which yet remain, and in the ancient cathedrals, we find nothing like the dry rot, though perhaps

——————— perforated sore
And drill'd in holes, the solid oak is found
By worms voracious eaten through and through.

Numerous examples of the extraordinary duration of timber may be produced, both from complete desiccation and exposure to the air, and from the complete exclusion of air and immersion in earth or water. Without adducing the surturbrandt of Iceland, covered with several strata of solid rock, or the logs of wood dug out of peat-moss, the antiquity of which is mere conjecture, we may instance the mummy-cases of Egypt as being in all probability the most ancient timber in existence that has been worked by the hand of man. When Belzoni entered the splendid tomb of the kings of Thebes, in which was the transparent sarcophagus of gypsum, he found two human figures larger than life sculptured in wood, in as good preservation as if it had been worked in his own time; but the sockets of the eye, which had been copper, were entirely wasted away. We are told by Pliny, that the image of Diana at Ephesus, supposed to be of ebony, remained entire and unchanged, though the temple itself was ruined and rebuilt seven times. He adds that, in his own time, the image of Jupiter in the capitol, made of cypress wood, was still fresh and beautiful, though set up in the year after the foundation of Rome 551, nearly three hundred years before. He further says that there was a temple of Apollo at Utica, the timbers of which, being of Numidian cedar, are said to have stood 1188 years. The roof of Westminster Hall, which is constructed of oak, has stood for more than three hundred years, and is probably better now than when newly erected. Similar instances of the long duration of timber have occurred in situations where the atmospheric air has been excluded. In the Leverian Museum was a post said to be dug out of Fleet Ditch, charred at the lower end, having the name of Julius Cæsar cut into it. The foundation on which the stone piers of London Bridge are laid consist of huge piles of timber driven close to one another, on the top of which is a floor of planks ten inches thick, strongly bolted together; on these the stone piers rest, at above nine feet above the bed of the river, and, at low water, may be seen or felt at a very few inches below the surface. These piles have been driven upward of six hundred years, and, from the solidity of the superincumbent weight, it may be concluded that they are perfectly sound. In the old city wall of London, timber is frequently dug out as sound and perfect as when first deposited there. As the last instance of the extraordinary preservation of timber, we may mention that in digging away the foundation of the Old Savoy Palace, which was built about six hundred and fifty years ago, the whole of the piles, consisting of oak, elm, beech, and chestnut, were found in a state of perfect soundness, without the least appearance of rottenness in any part of them, and the plank which covered the pile-heads was equally sound. Some of the beech, however, after being exposed a few weeks to the air, but under cover, had a coating of fungus spread over the surface; which affords a striking proof of the immense length of time that the seeds of this parasite will remain dormant, without parting with the principle of vegetable life, which is called into activity from the moment that they are deposited in a situation favorable to their growth. In this instance we have only to suppose that the indurated juices of the wood became dissolved by its exposure to the moist atmosphere, and the phenomenon of fungous vegetation is capable of receiving a satisfactory explanation.* Communicated to the *Encyclopædia Britannica*, by SIR JOHN BARROW, Bart. See *Am. Jour. Sc.*, ii., p. 114, xxxiv., p. 169; *Westminster Rev.*, x., p. 414; *London Quar.*, xii., p. 227, xxx., 216; *Monthly Rev.*, lxxxvi., 361, xc., 387; URE's *Dict. Arts.*

Dubber, or **Dupper**, a leathern vessel, bottle, or jar, used in India to hold oil, ghee, etc. Barrels, as already observed, are entirely a European invention. Liquids, in eastern countries, are for the most part packed for exportation in leathern vessels. Dubbers are made of thin untanned goat skins; and are of all sizes, from a quart up to nearly a barrel.

Dublin, the metropolis of Ireland, in the county to which it gives name, and province of Leinster, ranking in importance as the second city in the United Kingdom. It is distant 292 miles W.N.W. from London, 138 miles west from Liverpool, and 60 miles west from Holyhead, in lat. 58° 30′ 38″ N., and long 6° 7′ 13″ W., agreeably situate in the great central limestone district which reaches across the island from the Irish Sea to the Atlantic Ocean on the River Liffey, and extending to the junction of that river with the Bay of Dublin, the waters of which wash its suburban shores.

The population of the city of Dublin was estimated by Rutter, in 1753, at 161,088; in 1798, by Whitelaw, at 182,037, and was ascertained by the census of 1821 to amount at that period to 185,881, and by the census of 1831 to 204,155. The population of the city, according to the most recent enumerations, in 1841 was 232,726, and in 1851 it was 258,361.

In order still further to promote the commercial interests of Dublin, an association was formed about thirty years ago, under the name of the Chamber of Commerce, which soon decayed; but the idea was revived in 1820, when a number of merchants formed themselves into a society under the same name, which still exists. Its objects are the protection and promotion of the manufacturing and commercial interests of Dublin, and of the country in general. The business is transacted by a president, vice-presidents, and committee, instructed to communicate with the officers of government on the subjects of the association. Their office is held in the Commercial Buildings. The Ouzel Galley is another voluntary association of merchants for determining commercial differences by arbitration. It takes its name from that of a vessel, which was the occasion of a complicated and protracted suit, that was ultimately adjusted in an amicable manner by the interference of some of the most respectable merchants in Dublin. The effect of steam navigation on the cross-channel trade has produced a great alteration in the state of commerce in Dublin.

The Bank of Ireland was formed in 1783 in order to give security to commerce. It was opened at first in some old houses in Mary's Abbey, with a capital of £600,000, which was afterward increased to £3,000,000. In the year 1802 the parliament house was purchased by the directors, and adapted to its present destination. This edifice was erected in 1729; and notwithstanding the changes made in it since it was diverted from its original purpose, the exterior has been but little altered. It consists of three fronts. The principal, toward College Green, a colonnade of the Ionic order, formed of a façade and two projecting wings, is much admired for the noble simplicity of its elevation. The western front, a portico of four Ionic columns, was connected with the other by a colonnade of the same order, forming the quadrant of a circle. The eastern front, which was the entrance of the House of Lords, was, by their special order, a colonnade of the Corinthian order, which the architect found great difficulty in uniting with the other parts. The apartment for the lords, a fine room, was hung with tapestry. That of the commons having been burned in 1792 (whether by accident or design has never been fully ascertained), was reconstructed after a more elegant design, in the form of a circle surrounded by pillars, between which was a gallery for hearers. This fine hall was taken down by the bank directors, and converted into a square room, now the cash-office.

---

* The process termed *kyanizing* is similar to that already noticed, as proposed by Sir Humphrey Davy—namely, steeping the timber in a solution of corrosive sublimate. This appears to be one of the best preservatives of wood in so far as dry rot is produced by a fungus. Mr. Bethell's method of preparing wood for fences, railway sleepers, piles, and other wood-work submerged in water, and for various similar purposes, is said to render timber of any description much tougher, and greatly to promote its durability. The process is as follows: The timber is placed in a strong close iron tank, which is filled with oil of tar and other bituminous matters containing creasote, and with pyrolignite of iron; the air is then exhausted by powerful air-pumps; after which more of the saturating fluid is forced in by hydrostatic pumps. When the wood has been subjected for six or seven hours to a pressure of from 100 to 150 pounds on the square inch, the process is complete, and the wood is found to weigh from 8 to 12 pounds per cubic foot heavier than before. It also preserves iron bolts driven into it from corrosion. Wood thus prepared has been used for sleepers on several of the great English railroads, and is said to have proved extremely durable. (See URE's *Dict. of Arts*, etc., vol. ii., p. 963.)

The commerce of the port of Dublin had increased so much toward the close of the last century that the accommodation afforded in the river for shipping was found insufficient, and the Irish parliament granted £15,000 for forming docks on both sides of it. The floating and graving docks, communicating with the grand canal on the south side, including a basin covering 40 statute acres, with a fine quay and store frontage of 7,500 feet, were opened in 1796; and St. George's, the latest of the custom-house docks, in 1821. These latter cover an area of 8 acres, having 16 feet depth of water, and 1200 yards of quay; they are capable of accommodating 40,000 tons of shipping, and the stores have space for 8000 casks of sugar and tobacco, and 20,000 chests of tea, with cellarage for 12,000 pipes of wine. The docks on the south side afford commodious wharfage for 100 sail of merchantmen and colliers, exclusive of that supplied by the river quays. The formation of the asylum-harbor at Kingstown, then Dunleary, which was commenced in 1817, gave additional aid to the commerce of the port, by the increased protection it afforded to shipping. The improvements made on the bar, in the erection of the great northern wall or breakwater, and the steam dredging of the bed of the Liffey by the ballast board, by rendering the channel sufficiently deep for the navigation of vessels of 1400 tons, has also contributed greatly to the same effect.

There were in 1852 belonging to the port, including steamers, 454 vessels, of every size, from 15 to 1200 tons; the registered burden amounting to 39,814 tons. Most of those vessels were employed in the coasting or cross-channel trade, there having been but 6 or 8 in that of the West Indies, the same number in that of France and the Spanish Peninsula, and 20 or 30 in the North American timber trade. The amount of customs collected averages about £950,000, and has not varied much during the last twelve years, the reduction of duties having more than balanced the increase in the quantity of articles imported.

"First impressions of Dublin," says Inglis, "are decidedly favorable. Dublin, for its size, is a handsomer city than London. Sackville-street will compare with any street in Europe; Merrion Square and St. Stephen's Green surpass in extent any of the squares in the British metropolis. There are points of view in Dublin, the quays, and some of the finest public edifices, more striking, I think, than any that are to be found in London; and although the Irish capital can boast of no St. Paul's, yet, in the architectural beauty of some of her public buildings, she has just reason for pride. I need but name the Custom House, and the Bank of Ireland with its magnificent yet classically chaste colonnades, in proof this assertion." There is much truth in this description, yet the chief advantage which Dublin has in picturesque beauty lies in the concentration of the objects of interest within a small compass, and further examination does not confirm the first favorable impression. Sir John Forbes, who visited Ireland in 1852, says: "I own myself to have been a good deal disappointed with Dublin as a city. To say nothing of its extent, it is greatly inferior in many other respects, not only to London, but to several towns in England, and some in Scotland. Its site is flat and monotonous, and its streets and squares possess no architectural beauty. The former, to be sure, are often very wide, and some of the latter, as Merrion Square and Stephen's Green, are of immense extent, but there is throughout a general want of elegance and grandeur. Most of the streets seem to want dignity, and the majority of the houses are common-looking, and even mean and dingy. While denying both beauty and grandeur to Dublin as a city, I must join in the universal judgment as to the splendor of many of its public buildings, as the Bank of Ireland—formerly the Parliament House, the Custom House, the Post Office, the Royal Exchange," etc.

Few cities present a more striking picture of the extremes of splendor and destitution than Dublin. A line drawn from the King's Inns in the north of Dublin, directly south, through Capel-street, the castle, and Aungier-street, will, together with the line of the Liffey, divide the whole area into four districts, materially different from each other in appearance and character. The south-eastern district, which comprehends three of the great squares, and the north-eastern, which includes the two remaining squares, are chiefly inhabited by the nobility, the landed gentry, and the liberal professions. These two districts present many symptoms of affluence and luxury. But on proceeding westward the scene suddenly changes. A considerable portion of the south-western district, which included the liberties of St. Sepulchre's and Thomas Court, and was formerly the seat of the silk and woolen manufactures, and also of the north-western portion of the city, are in a state of almost hopeless decay. The squalid misery visible in the ruinous portions of the city is relieved to the eye by the beauty of the environs of the city; and in its immediate vicinity is the Phœnix Park, of which the citizens are justly proud. It comprises an area of 1753 acres, within which are contained the Viceregal Lodge, the usual residence of the lord-lieutenant, with 160 acres of demesne and gardens, the chief and under secretary's lodges, and the lodges of the park rangers and their assistants, with their respective inclosed grounds, the Hibernian school for soldiers' children, the military magazine, the military infirmary, the zoological gardens, the constabulary barracks, etc. Inglis, a good authority on such subjects, pronounced this park as superior, both in extent and diversity of surface, to any public park, promenade, prater, or prado, belonging to any other European city. (WHITELAW and WALSH'S *History of Dublin;* THOM'S *Irish Almanac;* GILBERT'S *History of the City of Dublin*, 1854.)—E. B. *Dublin Univ. Mag.*, viii., xvi., iii., iv., v., vii.

Ducat, a foreign coin, either of gold or silver, struck in the dominions of a duke. The ducat was first coined by Longinius, governor of Italy, who revolted against the Emperor Justin the Younger, and made himself duke of Ravenna, calling himself *Exarcha*, that is, *without lord or ruler;* and he struck pieces of money, of very pure gold, with his own stamp, which, as Procopius relates, were called *ducati*, ducats. According to Du Cange, ducats were coined by Roger, King of Sicily, in the year 1240. The Venetian ducat was first struck by John Dandolo, in 1280, and inscribed with this legend:

> "Si Tibi, Christe, datus, quem Tu regis iste Ducatus."

Ducato (Cape), the modern name of the ancient Leucate, a promontory at the south end of Santa Maura, one of the Ionian Islands; celebrated as the rock from which Sappho precipitated herself into the sea.

Ducatoon, a silver coin, struck chiefly in Italy, particularly at Milan, Venice, Florence, Genoa, Lucca, Mantua, and Parma; though there are, also, Dutch and Flemish ducatoons.

Dundee, a seaport town of Scotland, county of Forfar, 42 miles N.N.E. from Edinburg; N. lat. 56° 2′; W. long. 3° 2′. It is situated on the north side of the River Tay, about 12 miles from its mouth. Population (1855) 78,931; and as a considerable increase has since taken place, it may now be estimated at 90,000 to 100,000. Dundee is thus the third town in Scotland in respect of population. The name applied to it by the earliest writers is Alectum or Taodunum. It was subsequently designated Deidonum, of which the present name is supposed to be a corruption. The early history of the town is involved in obscurity, but it appears to have been a place of importance as early as the 12th century. Frequent mention is made of it in connection with the disputes regarding the succession to the crown of Scotland; and it was the scene of severe conflicts between the English forces, who invaded the country in the reign of Edward I., and the Scotts, under the patriotic Wallace, and the other supporters of Scottish independence.

Dundee was at one time surrounded by strong walls, and portions of them are yet to be seen. The Cowgate port still stands, and is regarded with veneration as a memorial of George Wishart, the Reformer, who is said to have preached from it in the year 1544, when the plague prevailed, the sick being placed on one side of the wall, and the healthy on the other.

The ground on which the town is built slopes gently toward the river, and is bounded on the north by the Law of Dundee and the Hill of Balgay. The former rises to the height of 535 feet, and must in warlike times have been a strong position. The walls of a fortification are still to be traced on its summit. The town in general is irregularly built; but within the last 20 or 30 years several new and spacious streets have been opened up. The principal public buildings are the Exchange Reading-Room; the Royal Arch, erected by public subscription to commemorate the landing of Queen Victoria in 1844, at a cost of nearly £8,000; the Public Seminaries; and the New Baltic Exchange Coffee-Room, a splendid specimen of the Flemish-Gothic style.

Within a comparatively recent period a number of important public undertakings have been completed. The Dundee and Newtyle Railway was opened for traffic in 1826; the Dundee and Arbroath Railway in 1838; and the Dundee and Perth Railway in 1847. By means of these railways, and of the Edinburg, Perth, and Dundee Railway, which joins the Dundee and Arbroath Railway by means of a ferry and branch line at Broughty Castle, four miles east from the town, Dundee has direct communication with all parts of the kingdom. There are two gas-light companies, each of them with a capital of about £50,000 invested in their works and apparatus. The Dundee Water Company was formed in 1846. Its capital is about £130,000. Its reservoirs are situated in the parish of Monikie, about 10 miles distant from the town; and from these an abundant supply of water has been procured.

The most important of the public works are the harbor and docks. Previously to 1815 the harbor was of very limited extent. In that year an act of Parliament was obtained for enlarging it, and erecting a wet-dock of 6¼ acres (King William's), a tide-harbor of 4¾ acres, graving-dock, and other accommodation suitable for the increasing trade of the port. The plan was afterward greatly enlarged, embracing new docks (Earl Grey's of 5¼ acres, and Victoria Dock of 14½ acres), patent slip, careening-beach, and additional tide-harbors. The Victoria Dock, though for some years open to vessels, is not quite completed. The quays are wide, and afford convenient berthage for about 70 vessels. On the south quay of Earl Grey's Dock, is erected a large crane, capable of raising 30 tons. It is used chiefly for lifting the boilers and heavy machinery of steam-vessels. Besides the ordinary branches of ship-building, the building of iron vessels is carried on at the port. Owing to the increased burden of the vessels now employed in the trade of the place, and the greater depth of water required by them, additional works at the harbor are projected. The cost of the docks and harbor was about £600,000.

The number and tonnage of vessels entered at the harbor for the year ending 31st May, 1854, was as follows:

Vessels in foreign trade,	652	Registered tonnage,		110,637
" coasting do.,	1,755	"	"	158,334
" river do.,	633	"	"	28,262
Total,	3,070			297,233

The following statement shows the progressive increase in the harbor and shipping dues. It was,

In 1780	£305	In 1815	£4,400
1795	965	1835	11,908
1805	1,272	1854	23,402

The staple trade of Dundee is the manufacture of linen and hemp fabrics, chiefly of the coarser descriptions. The manufacture of linens appears to have been introduced from Germany in the beginning of the last century. Insignificant in extent at first, it gradually increased till the close of that century, when, machinery having been applied to the spinning of flax, a great impulse was given to it. Spinning-mills were erected, and of these there are now about 60 in Dundee and its immediate neighborhood. Hand-spinning has been entirely superseded by mill-spinning. The coarser fabrics are still woven in hand-looms; but there are now six or seven large power-loom factories, and some smaller ones. The chief articles of manufacture are sheetings, sail-cloth, drills, dowlas, sacking, and bagging. Nearly one half of the quantity made is sent to London, Manchester, Glasgow, and Leeds, for home consumption. The remainder is exported, either directly or indirectly, to foreign countries. The manufacture of jute carpeting is also now carried on to a large extent. The number of persons employed in the linen trade of the place is estimated to be from 20,000 to 25,000.

The quantity of flax, hemp, codilla, and jute, imported for the year ending 31st May, 1854, was as follows: At the harbor, 54,341 tons; by railway, 11,406 tons; total, 65,747 tons.

The quantity of linen goods sent away for exportation and home-consumption for the same period, was as follows: Linens of all descriptions shipped at the harbor, 421,432 pieces; by railway, 686,110 pieces; total, 1,107,542 pieces.

Assuming the value of the material at £30 per ton, its total value used in manufactures will be £1,872,410. Assuming the value of the goods manufactured to be 60s. per piece, their gross value will be £3,322,626; and on this assumption, the balance of £1,450,216 represents the cost of the manufacture, including wages, the rents of premises, and machinery employed in it, and the profits of the manufacturers. From the foregoing statements, some idea may be formed of the rapid increase of the town in commerce, wealth, and population. Dundee is now the principal seat of the linen-trade of the United Kingdom, and its fabrics are to be met with in all quarters of the world. In proof of the prudential habits of the people, it may be mentioned that a national security savings-bank, opened in 1838, now contains upward of £70,000, lodged by 4,632 depositors.

The country surrounding the town is fertile, and well cultivated; and has shared largely in its prosperity, the rents having increased much, and the value of the land being augmented in proportion. With the natural advantages which it enjoys, and the energy and enterprise for which its inhabitants are distinguished, Dundee may be expected to maintain the position which it now holds among the commercial towns of the British Empire.—E. B.

Dunnage, in commercial navigation, loose wood, consisting of pieces of timber, boughs of trees, faggots, etc., laid in the bottom and against the side of the ship's hold, either, 1st, by raising the cargo when she is loaded with heavy goods, to prevent her from becoming too stiff (see BALLAST); or, 2d, to prevent the cargo, should it be susceptible of damage by water, from being injured in the event of her becoming leaky. A ship is not reckoned seaworthy unless she be provided with proper and sufficient dunnage.—FALCONER'S *Marine Dictionary;* ABBOTT (Lord Tenterden) *on the Law of Shipping*, Part iii., c. 3.

Duplicate, a copy or transcript of any thing; as of a deed, letter, bill of exchange, etc. Duplication, the act of doubling; the multiplication of a number by 2. Also a folding; a fold.

Dupondius, in antiquity, a weight of 2 pounds, or money of the value of 2 asses.

Dust, or **Dustee**, a river of Persia, flowing from the interior through the province of Mekran, from the southern shore of which it falls into the Indian Ocean. Its course is supposed to extend, under different appellations, about 1,000 miles.

Dutch Gold, the commercial name of a coarse imitation of gold leaf, made of copper, of brass, or of bronze. It is chiefly used for ornamenting toys.

Dyeing (*Teinture*, Fr.; *Fārberei*, Germ.) is the art of impregnating wool, silk, cotton, hair, and skins, with colors not removable by washing, or the ordinary usage to which these fibrous bodies are exposed, when worked up into articles of furniture or raiment. We shall here consider the general principles of the art, referring for the particular dyes, and peculiar treatment of the stuffs to be dyed, to the different tinctorial substances in their alphabetical places; such as cochineal, indigo, madder, etc. Dyeing is altogether a chemical process, and requires for its due explanation and practice an acquaintance with the properties of the elementary bodies, and the laws which regulate their combinations. It is true that many operations of this, as of other chemical arts, have been practiced from the most ancient times, long before any just views were entertained of the nature of the changes that took place. Mankind, equally in the rudest and most refined state, have always sought to gratify the love of distinction by staining their dress, sometimes even their skin with gaudy colors. Moses speaks of raiment dyed blue, and purple, and scarlet, and of sheepskins dyed red—circumstances which indicate no small degree of tinctorial skill. He enjoins purple stuffs for the works of the tabernacle and the vestments of the high priest. The ancient Egyptians cultivated this art with some degree of scientific precision, since they knew the use of mordants, or those substances which, though they impart no color themselves, yet enable white robes (*candida vela*) to absorb coloring drugs (*colorem sorbendibus medicamentis*). Tyre, however, was the nation of antiquity which made dyeing its chief occupation and the staple of its commerce. There is little doubt that purple, the sacred symbol of royal and sacerdotal dignity, was a color discovered in that city, and that it contributed to its opulence and grandeur. Homer marks no less the value than the antiquity of this dye, by describing his heroes as arrayed in purple robes. Purple habits are mentioned among the presents made to Gideon by the Israelites from the spoils of the kings of Midian.

The juice employed for communicating this dye was obtained from two different kinds of shell-fish, described by Pliny under the names of *purpura* and *buccinum;* and was extracted from a small vessel, or sac, in their throats, to the amount of only one drop from each animal. A darker and inferior color was also procured by crushing the whole substance of the buccinum. A certain quantity of the juice, collected from a vast number of shells, being treated with sea-salt, was allowed to ripen for three days; after which it was diluted with 5 times its bulk of water, kept at a moderate heat for 6 days more, occasionally skimmed to separate the animal membranes, and when thus clarified, was applied directly as a dye to white wool, previously prepared for this purpose by the action of lime-water, or of a species of lichen called fucus. Two operations were requisite to communicate the finest Tyrian purple: the 1st consisted in plunging the wool into the juice of the purpura; the 2d, into that of the buccinum. 50 drachms of wool required 100 of the former liquor, and 200 of the latter. Sometimes a preliminary tint was given with coccus—the kermes of the present day—and the cloth received merely a finish from the precious animal juice. The colors, though probably not nearly so brilliant as those producible by our cochineal, seem to have been very durable, for Plutarch says, in his *Life of Alexander* (chap. 36), that the Greeks found in the treasury of the King of Persia a large quantity of purple cloth, which was as beautiful as at first, though it was 190 years old. The difficulty of collecting the purple juice, and the tedious complication of the dyeing process, made the purple wool of Tyre so expensive at Rome, that in the time of Augustus a pound of it cost nearly £30 of English money. Notwithstanding this enormous price, such was the wealth accumulated in that capital, that many of the leading citizens decorated themselves in purple attire, till the emperors arrogated to themselves the privilege of wearing purble, and prohibited its use to every other person. This prohibition operated so much to discourage this curious art as eventually to occasion its extinction, first in the western, and then in the eastern empire, where, however, it existed in certain imperial manufactories till the eleventh century.

Dyeing was little cultivated in ancient Greece; the people of Athens wore generally woolen dresses of the natural color. But the Romans must have bestowed some pains upon this art. In the games of the circus, parties were distinguished by colors. Four of these are described by Pliny—the green, the orange, the gray, and the white. The following ingredients were used by their dyers. A crude native alum mixed with copperas, copperas itself, blue vitriol, alkanet, lichen rocellus, or archil, broom, madder, woad, nut-galls, the seed of pomegranate, and of an Egyptian acacia.

But the vast superiority of our dyes over those of former times must be ascribed principally to the use of pure alum and solution of tin as mordants, either alone or mixed with other bases; substances which give to our common dye-stuffs remarkable depth, durability, and lustre. Another improvement in dyeing, of more recent date, is the application to textile substances of metallic compounds, such as Prussian blue, chrome yellow, manganese brown, etc.

The compound or mixed colors, are such as result from the combination of two different colored dye-stuffs, or from dyeing stuffs with one color and then with another. The simple colors of the dyer are red, yellow, blue, and black, with which, when skillfully blended, he can produce every variety of tint. Perhaps the dun or fawn color might be added to the above, as it is directly obtained from a great many vegetable substances.

1. Red with yellow, produces orange; a color which, upon wool, is given usually with the spent scarlet bath. To this shade may be referred flame color, pomegranate, capuchin, prawn, jonquil, *cassis*, chamois, *café au lait*, aurora, marigold, orange peel, *mordorés*, cinnamon, gold, etc. Snuff, chestnut, musk, and other shades are produceed by substituting walnut peels or sumach for bright yellow. If a little blue be added to orange, an olive is obtained. The only direct orange dyes are anotto and subchromate of lead.

2. Red with blue produces purple, violet, lilac, pigeon's neck, mallow, peach blossom, *bleu de roi*, lint-blossom, amaranth.

3. Red with black; brown, chocolate, marone, etc.

4. Yellow with blue; green of a great variety of shades, such as nascent green, gay green, grass green, spring green, laurel green, sea green, celadon green, parrot green, cabbage green, apple green, duck green.

5. Mixtures of colors, 3 and 3, and 4 and 4, produce an indefinite diversity of tints; thus red, yellow, and blue, form brown olives and greenish grays; in which the blue dye ought always to be first given, lest the indigo vat should be soiled by other colors. Red, yellow, and gray (which is a gradation of black) give the dead-leaf tint, as well as dark

orange, snuff color, etc. Red, blue, and gray, give a vast variety of shades; as lead gray, slate gray, wood-pigeon gray, and other colors, too numerous to specify.

The following list of dyes, and the coloring substances which produce them, may prove useful:

Red. Cochineal, kermes, lac, madder, archil, carthamus or safflower, brazil wood, logwood, periodide of mercury, alkanet.

Yellow. Quercitron, weld, fustic (yellow wood), annotto, sawwort, dyer's broom, turmeric, fustet (*rhus cotinus*), Persian and Avignon berries (*rhamnus infectorius*), willow, peroxyd of iron; chromate of lead (chrome yellow), sulphuret of arsenic, hydrosulphuret of antimony; nitric acid on silk.

Blue. Indigo, woad or pastel, Prussian blue, turnsole or litmus, logwood with a salt of copper.

Black. Galls, sumach, logwood, walnut peels, and other vegetables which contain tannin and gallic acid, along with ferruginous mordants; the anacardium of India.

Green. These are produced by the blue and yellow dyes skillfully combined; with the exception of the chrome green, and perhaps the copper green of Schweinfurt.

Orange. Annotto, and mixtures of red and yellow dyes; subchromate of lead.

Fawn, Dun, or *Root.* Walnut peels, sumach, birch-tree, henna, sandal wood.—URE'S *Dict. of Arts.*

Indigo and Cochineal.—In 1548 neither of these important dye-stuffs had made their way into Europe. Pliny mentions indigo under the name of *indicum;* but it appears to have been used by the Greeks and Romans only as a paint; yet there can be little doubt that in India it had been employed from time immemorial as a dyestuff. Cochineal could not be known till after the discovery of America. It was used by the Mexicans as a dyestuff. In 1523 Cortez received orders from the court of Spain to multiply this precious insect, to collect it and send it to Spain. Cochineal by itself gives only a *crimson* color; it dyes *scarlet* when mixed with a solution of tin. This fact was discovered accidentally by Cornelius Drebbel about the year 1630. He communicated his observation to his son-in-law Kuffelar, who was a dyer at Leyden. He soon brought the process to perfection, kept it a secret, and brought the scarlet color into fashion. Soon after, the same process was discovered by a German chemist called Keffler, who carried his secret to London in 1643. A Flemish dyer called John Kloeck got information of the process in 1647, and it gradually made its way through every country of Europe. Indigo, though a much more important dye-stuff than cochineal, did not make its way into general use without the greatest difficulty. The use of it was prohibited in England during the reign of Elizabeth; and the prohibition was not taken off till the time of Charles II. It was equally prohibited in Saxony, where it was styled in the prohibition a corrosive substance, and called food for the devil. Restrictions on the use of indigo in dyeing were imposed also in France, though it was not altogether prohibited, as it had been in England and Saxony. See BERTHOLLET, on *Dyeing;* BANCROFT, on *Colors.*

There has been much speculation among philosophical dyers respecting the nature of the coloring matters, and the way in which the different colors are induced by dyeing; but these speculations have not led to any information of much value. There is reason for believing that the coloring matters employed as dyestuffs are all transparent, and that the color is produced by their action on the light transmitted through them from the white fibres of the cloth. Those coloring matters that transmit all the rays equally leave the cloth white; if the blue ray be transmitted and the rest absorbed, the color of the cloth will be *blue,* and so on. This is all that we know about the mechanical nature of the dyestuffs.

With respect to the aptitude of being dyed, and the brilliancy of the colors thus communicated, there is found to be very great difference in different tissues. Animal substances are much more easily dyed than vegetable substances. Of animal substances, *silk* receives color, and the shades given are brighter and more beautiful than those which can be imbibed by any other tissue. Woolen cloth is also very fit for being dyed, and receives very brilliant colors with avidity; though in this respect it is inferior to silk. Cotton and linen are much more difficult to dye, and can not be made to imbibe such brilliant colors as silk or woolen. Thus the rich scarlet given to cloth by the combined action of cochineal and the oxyd of tin, has never been communicated to cotton cloth or linen. The Turkey-red dye, which is by far the finest and most permanent red that has ever been communicated to cotton cloth, is a crimson, or rather a crimson with a shade of brown. It has not the least approach to a scarlet.—E. B.

Dyke, or **Dike.** When a mass of unstratified or igneous rock, such as granite, trap, or lava, appears as if injected into rents and fissures in the stratified rock, so as to intersect the strata, it is called a *dyke. Dyke* is also the name given to a mound of earth, stones, or other materials, intended to prevent low land from being inundated by the sea, etc.; as the dykes of Holland.

E.

Eagle, in numismatics, a sort of base money which was current in Ireland in the early part of the reign of Edward I., that is, about the year 1272. There were also lionines, rosades, and many other coins of the same sort, named according to the figures with which they were impressed. The current coin of the kingdom at that time was a composition of copper and silver, in determinate proportions; but these were so much inferior to the standard of that time, that they were not worth, intrinsically, half so much as the others. They were imported from France and other foreign countries. When Edward had been a few years established on the throne, he set up mints in Ireland for coining good money, and then prohibited the use of eagles, and other kinds of base coin—making it death, with confiscation of effects, to import any more of them into the kingdom. Eagle is the designation of the principal gold coin of the United States—value equal to 10 dollars.

Earing, in nautical language, a rope attached to the cringle of a sail, by means of which it is bent or reefed.

Earnest, in commercial law, is the sum advanced by the buyer of goods in order to bind the seller to the terms of the agreement. It is enacted by the 17th section of the famous Statute of Frauds, 29 Charles II., c. 3, that "no contract for the sale of any goods, wares, and merchandises, for the prices of £10 sterling, or upward, shall be allowed to be good, except the buyer shall accept part of the goods so sold, and actually receive the same, or give something in *earnest* to bind the bargain, or in part payment, or that some note or memorandum in writing of the said bargain be made and signed by the parties to be charged by such contract, or their agents thereunto lawfully authorized." As to what amounts to sufficient earnest, Blackstone lays it down, that, "if any part of the price is paid down, if it is but a penny, or any portion of the goods is delivered by way of earnest, it is binding." To constitute earnest, the thing must be given as a token of ratification of the contract, and it should be expressly stated so by the giver.—CHITTY'S *Commercial Law,* vol. iii., p. 289.

Ear-ring, an ornament worn at the ear; a pendant or jewel suspended by means of a ring or a hook passing through the pendulous lobe of the ear. The use of this kind of ornament dates from the remotest antiquity, since the first mention of ear-rings occurs in the book of Genesis. Ear-rings of certain kinds were anciently, and still are, in the East, instruments or appendages of idolatry and superstition—being regarded as talismans and amulets. Such, probably, were the ear-rings of Jacob's family, which he buried with the strange gods at Bethel. This somewhat barbarous species of adornment was used (as it still is in some countries) by both sexes among many Oriental nations; especially by the Lydians, Persians, Babylonians, Libyans, and Carthaginians, as may be gathered from various ancient authors. Among the Hebrews and the Egyptians, their use appears to have been confined to women: but that they were extensively used by the men of various other nations is sufficiently proved by the Egyptian monuments. Among the Greeks and Romans ear-rings were worn only by females, and were sometimes of enormous value. It is a curious fact that the ears of the Venus de Medici, and of some other female statues, are pierced, as if for the purpose of bearing these appendages.

Earth, Figure of the. The determination of the figure and dimensions of the earth is a problem of very great importance in astronomy, inasmuch as it is in reference to the earth's diameter that the distances of the planets from the sun and from each other are estimated. It is also a problem of very great interest and curiosity; and has accordingly attracted the attention of mankind since the earliest dawn of civilization. There are two points of view under which this great question may be considered. The figure of the earth may be regarded as a fact to be determined by investigation and experience, like any other phenomena or law of nature; in which case it is necessary to find, by the actual measurement and comparison of different portions of the terrestrial surface, the nature of its curvature, and the magnitude of its diameters. Under the second point of view, the question is one of pure theory. The earth may be regarded as a congeries of material particles, attracting each other with forces reciprocally proportional to their mutual distances, and endowed with a rotatory motion about a fixed axis; and the problem is to determine the form the whole mass would assume in virtue of the attractive and centrifugal forces by which the particles are impelled. Viewed in this light, the actual figure of the earth becomes one of the series of consequences resulting from the universal gravitation of matter, and depending on the same laws which regulate its motion in its orbit about the sun.

It would be a waste of time to inquire what were the notions of the figure of the earth, which were or might have been entertained by its earliest and most ignorant inhabitants. A very slight attention to the most common phenomena renders the fact of its general roundness almost palpable to the senses. The uniform level appearance of the sensible horizon in every situation in which a spectator can be placed—the depression of the circum-polar stars as he advances toward the south, and their elevation as he proceeds in a contrary direction — the disappearance of a ship standing out to sea—the projection of the earth as seen in a lunar eclipse, and a number of other familiar appearances—put the globular figure of our planet beyond all manner of doubt. Reasoning from such appearances, the earliest astronomers universally regarded the earth as a sphere; and their attention was solely directed, in their various measurements and computations, to ascertain its dimensions. Modern science has discovered that its figure deviates slightly from that of a sphere, being compressed or flattened at the extremities of its axis of rotation; and the object of the astronomer, at the present time, is to determine not only its dimensions, but also the exact amount of its compression.

Attempts to estimate the magnitude of the earth were made at a very early date; for Aristotle relates that the mathematicians prior to his time had found the circumference to be 400,000 stadia. But Eratosthenes appears to have been the first who entertained an accurate idea of the principles on which the determination of the figure of the earth really depends, and attempted to reduce these principles to practice. His results, in consequence of the imperfect data from which they were deduced, were very inaccurate; but his method is the same as that which is followed at the present day, depending, in fact, on the comparison of a line actually measured on the surface of the earth with the corresponding celestial arc. He had remarked, or been informed, that at Syene in Upper Egypt, on the day of the summer solstice, at noon, objects cast no shadows; whence he concluded that the sun was exactly in the zenith at mid-day. On the same day, at Alexandria, he observed the sun's meridional distance from the zenith to be $7^\circ 12'$, or a 50th part of the circumference. Then, assuming Syene to be exactly under the meridian of Alexandria (the error in this assumption was about 3°), and the distance between the two places, measured in a straight line, to be 5,000 stadia, he had $5{,}000 \times 50 = 250{,}000$ stadia for the whole circumference of the earth. It is easy to see how very imperfect this operation must have been. Without mentioning smaller errors, the neglect of the solar diameter would alone occasion an uncertainty as to the sun's declination, and consequently as to the length of the celestial arc, amounting to half a degree on the observation at Syene; and there is no reason to suppose that that at Alexandria was more exact. The terrestrial distance between the two places was assumed on equally, or probably still more loose and inaccurate determinations.

The next attempt to ascertain the dimensions of the earth was made by Posidonius. This astronomer adopted a method which differed from that of Eratosthenes only in determining the celestial arc by means of the altitude of a star, instead of the sun's zenith distance. At Rhodes, the bright star Canopus, when on the meridian, barely appears above the horizon. At Alexandria the same star was observed to have a meridional altitude of a $\frac{1}{4}$ of a sign, or $7\frac{1}{2}$ degrees, which, therefore, was the celestial arc intercepted between the zenith of Alexandria and Rhodes. The terrestrial distance between the two places was estimated, like that between Alexandria and Syene, at 5,000 stadia, and they were both supposed to be under the same meridian. Hence, since $7\frac{1}{2}$ degrees is the 48th of the circumference, we have $5000 \times 48 = 240{,}000$ stadia, for the whole circumference of the globe.

It is impossible to form any correct opinion of the degree of approximation attained in these ancient measures, as the length of the stadium is not known with any certainty. That it varied in different places, and at different times, is sufficiently obvious from the statement of Ptolemy, who, in his work on geography, assigns the length of the degree at 500 stadia, and consequently the whole circumference at 180,000, differing from the determination of Posidonius in the proportion of 3 to 4, and still more from that of Eratosthenes. Ptolemy remarked that it was not necessary that the line measured should lie exactly in the meridian: it was sufficient to know its inclination to the meridian, or the azimuthal angle, together with the latitudes of its extreme points, in order to compare it with the meridional arc. The determination of the azimuth is, however, an operation of considerable difficulty; and Ptolemy has given no details of the method by which he proposed to estimate it. He has been equally silent in respect of the means by which the mean length of a degree was ascertained to be 500 stadia, so that the result which he has recorded is still less satisfactory than those of the two more ancient astronomers.

The active curiosity of the Arabians, which was exerted so successfully in promoting practical astronomy, did not overlook the measure of the earth. The Caliph Almamoun, who began his reign in the year 814, ordered a company of astronomers to measure a degree on the level plain of Mesopotamia. Dividing themselves into two parties, the one proceeded northward, and the other southward, in the direction of the meridian, through a degree of latitude, and measured with rods the itinerary distance as they proceeded. The perfect agreement of their conclusion with that of Ptolemy, throws it open to great suspicion; and when it is considered that their operation was repeated at a different place, with exactly the same result, there can be no doubt that they blindly adopted the statement of the Greek astronomer, either from inability to execute the task assigned to them, or because they had no confidence in their own determination.

From the time of Alamamoun, the problem of determining the dimensions of the earth was neglected, till the revival of astronomy with general learning in Europe. The first attempt to solve it was made by Fernel, who, about the middle of the 16th century, measured the distance from Paris to Amiens, along the high road, by observing the number of revolutions made by his coach-wheel in the journey between these two cities. Supposing them to be under the same meridian, which is nearly true, and having ascertained the difference of their latitudes, Fernel found by this means the length of the degree to be 57,070 French toises, or about 364,960 English feet. A degree was measured long afterward at the same place by Lacaille, in a far more adequate and scientific manner, and he found it to be 57,074 toises. This agreement is rendered the less extraordinary by the circumstance that the toise of Fernel was not exactly of the same length of that of Lacaille. After all, it must be allowed that Fernel made a fortunate guess. (DELAMBRE, *Astronomie*, tom. iii., chap. xxxv.)

But the first who had the merit of attempting to execute the geodetic operations that are indispensably necessary to effect the accurate measurement of a long line on the surface of the earth, was Willebrord Snell, a native of Holland, and a teacher of mathematics. Having established a chain of triangles between Alkmaer and Bergen-op-Zoom, and observed the angles of each triangle, by means of a quadrant of 5½ feet radius, he measured a base on the frozen surface of the meadows between Leyden and the village of Soeterwoud, and determined the distance between the two places by trigonometrical computation. The length of the degree which he found was 28,500 Rynland perches, or about 55,020 toises, which is about 2050 toises too small. This result was published by Muschenbroek, who in fact revised or calculated the observations from the original papers a century after the death of Snell.

Norwood, in the year 1635, attempted to measure a degree in England nearly in the same manner as Fernel. He measured the distance between London and York along the public road, taking the bearings and reducing the direction to the meridian in a rough way. The difference of latitudes he found by observations of the solstice to be 2° 28′, and thence concluded the length of the degree to be 367,176 English feet. Like the measurement of Fernel, this has been found to be a much nearer approximation than the method employed would have led us to expect.

The application of the telescope to circular instruments gave a far higher degree of precision to geodetic operations. Picard, to whom practical astronomy is indebted for this capital improvement, was the first who measured the arc of the meridian with such precautions and care as the delicate nature of the operation requires. He twice measured with wooden perches a base of nearly seven English miles in length; and observed the angles of his triangles with a quadrant, having a telescope adapted to it with cross wires in its focus. He even calculated the error produced by the instrument being placed out of the centre of the station, and determined the zenith distance of a star in the constellation Cassiopeia with a sector, for the purpose of obtaining the differences of latitude. The distance between Amiens and Malvoisine was found to be 78,850 toises, and the difference of latitude 1° 22′ 55″, whence the result gave for the degree at Amiens 57,060 toises; but as the aberration and mutation were unknown at that time, and the refraction was not taken into account—causes of error to which it is indispensably necessary to have regard—a determination which agrees so nearly with the results of recent measures could only have arisen from a fortunate compensation of errors. In fact, his toise was somewhat shorter than that which has since been adopted as the standard; and the error occasioned by this circumstance nearly compensated that which was committed in determining the celestial arc; so that in recalculating all the observations, the degree is found to be very nearly the same as was found by Picard.

French Experiments.—Hitherto geodetic operations had been confined to the determination of the magnitude of the earth; but a discovery made by Richer turned the attention of mathematicians to its deviation from the spherical form. This astronomer having been sent, by the Academy of Sciences of Paris, to the island of Cayenne in South America, for the purpose of determining the amount of terrestrial refraction and other astronomical objects, observed that his clock, which had been regulated at Paris to beat seconds, lost about 2½ minutes daily at Cayenne, and that, in order to bring it to measure mean solar time, it was necessary to shorten the pendulum by more than a line. This fact, which appeared exceedingly curious, and was scarcely credited till it had been confirmed by the subsequent observations of Varin and Deshayes, was first explained in the third book of the *Principia*, by Newton, who showed that it could only be referred to a diminution of gravity arising from one of two causes—a protuberance of the equatorial parts of the earth, and consequent increase of the distance from the centre, or from the counteracting effect of the centrifugal force, occasioned by the rotation of the earth. The former could not, on any reasonable supposition regarding the figure of the earth, be regarded as adequate to produce the effect; but the latter, which would produce a retardation of the pendulum at Cayenne in the ratio of the square of the sine of 6° to that of 49° (the respective latitudes of Cayenne and Paris), might amount to 1·46 seconds. This was the first direct proof of the diurnal rotation of the earth.

From this time the exact determination of the figure of the earth began to assume a degree of importance which had not formerly attached to it. The centrifugal force arising from the diurnal rotation completely set aside the idea of perfect sphericity. Newton, assuming that the earth had been originally fluid, and supposing its density to be the same throughout the whole mass, and supposing, moreover, that its constituent molecules attract one another in proportion to the inverse square of the distance, demonstrated that it would assume, in consequence of the rotation, the form of a spheroid flattened at the poles; and that the proportion of its equatorial to its polar axis would be 230 to 231. But the supposition of the equal density of the earth is obviously very improbable, and consequently the ratio of the equatorial and polar diameters must be different from that now mentioned. Newton erroneously concluded that if the density is greater in the interior of the earth than at the centre, the compression would be greater than in the case of a spheroid of equal density. This mistake was pointed out by Huygens, who, in order to determine the amount of the compression from theory, reasoned in this way. Suppose two tubes to be united at the centre of the earth, forming a right angle with each other at that point, and extending to the surface, one in the plane of the equator, and the other along the polar axis, and filled with a homogeneous fluid. Now the fluid contained in the polar branch exerts a pressure on the centre equal to the whole of its weight, while the pressure of that in the other tube will be diminished by the centrifugal force. The second column, therefore, if of the same length, will be less heavy than the first; and in order to restore the equilibrium, it is necessary that the equatorial tube shall have gained as much in length as it has lost in weight through the effect of rotation. Hence the sea in the equatorial regions must be higher, or at a greater distance from the centre, than the polar sea, and consequently the earth must have a flattened form. Calculating from the supposition that the density increases regularly from the surface to the centre, where it is infinite, Huygens found the ratio of the diameters to be that of 578 to 579. This investigation is given in his work *De Causa Gravitatis*, published in 1690.

French Theory.—The theoretical determinations of the form of the earth by Newton and Huygens were at variance with the results of geodetic operations that had been carried on in France under the superintendence of the first Cassini, from 1680 till 1716, for the purpose of making a geometrical survey of that country. Cassini found the degree of the meridian to the south of Paris to be 57,092 toises, while on the north of that city it was only 56,960 toises. This result led to the conclusion that the earth is a protracted spheroid, or elongated at the poles; a conclusion entirely inconsistent with the principles of hydrostatic equilibrium, and the deductions of Newton and Huygens. The question, however, was of too great importance to astronomy to be allowed to remain undecided. Accordingly, the Academy of Sciences of Paris determined to apply a decisive test, by the measurement of arcs at a great distance from each other. For this purpose, some of the most distinguished members of their body undertook the measurement of two meridional arcs, one in the neighborhood of the equator, and the other in a high latitude. In 1735, Godin, Bouguer, and La Condamine, proceeded to Peru, where they were joined by two Spanish officers, Don Georges Juan, and Antonio d'Ulloa, and, after ten years of laborious exertion, they measured an arc of above 3 degrees, between the parallels of 2′ 31″ north, and 3° 4′ 32″ south latitude. The other party, consisting of Maupertuis, Clairaut, Camus, Lemonnier, Outhier, and Celsius, were in some respects more fortunate, inasmuch as they completed the measurement of an arc near the polar circle, of 57 minutes, and returned to Europe within 16 months from the period of their departure. The measurement of Bouguer was executed with great care; and, on account of the locality (the extremities being on different sides of the equator), as well as the excellent manner in which all the details were conducted, it has always been regarded as a most valuable determination. The original base was determined twice, and the difference between the two measures was scarcely 2½ inches.

About the middle of the last century several arcs of meridian were measured in various countries, which, though of inferior importance in comparison of the more extensive surveys which have since been undertaken, are nevertheless deserving of enumeration. In 1751 Lacaille measured an arc at the Cape of Good Hope, whither he had gone for the purpose of determining the lunar parallax, and making other astronomical observations. At the latitude of 33° 18½′ he found the degree of the meridian to be 57,037 toises. This result was nearly the same as had been obtained in France, 10° further from the equator; and clearly proved either the existence of great local irregularities in the form of the earth, or the dissimilarity of the two terrestrial hemispheres. As theory recognized no such abnormal condition of figure, and on the other hand, Lacaille's observations, all the details of which had been preserved, appeared to have been carefully made and correctly computed, the result which they gave was for some generations a very *vexata quæstio* among all geodesists. After the lapse, however, of nearly a century, the arc has been lately remeasured under the auspices of the British government, with all the modern improved means and appliances; and an approximate calculation of the observations shows, that the greater part of Lacaille's anomaly was produced by *mountain attraction* on his plumb-line. (1855).

In 1751 the measurement of a terrestrial arc was undertaken in the Roman states, by the Jesuits Maire and Boscovich. It extended nearly two degrees between Rome and Rimini, and it was found that the degree of meridian between these parallels, namely, 42° and 44°, contained 56,973 toises. The details are given at length by Boscovich, in a work of great elegance, and entitled *De Litteraria Expeditione per Pontificiam ditionem*, etc. Romæ, 1755.

Liesganig, a Jesuit in 1762 also executed two measures of a meridional degree, one in Hungary and the other in the Austrian states; but it has been shown by Baron Zach, in his *Correspondence Astronomique*, vol. vii., that the results merit no confidence, and, in fact, would lead to certain error if employed as elements in determining the figure of the earth.

About the same time, in 1764, an arc of meridian was measured in North America, on the peninsula between the Chesapeake and Delaware bays, by two Englishmen, Charles Mason and Jeremiah Dixon. They employed no triangulation but measured the line with deal-rods along the whole extent of the arc, the mean latitude of which was 39° 12′. Their rods were afterwards compared with the five-feet brass rods made by Bird. The latitudes were determined with a zenith sector. The length of the degree, after the necessary corrections and reductions were made, was found to be 60,625 English fathoms, or 56,888 toises. There is no doubt that great care was bestowed on this operation; it is, however, easy to see that the measurement of so long a line by means of rods is liable to many causes of error from which the method of triangulation is exempt.

In 1762 Beccaria undertook to measure a degree in the plains of Piedmont. He found the degree of the meridian at the latitude of 44° 44′ to contain 57,468 toises; but great uncertainty remained respecting the correctness of the latitudes, the extreme points of the arc being in the near neighborhood of immense ranges of mountains, which could not fail to produce a very considerable deviation of the plumb-line. It was supposed that as both ends of the arc were terminated by mountain ranges, whereas Boscovich's arc had been carried across the Apennines and terminated at the sea coast, the errors of the two measures occasioned by the local attraction, being of opposite kinds, would neutralize each other, and give a correct mean result.

Amid the rapid advances of mathematical science toward the end of the last century, the determination of the figure of the earth was not overlooked. In the year 1783 a memorial was presented to the British government by Cassini de Thury, stating the important advantages that would result to astronomy and navigation, from having the difference of longitude of the Greenwich and Paris observatories determined by a geodetic measurement. Fortunately this proposal was agreed to. The English operations were placed under the superintendence of General Roy, who to active and indefatigable zeal united great skill and experience in practical astronomy and surveying. In the summer of 1784 a base of rather more than five miles was measured on Hounslow Heath. In the measurement of this base, deal-rods were first employed; but as these were found to warp, and be affected with the variations of the hygrometrical state of the atmosphere, glass tubes were substituted; and, in 1791, the same base was measured with a steel chain carefully made by Ramsden, yet the difference from the former measure was found to be only three inches. The mean result was 27,404·2 feet reduced to the level of the sea, and the scale being taken at the temperature of 62° of Fahrenheit. A chain of 32 triangles, in connection with this base, extended over the country to Dover and Hastings; and two more, stretching across the Channel, connected them with the French signals on the opposite side. The instruments employed in this survey were of the most excellent description, and far superior to any that had ever been employed in similar operations. The angles of each triangle were measured by a large theodolite constructed by Ramsden; and it was this splendid instrument that first exhibited the *spherical excess*, or the minute quantity by which, on account of the sphericity of the earth, the sum of the three angles of a triangle on the earth's surface exceeds 180°.

The French part of this great operation was conducted with equal ability by Cassini (the fourth of that name), Mechain, and Delambre. The angles were measured with the repeating circle of Borda; an instrument of a very different description from the theodolite, but which in geodetic operations may fairly be allowed to give, if not equally, at least sufficiently correct results, while in practice it is much more commodious. The result of the combined measures showed the meridian of Paris to be 2° 19′ 51″ east of Greenwich, or 9″ less than had been determined by Dr. Maskelyne.

Soon after this time, a series of geodetic measurements both in France and England, [and also in the United States, in 1805, for an account of which, see COAST SURVEY,] which, in point of extent, as well as minute accuracy, far surpassed all the operations which had yet been undertaken with a view to determine the figure of the earth. In 1791 the National Convention of France having agreed to remodel the system of weights and measures, determined to adopt a standard taken from nature, which might be universally applicable in all countries, and capable of being restored at any future age, if by accident it should happen to be lost. Two such standards were proposed, namely, the length of the pendulum, which makes a given number of vibrations in a given latitude; and the quadrant of the terrestrial meridian. Of these, the pendulum is by far the most easy to be determined; but it was objected, that as the length of the pendulum varies at different latitudes, and also depends in some degree on the geological character of the country where it is measured, its length, if it should happen to be lost, could not be recovered, without knowing the precise place at which it had formerly been determined. The length of the quadrant of the meridian is, however, invariable, and, if the earth is a regular spheroid of revolution, must be the same at all places. Accordingly the Convention chose the ten millionth part of the meridian from the equator to the pole as the unit of their new scale; and in order that this unit might be determined with the greatest possible precision, it was resolved to remeasure the meridian of the arc of Paris, and to extend it from Dunkirk to Barcelona, a distance comprehending altogether an arc of about nine degrees. The practical execution of this undertaking was confided to two astronomers of distinguished ability, Delambre and Mechain, by whom the requisite operations were carried on during the years 1792, 1793, and 1794, amid all the dangers and difficulties arising from the disorganized state of the country, with a resolution and courage of which the annals of science afford few examples. The triangles amounted to 115 in number. Each of the three angles of every triangle was separately observed with the repeating circle. The different observations, with the original registers and remarks of the observers, were compared by commissioners, among whom were some of the ablest men in France. A form was drawn up, after which all the calculations were made. The calculations of the triangles, as well as of the azimuths, were examined by Tralles, Van Swinden, Legendre, and Delambre himself. The triangles were connected in the neighborhood of Paris with a base of upward of seven miles in length, being 6075·9 toises, at the temperature 16¼ centrigrade, or 61¼ of Fahrenheit. A base of verification of 6006.25 toises was measured by Mechain, near Perpignan, at the southern extremity of the arc; and the measured length was found to differ by less than a foot from the length deduced by calculation from the first base, though the distance was more than 436 miles. A line of this length, measured with extreme precision, is obviously quite sufficient to enable us to infer, with all the requisite exactness, the length of the quadrantal arc; but the French astronomers resolved to extend the triangulation still further. Accordingly, Mechain repaired again to Spain, and in the year 1805 continued the chain of triangles from Barcelona to Tortosa, on the coast of the Mediterranean. At this place his labors were prematurely terminated by an epidemic fever. The prolongation of the arc was, however, committed to two philosophers of distinguished reputation, Biot and Arago. An immense triangle, one of the sides of which exceeded 100 miles, connected the coast of Valentia with the island of Iviza, which was joined by another triangle with Formentera, distant no less than 12° 22′ 13″·39 from Dunkirk, the northern extremity of the arc. The result of the whole gave a value of the quadrantal arc, differing somewhat from that determined by Delambre and Mechain, but so little that the length of the metre would be scarcely affected by four times the millionth part of itself. The details of this magnificent operation are given at length in the four volumes of the *Base Metrique*.

The English survey, which had been interrupted by the death of General Roy, in 1790, was resumed in 1793 under the direction of Colonel Mudge. The original triangles between Greenwich and Dover were extended along the coast to Dunnose in the Isle of Wight, and thence through Devonshire and Wiltshire, and connected with a base of verification measured on Salisbury plain. The length of this base was found, after the proper reductions, to be 36574·4 feet, differing scarcely one inch from the length deduced by calculation from the base on Hounslow Heath. So near a coincidence, though probably owing in some degree to a compensation of errors, affords a convincing proof of the extreme accuracy with which every part of the operation had been conducted. In 1802 the triangulation was carried into Yorkshire, and a meridian arc measured from Dunnose to Clifton. The latitudes at the terminal points were determined with Ramsden's zenith sector. The arc was afterward extended to Burleigh Moor, and has since been carried to the Shetlands. It may be remarked that both the French and English arcs present this singular anomaly, that when portions of them at particular places, are considered separately, the length of the degree appears to increase on going southward.

The survey has been continued, up to the present time, and the triangulation has been carried to the remotest parts of Scotland, and a considerable part of Ireland. In the course of the operations, several important improvements, both in respect of the instruments employed, and in the method of conducting geodetic measurements in general, have been introduced into practice. A base of upward of seven miles has been measured near Londonderry; and it now only remains to determine the latitudes of some stations, to give us the elements of a new and greatly prolonged arc.

In the years 1801, 1802, and 1803, Maupertuis' Swedish arc was remeasured by Svanberg, and extended nearly 40′ in amplitude. The methods were the same as had been employed by Delambre. The extremities of the new arc were at Mallōrn and Pahtawara. The distance was found to be 92,778 toises, and the difference of the latitudes 1° 37′ 20″·3; whence 1°=57,196 toises. This agrees much better than the result of Maupertuis (57,422 toises) with other measures; but the difference, which implies an error of 12″ in the latitude of Kittis as determined by the French academicians, has not been satisfactorily accounted for; so that there is still some doubt about the length of a degree in that latitude. See SVANBERG's *Exposition des Operations faites en Lapponie*, etc. Stockholm, 1805.

Since the beginning of the present century, two arcs of meridian have been surveyed in India. The first was in the neighborhood of Madras, and comprehended only 1° 35′. The second, however, is the longest which has yet been measured. The first, and a large part of the second, was accomplished under the direction of Colonel Lambton; and the instruments and methods of observation and calculation were exactly the same as those that had been employed by Colonel Mudge in the English survey. The south extremity of the second arc was at Punnæ, near Cape Comorin, latitude 8° 9′ 32″·51; and the northern at Daumergidda, latitude 18° 3′ 16″·07. The amplitude is consequently 9° 53′ 43″·56, and the distance between the extremities was found to be 598,629·98 fathoms (about 680 miles), giving 60,495 fathoms, or 362,970 feet, for the length of the degree. Several bases were measured, and the whole of the operations appear to have been conducted with great skill and accuracy. This arc has since been extended by Captain Everest to Kaliana, latitude 29° 30′ 48″·8; so that the whole length now includes more than 21°. The details of Colonel Lambton's operations are given in the different volumes of the *Asiatic Researches* (see vols. viii., x., xii.), and those of Captain Everest, in his "*Account of the Measurement of an Arc of the Meridian between the Parallels of* 18° 3′ *and* 24° 7′," printed at the expense of the East India Company.

Various geodetic operations on a less extensive scale have been recently executed, which are better adapted, perhaps, to give information respecting the local curvature than the general form of the earth. Beccaria's arc has been remeasured by Plana and Carlini: the results clearly demonstrate the existence of some errors in the original measurement, but they are not yet altogether satisfactory, and the country is very unfavorable. The distance between Göttingen and Altona has been measured by Gauss; and the amplitude of the corresponding celestial arc is known with the utmost precision, from observations of the latitude made at the respective observatories of the two places. The amplitude, however, is only about two degrees, and there is some doubt about the exact length of the iron bars with which the base was measured. A more extensive arc has been measured in Russia by Struve. It extends at present to three and a half degrees, and it is understood that it is in contemplation to prolong it still further. Many new methods have been employed in this measurement; and it acquires additional value from its high latitude, and the acknowledged skill and accuracy of the observer.

The above are the principal arcs of meridian, but some arcs of parallel have also been measured. Theoretically speaking, the figure of the earth may be determined from the measurement of arcs of parallel, as readily as from meridional arcs; and the geodetical operations in the one case differ in no respect from those in the other. But the great, and, we fear, insurmountable difficulty, is to determine with sufficient precision the difference of astronomical longitudes. In a subsequent part of this article we shall have again occasion to mention Cassini's measurement of an arc of parallel across the mouth of the Rhone; of the English arc between Beachy Head and Dunnose; and that recently made from Marennes to Padua.

TABLE SHOWING THE LENGTH OF A DEGREE OF LONGITUDE FOR EVERY DEGREE OF LATITUDE, IN GEOGRAPHICAL AND IN ENGLISH MILES.

Lat.	Geo. miles.	Eng. miles.	Lat.	Geo. miles.	Eng. miles.	Lat.	Geo. miles.	Eng. miles.
1	59·99	69·05	31	51·43	59·20	61	29·09	33·48
2	59·96	69·02	32	50·88	58·57	62	28·17	32·42
3	59·92	68·96	33	50·32	57·92	63	27·24	31·35
4	59·85	68·89	34	49·74	57·25	64	26·30	30·27
5	59·77	68·80	35	49·15	56·57	65	25·36	29·19
6	59·67	68·68	36	48·54	55·87	66	24·40	28·09
7	59.55	68.55	37	47.92	55.15	67	23.44	26.98
8	59.42	68.39	38	47.28	54.42	68	22.48	25·87
9	59·26	68·21	39	46·63	53·67	69	21·50	24·75
10	59·09	68·01	40	45·96	52·90	70	20·52	23·62
11	58·90	67·79	41	45·28	52·12	71	19·53	22·48
12	58·69	67·55	42	44·59	51·32	72	18·54	21·34
13	58·46	67·29	43	43·88	50·51	73	17·54	20·19
14	58·22	67·01	44	43·16	49·68	74	16·54	19·04
15	57·96	66·71	45	42·43	48·83	75	15·53	17·87
16	57·68	66·38	46	41·68	47·97	76	14·52	16·71
17	57·38	66·04	47	40.92	47·10	77	13·50	15·54
18	57·06	65.68	48	40·15	46·21	78	12·47	14·36
19	56·73	65·30	49	39·36	45·31	79	11·45	13·18
20	56.38	64·90	50	38·57	44·39	80	10·42	11·99
21	56·01	64·47	51	37·76	43·46	81	9·39	10·80
22	55·63	64·03	52	36·94	42·52	82	8.35	9·61
23	55·23	63·60	53	36·11	41·56	83	7·31	8·42
24	54·81	62·09	54	35·27	40·59	84	6·27	7·22
25	54·38	62·59	55	34·41	39·61	85	5.23	6·02
26	53·93	62·07	56	33·55	38·62	86	4·19	4·83
27	53·46	61·53	57	32·68	37·61	87	3.14	3·61
28	52·98	60·98	58	31·79	36·60	88	2·09	2·41
29	52·48	60·40	59	30·90	35·57	89	1·05	1·21
30	51·96	59·81	60	30·00	34.53	90	0.00	0·00

Our limits do not permit us to enter into details respecting the numerous experiments that have been made of late years to determine the figure of the earth by measuring the variations of gravity at different places by means of the pendulum. The most valuable series of observations of this kind we yet possess, are those of Captain Foster, reduced under the direction of Mr. Baily, and published in the *Memoirs of the Royal Astronomical Society*, vol. vii. But a discovery recently made by Bessel proves that less accuracy has been obtained by this method than was supposed. It has been found, that a pendulum, when vibrating, drags along with it a portion of air, the precise effect of which can be ascertained in no other way than by actual experiment in vacuo with each individual pendulum. The probable correction which it would be necessary to apply to the results that have already been found, can not be satisfactorily determined.

The mean of the pendulum experiments gives rather a higher value of the ellipticity than the results of geodetic measures; but there are many elements, particularly the irregular constitution of the exterior crust of the earth, and the density of the strata surrounding the station, which can scarcely be determined, and which yet affect materially the results of the experiments.

Besides the methods which have now been alluded to, physical astronomy furnishes other means of arriving at a knowledge of the figure of the earth. The precession of the equinoxes, the nutation of the earth's axis, are phenomena depending on the compression of the earth; and as their amount is now ascertained, from astronomical observations, with the utmost accuracy, we can reciprocally deduce from them a knowledge of the compression. They do not, however, give us an absolute value of the amount of compression, but they make known the limits within which it must necessarily be confined. These limits are 1-279 and 1-578. But a more delicate measure of the same element is furnished by some irregularities in the moon's motion to which it gives rise; and as the lunar theory has now attained a very high state of perfection, and as the small irregularities which cause so much perplexity in geodetical measures here entirely disappear, this is perhaps, the most satisfactory method of all of determining the ellipticity of the earth. The equations into which the irregularity question enters, were discovered by Laplace; and the ellipticity necessary to produce the observed effect was found, on calculation, to be 1-304; confirming, in a most remarkable manner, the deductions from the measurement of arcs and the observations of the pendulum.

The Surface of the Earth, and its General Divisions.—The surface of the earth contains about 196,663,400 square miles. By much the larger portion of this space is water, which is, indeed, more than twice the extent of the land. The surface of the land is exceedingly diversified, almost everywhere rising into hills and mountains, or sinking into valleys, and sometimes stretching out into plains of great extent. Among the most extensive plains, are the sandy deserts of Arabia and Africa, the internal part of European Russia, and a tract of considerable extent in Prussian Poland. But the most remarkable extent of level ground is the vast table-plain of Thibet, in Asia, which is the most elevated tract of level ground on the globe. The principal mountain ridges are the Alps and Pyrenees, in Europe, the Altai and Himalaya Mountains, in Asia, the mountains of Atlas, in Africa, and the Andes or Cordilleras, in South America. The greatest concavities of the globe are those which are occupied by the waters of the ocean; and of those, by far the largest forms the bed of the Pacific Ocean, which, stretching from the eastern shore of Asia and of New Holland to the western coast of America, covers nearly half the globe. The concavity next in extent is that which forms the bed of the Atlantic Ocean, extending between the new and the old worlds; and a third concavity is occupied by the Indian Ocean. The Arctic and Antarctic Oceans fill up the remaining concavities.

Smaller collections of water which communicate freely with the oceans, are called *seas;* and of these, the principal are the Mediterranean, the Baltic, the Euxine or Black Sea, and the White Sea. Seas sometimes take their names from the countries near which they flow; as the Irish Sea, the German Ocean. Some large collections of water, though they have no immediate connection with the great body of waters, being on all sides surrounded by land, are yet called seas; as the Caspian Sea. A part of the sea running up into the land, so as to form a large hollow, is called a *bay* or *gulf*, as the Bay of Biscay, the Gulf of Mexico; but if the hollow be small, it is called a *creek*, a *road*, a *haven*. When two large bodies of water communicate by a narrow pass between two adjacent lands, the pass is called a *strait* or *straits*, as the Straits of Gibraltar, the Straits of Dover, the Straits of Babelmandel. A channel is a wider kind of strait. The water usually flows through a strait with considerable force and velocity, forming what is called a *current;* and frequently this current, as in the case of the Straits of Gibraltar, flows continually in the same direction.

A body of fresh water entirely surrounded by land, is called a *lake;* as the Lake of Geneva, Lake Champlain. A considerable stream of water rising inland, and draining a portion of country more or less extensive, discharging its waters into the sea, is called a *river;* a smaller stream of the same kind is called a *rivulet* or *brook*.

Of the land, which forms the rest of the surface of the globe, two portions, of vast extent, are called *continents;* the one the eastern continent, or the old world, comprehending Europe, Asia, and Africa; the other, the western continent, or new world, comprehending North and South America. New Holland is a third portion of land, however, which has by some been also reckoned a continent on account of its great extent.

A portion of land of comparatively small dimensions entirely surrounded by water, is called an *island;* as Britain, Ireland, Jamaica, Madagascar. New Holland is the largest portion of land which is called an island. When a number of small islands lie near each other, they are said to form a *group* of islands. A portion of land which is almost entirely surrounded by water, is called a *peninsula;* as the Peninsula of Malacca, the Morea or Grecian Peloponnesus, etc. The term peninsula is often applied to a large extent of country. Thus we speak of Spain as a peninsula. The narrow neck of land which joins a peninsula to the mainland, or which connects two tracts of country together, is called an *isthmus*. The most remarkable isthmuses in the world are the Isthmus of Suez, which joins Africa and Asia, and the Isthmus of Darien, which connects the continent of North and South America. A narrow tract of land stretching out into the sea, and appearing to terminate in a point, is called a *cape*. The most remarkable capes are, the Cape of Good Hope, at the southern extremity of Africa; Cape Horn, at the southern extremity of South America; and the North Cape, at the northern extremity of Europe. A large portion of land jutting out into the sea is called a *promontory*.

Until of late, in systems of geography, the earth used to be considered as divided into four quarters; Europe, Asia, Africa, and America. A classification in which the whole world is arranged under seven divisions has now, however, been very generally adopted. These divisions are, Europe, Asia, Africa, North America, South America, Australasia, and Polynesia. With regard to the last two, the one, Australasia, or South Asia, comprehends certain of the great islands, particularly New Holland, which are usually considered as belonging to Asia; and the other, Polynesia, signifying many islands, comprehends all the smaller islands which are scattered over the great expanse of the Pacific Ocean. This classification of the parts of the earth's surface is founded on the most obvious points of distinction. We shall now explain two divisions employed by the ancients, which are founded upon different principles; that into zones, and that into climates.

The divisions into zones is suggested by the different degrees of temperature which prevail in different regions of the earth. The temperature of a country depends on a variety of circumstances; but of these, one of the most obvious is the position of the sun with regard to the zenith. The more nearly his rays are received vertically, the higher will be the temperature; and, on the contrary, the more obliquely they fall, the less effect will they produce in raising the temperature. Now to every point of the earth's surface between the tropics the sun is vertical twice in the year. It is in this region, then, that the highest temperature will prevail. Again, within the polar circles the sun's rays at all times fall very obliquely; and for a length of time they do not reach these two regions of the globe at all. Here, then, the temperature must be lower than anywhere else, as all other places enjoy more of the sun's genial influence. In the two regions between the tropics and the polar circles, a medium temperature is found, increasing as we approach the former, and diminishing as we approach the latter. Thus is the earth's surface divided, by the two tropics and two polar circles, into five *zones*, distinguished from one another by the prevailing temperature in each. That between the tropics is called the *torrid zone*, because there the heat is understood to be extreme. This region, which has the equator passing through the middle of it, the ancients, indeed, considered as uninhabitable. The two regions comprehended within the arctic and antarctic polar circles, are called the northern and southern *frigid zones*, on account of the severity of the cold which there prevails. The two regions situated between the tropics and the polar circles, the one in the northern hemisphere, bounded by the tropic of cancer and the arctic circle, the other in the southern hemisphere, bounded by the tropic of capricorn and the antarctic circle, are called the northern and southern *temperate zones*, because there neither the heat nor cold is excessive; but the heat reaches the highest temperature of summer, and the cold sinks to the lowest temperature of winter, without either becoming extreme.

The division of the earth's surface into climates was employed by the ancients for ascertaining the situation of places. They supposed the northern and southern hemispheres to be each divided into small zones, to which they gave the name of *climates*, the breadth of each zone being such as to make half an hour of difference in the length of the longest day at the two parallels of latitude by which the climate was bounded. Proceeding from the equator, where the length of the day is always 12 hours, they thus divided the space between it and each polar circle into 24 climates. Having reached the polar circles northward and southward, where the longest day is 24 hours, they divided the space between each polar circle in such a manner as to make the difference in the length of the longest day at the beginning and termination of each climate, one month. Hence, as the poles are alternately illuminated for six months, there were just six climates within each polar circle.

Table of Climates.

	Climates.	Latitude of the Higher Parallel.		Breadth of the Climate.		Longest Day under the Higher Parallel.	
		Deg.	Min.	Deg.	Min.	Hours.	Min.
Between the equator and either polar circle.	I.	8	34	8	34	12	30
	II.	16	43	8	9	13	0
	III.	24	10	7	27	13	30
	IV.	30	46	6	36	14	0
	V.	36	28	5	42	14	30
	VI.	41	21	4	53	15	0
	VII.	45	29	4	8	15	30
	VIII.	48	59	3	30	16	0
	IX.	51	57	2	58	16	30
	X.	54	28	2	31	17	0
	XI.	56	36	2	8	17	30
	XII.	58	25	1	49	18	0
	XIII.	59	57	1	32	18	30
	XIV.	61	16	1	19	19	0
	XV.	62	24	1	8	19	30
	XVI.	63	20	0	56	20	0
	XVII.	64	8	0	48	20	30
	XVIII.	64	48	0	40	21	0
	XIX.	65	20	0	32	21	30
	XX.	65	46	0	26	22	0
	XXI.	66	6	0	20	22	30
	XXII.	66	20	0	14	23	0
	XXIII.	66	28	0	8	23	30
	XXIV.	66	32	0	4	24	0
Between the polar circle and the pole.						Months.	
	I.	67	23	0	51	1	
	II.	69	50	2	27	2	
	III.	73	39	3	49	3	
	IV.	78	81	4	52	4	
	V.	84	5	5	34	5	
	VI.	90	0	5	55	6	

E. B. (See Geography.).

Earthenware (Ger. *Irdene Waaren;* Du. *Aardegoed;* Fr. *Vaisselle de terre Poterie;* It. *Stoviglie, Terraglie;* Sp. *Loza de barro:* Rus. *Gorschetschnüe possodū;* Pol. *Glinianæ naczynia*), or crockery, as it is sometimes termed, comprises every sort of household utensils made of clay hardened in the fire. Its manufacture is, in England, of very considerable importance, and the improvements that have been made in it since the middle of the last century have contributed powerfully to its extension, and have added greatly to the comfort and convenience of all classes. "There is scarcely any manufacture which is so interesting to contemplate in its gradual improvement and extension as that of earthenware, presenting, as it does, so beautiful a union of science and art, in furnishing us with the comforts and ornaments of civilized life. Chemistry administers her part, by investigating the several species of earths, and ascertaining, as well their most appropriate combinations as the respective degrees of heat which the several compositions require. Art has studied the designs of antiquity, and produced from them vessels even more exquisite in form than the models by which they have been suggested. The ware has been provided in such gradations of quality as to suit every station, from the highest to the lowest. It is to be seen in every country, and almost in every house, through the whole extent of America, in many parts of Asia, and in most of the countries of Europe. At home it has superseded the less cleanly vessels of pewter and of wood, and, by its cheapness, has been brought within the means of our poorest house-keepers. Formed from substances originally of no value, the fabrication has induced labor of such various classes, and created skill of such various degrees, that nearly the whole value of the annual produce may be considered as an addition made to the mass of national wealth. The abundance of the ware exhibted in every dwelling-house is sufficient evidence of the vast augmentation of the manufacture, which is also demonstrated by the rapid increase of the population in the districts where the potteries have been established."—*London Quar. Rev.*

For the great and rapid extension of the manufacture, the English are chiefly indebted to the late Mr. Josiah Wedgwood, whose original and inventive genius enabled him to make many most important discoveries in the art; and who was equally successful in bringing his inventions into use. The principal seat of the manufacture is in Staffordshire, where there is a district denominated the Potteries, comprising a number of villages, and a population which is supposed to amount, at this moment, to above 85,000, by far the greater portion of which is engaged in the manufacture. There are no authentic accounts of the population of this district in 1760, when Mr. Wedgwood began his discoveries; but the general opinion is, that it did not at that time exceed 20,000. The village of Etruria, in the Potteries, was built by Mr. Wedgwood. The manufacture has been carried on at Burslem, in the same district, for several centuries.

East Indies (British). See India.

East Indies (Dutch). See Holland.

East Indies (French). See France.

East India Company, a famous association, originally established for prosecuting the trade between England and India, which they acquired a right to carry on exclusively. Since the middle of last century, however, the Company's political have become of more importance than their commercial concerns. East Indies, a popular geographical term not very well defined, but generally understood to signify the continents and islands to the east and south of the River Indus, as far as the borders of China, including Timor and the Moluccas, but excluding the Philippine Islands, New Guinea, and New Holland. China and the Philippine Islands were, however, included within the limits of the East India Company's peculiar privileges. See India.

I. East India Company (Historical Sketch of).—The persevering efforts of the Portuguese to discover a route to India, by sailing round Africa, were crowned with success in 1497. And it may appear singular, that, notwithstanding the exaggerated accounts that had been prevalent in Europe, from the remotest antiquity, with respect to the wealth of India, and the importance to which the commerce with it had raised the Phœnicians and Egyptians in antiquity, the Venetians in the middle ages, and which it was then seen to confer on the Portuguese, the latter should have been allowed to monopolize it for nearly a century after it had been turned into a channel accessible to every nation. But the prejudices by which the people of most European states were actuated in the sixteenth century, and the peculiar circumstances under which they were placed, hindered them from embarking with that alacrity and ardor that might have been expected in this new commercial career. Soon after the Portuguese began to prosecute their discoveries along the coast of Africa, they applied to the pope for a bull, securing to them the exclusive right to and possession of all countries occupied by infidels, they either had discovered, or might discover, to the south of Cape Non, on the west coast of Africa, in 27° 54′ north latitude: and the pontiff, desirous to display, and at the same time to extend, his power, immediately issued a bull to this effect. Nor, preposterous as a proceeding of this sort would now appear, did any one then doubt that the pope had a right to issue such a bull, and that all states and empires were bound to obey it. In consequence, the Portuguese were, for a lengthened period, allowed to prosecute their conquests in India without the interference of any other European power. And it was not till a considerable period after the beginning of the war, which the blind and brutal bigotry of Philip II. kindled in the Low Countries, that the Dutch navigators began to display their flag on the Eastern Ocean, and laid the foundations of their Indian empire.

The desire to comply with the injunctions in the pope's bull, and to avoid coming into collision, first with the Portuguese, and subsequently with the Spaniards, who had conquered Portugal in 1580, seems to have been the principal cause that led the English to make repeated attempts, in the reigns of Henry VIII. and Edward VI., and the early part of the reign of Elizabeth, to discover a route to India by a north-west or north-east passage; channels from which the Portuguese would have had no pretense for excluding them. But these attempts having proved unsuccessful, and the pope's bull having ceased to be of any effect in this country, the English merchants and navigators resolved to be no longer deterred by the imaginary rights of the Portuguese from directly entering upon what was then reckoned by far the most lucrative and advantageous branch of commerce. Captain Stephens, who performed the voyage in 1582, was the first Englishman who sailed to India by the Cape of Good Hope. The voyage of the famous Sir Francis Drake contributed greatly to diffuse a spirit of naval enterprise, and to render the English better acquainted with the newly-opened route to India. But the voyage of the celebrated Mr. Thomas Cavendish was, in the latter respect, the most important. Cavendish sailed from England in a little squadron, fitted out at his own expense, in July, 1586; and having explored the greater part of the Indian Ocean, as far as the Philippine Islands, and carefully observed the most important and characteristic features of the people and countries which he visited, returned to England after a prosperous navigation, in September, 1588. Perhaps, however, nothing contributed so much to inspire the English with a desire to embark in the Indian trade, as the captures that were made about this period from the Spaniards. A Portuguese East India ship, or carrack, captured by Sir Francis Drake, during his expedition to the coast of Spain, inflamed the cupidity of the merchants by the richness of her cargo, at the same time that the papers found on board gave specific information respecting the traffic in which she had been engaged. A still more important capture, of the same sort, was made in 1593. An armament, fitted out for the East Indies by Sir Walter Raleigh, and commanded by Sir John Burroughs, fell in, near the Azores, with the largest of all the Portuguese carracks, a ship of 1600 tons' burden, carrying 700 men and 36 brass cannon; and, after an obstinate conflict, carried her into Dartmouth. She was the largest vessel that had been seen in England; and her cargo, consisting of gold, spices, calicoes, silks, pearls, drugs, porcelain, ivory, etc., excited the ardor of the English to engage in so opulent a commerce.

In consequence of these and other concurring causes, an association was formed in London, in 1599, for prosecuting the trade to India. The adventurers applied to the queen for a charter of incorporation, and also for power to exclude all other English subjects, who had not obtained a license from them, from carrying on any species of traffic beyond the Cape of Good Hope or the Straits of Magellan. As exclusive companies were then very generally looked upon as the best instruments for prosecuting most branches of commerce and industry, the adventurers seem to have had little difficulty in obtaining their charter, which was dated the 31st of December, 1660. The corporation was entitled "The Governor and Company of Merchants of London trading to the East Indies;" the first governor (Thomas Smythe, Esq.) and 24 directors were nominated in the charter; but power was given to the Company to elect a deputy governor, and, in future, to elect their governor and directors, and such other office-bearers as they might think fit to appoint. They were empowered to make by-laws; to inflict punishments, either corporal or pecuniary, provided such punishments were in accordance with the laws of England; to export all sorts of goods free of duty for 4 years; and to export foreign coin, or bullion, to the amount of £30,000 a year, £6,000 of the same being previously coined at the mint; but they were obliged to import, within 6 months after the completion of every voyage, except the first, the same quantity of silver, gold, and foreign coin that they had exported. The duration of the charter was limited to a period of 15 years: but with and under the condition that, if it were not found for the public advantage, it might be canceled at any time upon 2 years' notice being given. Such was the origin of the British East India Company—the most celebrated commercial association of ancient or modern times, and which has now extended its sway over the whole of the Mogul empire.

It might have been expected that, after the charter was obtained, considerable eagerness would have been manifested to engage in the trade. But such was not the case. Notwithstanding the earnest calls and threats of the directors, many of the adventurers could not be induced to come forward to pay their proportion of the charges incident to the fitting out of the first expedition. And as the directors seem either to have wanted power to enforce their resolutions, or thought it better not to exercise it, they formed a subordinate association, consisting of such members of the Company as were really willing to defray the cost of the voyage, and to bear all the risks and losses attending it, on condition of their having the exclusive right to whatever profits might arise from it. And it was by such subordinate associations that the trade was conducted during the first 13 years of the Company's existence.

The first expedition to India, the cost of which amounted, ships and cargoes included, to £69,091, consisted of five ships, the largest being 600 and the smaller 130 tons' burden. The goods put on board were principally bullion, iron, tin, broad-cloths, cutlery, glass, etc. The chief command was entrusted to Captain James Lancaster, who had already been in India. They set sail from Torbay on the 15th of February, 1601. Being very imperfectly acquainted with the seas and countries they were to visit, they did not arrive at their destination, Acheen, in Sumatra, till the 5th of June, 1602. But though tedious, the voyage was, on the whole, uncommonly prosperous. Lancaster entered into commercial treaties with the kings of Acheen and Bantam; and having taken on board a valuable cargo of pepper and other produce, he was fortunate enough, in his way home, to fall in with and capture, in concert with a Dutch vessel, a Portuguese carrack of 980 tons' burden, richly laden. Lancaster returned to the Downs on the 11th of September, 1603. —*Modern Universal History*, vol. x., p. 16; Macpherson's *Commerce of the European Powers with India*, p. 81. But notwithstanding the favorable result of this voyage, the expeditions fitted out in the years immediately following, though sometimes consisting of larger ships, were not, on an average, materially increased. In 1612, Captain Best obtained from the court at Delhi several considerable privileges; and, among others, that of establishing a factory at Surat; which city was, henceforth, looked upon as the principal British station in the west of India, till the acquisition of Bombay.

In establishing factories in India, the English only followed the examples of the Portuguese and Dutch. It was contended that they were necessary to serve as *dépôts* for the goods collected in the country for exportation to Europe, as well as for those imported into India, in the event of their not meeting with a ready market on the arrival of the ships. Such establishments, it was admitted, are not required in civilized countries; but the peculiar and unsettled state of India was said to render them indispensable there. Whatever weight may be attached to this statement, it is obvious that factories formed for such purposes could hardly fail of speedily degenerating into a species of forts. The security of the valuable property deposited in them, furnished a specious pretext for putting them in condition to withstand an attack; while the agents, clerks, warehousemen, etc., formed a sort of garrison. Possessing such strong-holds, the Europeans were early emboldened to act in a manner quite inconsistent with their character as merchants, and but a very short time elapsed before they began to form schemes for monopolizing the commerce of particular districts, and acquiring territorial dominion.

Though the Company met with several heavy losses during the early part of their traffic with India, from shipwrecks and other unforseen accidents, and still more from the hostility of the Dutch, yet, on the whole, the trade was decidedly profitable. There can, however, be little doubt, that their gains, at this early period, have been very much exaggerated. During the first 13 years, they are said to have amounted to 132 per cent. But then it should be borne in mind, as Mr. Grant has justly stated, that the voyages were seldom accomplished in less than 30 months, and sometimes extended to 3 or 4 years: and it should further be remarked that, on the arrival of the ships at home, the cargoes were disposed of at long credits of 18 months or 2 years; and that it was frequently even 6 or 7 years before the concerns of a single voyage were finally adjusted.—*Sketch of the History of the Company*, p. 13. When these circumstances are taken into view, it will be immediately seen that the Company's profits were not, really, by any means so great as has been represented. It may not, however, be uninstructive to remark, that the principal complaint that was then made against the Company, did not proceed so much on the circumstance of its charter excluding the public from any share in an advantageous traffic, as in its authorizing the Company to export gold and silver of the value of £30,000. It is true that the charter stipulated that the Company should import an equal quantity of gold and silver within 6 months of the termination of every voyage; but the enemies of the Company contended that this condition was not complied with; and that it was, besides, highly injurious to the public interest, and *contrary to all principle*, to allow gold and silver to be sent out of the kingdom. The merchants and others interested in the support of the Company, could not controvert the reasoning of their opponents without openly impugning the ancient policy of absolutely preventing the exportation of the precious metals. They did not, however, venture to contend, if the idea really occurred to them, that the exportation of bullion to the East was advantageous, on the broad ground of the commodities purchased by it being of greater value in England. But they contended that the exportation of bullion to India was advantageous, because the commodities thence imported were chiefly re-exported to other countries from which a much greater quantity of bullion was obtained than had been required to pay for them in India. Mr. Thomas Mun, a director of the East India Company, and the ablest of its early advocates, ingeniously compares the operations of the merchant in conducting a trade carried on by the exportation of gold and silver to the seed-time and harvest of agriculture. "If we only behold," says he, "the actions of the husbandman in the seed-time, when he casteth away much good corn into the ground, we shall account him rather a madman than a husbandman. But when we consider his labors in the harvest, which is the end of his endeavors, we find the worth and plentiful increase of his actions."—*Treasure by Foreign Trade*, p. 50, edition of 1664.

We may here remark, that what has been called the *mercantile system* of political economy, or that system which measures the progress of a country in the career of wealth by the supposed balance of payments in its favor, or by the estimated excess of the value of its exports over that of its imports, appears to have originated in the excuses now set up for the exportation of bullion. Previously to this epoch, the policy of prohibiting the exportation of bulllion had been universally admitted; but it now began to be pretty generally allowed, that its exportation might be productive of advantage, provided it occasioned the subsequent exportation of a greater amount of raw or manufactured products to countries whence bullion was obtained for them. This, when compared with the previously existing prejudice—for it hardly deserves the name of system—which wholly interdicted the exportation of gold and silver, must be allowed to be a considerable step in the progress to sounder opinions. The maxim, *ce n'est que le premier pas qui coute*, was strikingly verified on this occasion. The advocates of the East India Company began gradually to assume a higher tone, and, at length, boldly contended that bullion was nothing but a commodity, and that its exportation should be rendered as free as that of any thing else. Nor were these opinions confined to the partners of the East India Company. They were gradually communicated to others; and many eminent merchants were taught to look with suspicion on several of the previously received dogmas with respect to commerce, and were, in consequence, led to acquire more correct and comprehensive views. The new ideas ultimately made their way into the House of Commons; and, in 1663, the statutes prohibiting the exportation of foreign coin and bullion were repealed, and full liberty given to the East India Company and to private traders to export them in unlimited quantities.

But the objection to the East India Company, or rather the East India trade, on the ground of its causing the exportation of gold and silver, admitted of a more direct and conclusive, if not a more ingenious reply. How compendious soever the ancient intercourse with India by the Red Sea and the Mediterranean, it was unavoidably attended with a good deal of expense. The productions of the remote parts of Asia, brought to Ceylon, or the ports on the Malabar coast, by the natives, were there put on board the ships which arrived from the Arabic gulf. At Berenice they were landed, and carried by camels 250 miles to the banks of the Nile. They were there again embarked, and conveyed down the river to Alexandria, whence they were despatched to different markets. The addition to the price of goods by such a multiplicity of operations must have been considerable; more especially as the price charged on each operation was fixed by monopolists, subject to no competition or control. Pliny says, that the cost of the Arabian and Indian products brought to Rome when he flourished (A.D. 70), was increased a hundredfold by the expenses of transit—(*Hist. Nat.*, lib. vi., c. 23); but there can be little or no doubt that this is to be regarded as a rhetorical exaggeration. There are good grounds for thinking that the less bulky sorts of Eastern products, such as silks, spices, balsams, precious stones, etc., which were those principally made use of at Rome, might, supposing there were no political obstacles in the way, be conveyed from most parts of India to the ports on the Mediterranean by way of Egypt, at a decidedly cheaper rate than they could be conveyed to them by the Cape of Good Hope.

But at the period when the latter route to India began to be frequented, Syria, Egypt, etc., were occupied by Turks and Mamelukes; barbarians who despised commerce and navigation, and were, at the same time, extremely jealous of strangers, especially of Christians or infidels. The price of the commodities obtained through the intervention of such persons was necessarily very much enhanced; and the discovery of the route by the Cape of Good Hope was, consequently, of the utmost importance; for, by putting an end to the monopoly enjoyed by the Turks and Mamelukes, it introduced, for the first time, something like competition into the Indian trade, and enabled the western parts of Europe to obtain supplies of Indian products for about a third part of what they had previously cost. Mr. Mun, in a tract published in 1621, estimates the quantity of Indian commodities imported into Europe, and their cost when bought in Aleppo, and in India, as follows:

Cost of Indian Commodities consumed in Europe when Bought in Aleppo (or Alexandria).

	£	s.	d.
6,000,000 lbs. pepper cost, with charges, etc., at Aleppo 2s. per lb	600,000	0	0
450,000 lbs. cloves, at 4s. 9d	106,875	10	0
150,000 lbs. mace, at 4s. 9d	35,626	0	0
400,000 lbs. nutmegs, at 2. 4d	46,666	2	4
350,000 lbs. indigo, at 4s. 4d	75,833	6	8
1,000,000 lbs. Persian raw silk, at 2s	600,000	0	0
Total	£1,465,000	19	0

But the same quantities of the same commodities cost, when bought in the East Indies, according to Mr. Mun, as follows:

	£	s.	d.
6,000,000 lbs. pepper, at 2½d. per lb	62,500	0	0
450,000 lbs. cloves, at 9d	16,875	0	0
150,000 lbs. mace, at 8d	5,000	0	0
400,000 lbs. nutmegs, at 4d	6,666	13	4
350,000 lbs. indigo, at 1s. 2d	20,416	12	4
1,000,000 lbs. raw silk, at 8s	400,000	0	0
Total	£511,458	5	8

Which, being deducted from the former, leaves a balance of £953,542 13*s.* 4*d.* And supposing that the statements made by Mr. Mun are correct, and that allowance is made for the difference between the freight from Aleppo and India, the result would indicate the saving which the discovery of the route by the Cape of Good Hope occasioned in the purchase of the above-mentioned articles.—*A Discourse of Trade from England to the East Indies*, by T. M., original ed. p. 10. (This tract, which is very scarce, is reprinted in Purchas's Pilgrims).

In the same publication (p. 37), Mr. Mun informs us that from the beginning of the Company's trade, to July, 1620, they had sent 79 ships to India; of which 34 had come home safely, and richly laden; 4 had been worn out by long service in India; 2 had been lost in careening; 6 had been lost by the perils of the sea, and 12 had been captured by the Dutch. Mr. Mun further states, that the exports to India since the formation of the Company had amounted to £840,376; that the produce brought from India had cost £356,288, and had produced here the enormous sum of £1,914,600; that the quarrels with the Dutch had occasioned a loss of £84,088; and that the stock of the Company, in ships, goods in India, etc., amounted to £400,000.

The hostility of the Dutch, to which Mr. Mun has here alluded, was long a very formidable obstacle to the Company's success. The Dutch early endeavored to obtain the exclusive possession of the spice trade, and were not at all scrupulous about the means by which they attempted to bring about this their favorite object; the English, on their part, naturally exerted themselves to obtain a share of so valuable a commerce; and as neither party was disposed to abandon its views and pretensions, the most violent animosities grew up between them. In this state of things, it would be ridiculous to suppose that unjustifiable acts were not committed by the one party as well as the other; though the worst act of the English appears venial, when compared with the conduct of the Dutch in the massacre of Amboyna, in 1622. While, however, the Dutch Company was vigorously supported by the government at home, the English Company met with no efficient assistance from the feeble and vacillating policy of James and Charles. The Dutch either despised their remonstrances, or defeated them by an apparent compliance; so that no real reparation was obtained for the outrages they had committed. During the civil war, Indian affairs were necessarily lost sight of; and the Dutch continued, until the ascendancy of the republican party had been established, to reign triumphant in the East, where the English commerce was nearly annihilated.

But notwithstanding their depressed condition, the Company's servants in India laid the foundation, during the period in question, of the settlements at Madras and in Bengal. Permission to build Fort St. George was obtained from the native authorities in 1640. In 1658, Madras was raised to the station of a presidency. In 1645, the Company began to establish factories in Bengal; the principal of which was at Hooghly. These were, for a lengthened period, subordinate to the presidency of Madras.

No sooner, however, had the civil wars terminated than the armies and councils of Cromwell retrieved the situation of our affairs in India. The war which broke out between the long Parliament and the Dutch in 1652 was eminently injurious to the latter. In the treaty of peace, concluded in 1654, it was stipulated that indemnification should be made by the Dutch for the losses and injuries sustained by the English merchants and factors in India. The 27th article bears, "that the lords, the states-general of the United Provinces, shall take care that justice be done upon those who were partakers or accomplices in the massacre of the English at Amboyna, as the republic of England is pleased to term the fact, provided any of them be living." A commission was at the same time appointed, conformably to another article of the treaty, to inquire into the reciprocal claims which the subjects of the contracting parties had upon each other for losses sustained in India, Brazil, etc.; and upon their decision, the Dutch paid the sum of £85,000 to the East India Company, and £3615 to the heirs or executors of the sufferers at Amboyna.—*Bruce's Annals*, vol. i. p. 489.

The charter under which the East India Company prosecuted their exclusive trade to India being merely a grant from the crown, and not ratified by any act of Parliament, was understood by the merchants to be at an end when Charles I. was deposed. They were confirmed in this view of the matter, from the circumstance of Charles having himself granted, in 1635, a charter to Sir William Courten and others, authorizing them to trade with those parts of India with which the Company had not established any regular intercourse. The reasons alleged in justification of this measure, by the crown, were, that "the East India Company had neglected to establish forified factories, or seats of trade, to which the king's subjects could resort with safety: that they had consulted their own interests only, without any regard to the king's revenue; and in general, that they had broken the condition on which their charter and exclusive privileges had been granted to them."—*Rim. Fœdera*, vol. xx., p. 146.

Courten's association, for the foundation of which such satisfactory reasons has been assigned, continued to trade with India during the remainder of Charles's reign; and no sooner had the arms of the Commonwealth forced the Dutch to desist from their depredations, and to make reparation for the injuries they had inflicted on the English in India, than private adventurers engaged in great numbers in the India trade, and carried it on with a zeal, economy, and success, that monopoly can never expect to rival. It is stated in a little work, entitled "Britannia Languens," published in 1680, the author of which has evidently been a well-informed and intelligent person, that during the years 1653, 1654, 1655, and 1656, when the trade to India was open, the private traders imported East India commodities in such large quantities, and sold them at such reduced prices, that they not only fully supplied the British markets, but had even come into successful competition with the Dutch in the market of Amsterdam, "and very much sunk the actions (shares) of the Dutch East India Company."—(p. 122.) This circumstance naturally excited the greatest apprehensions on the part of the Dutch Company; for besides the danger that they now ran of being deprived, by the active competition of the English merchants, of a considerable part of the trade which they had previously enjoyed, they could hardly expect that, if the trade were thrown open in England, the monopoly would be allowed to continue in Holland. A striking proof of what is now stated is to be found in a letter in the third volume of "Thurlow's State Papers," dated at the Hague, the 15th of January, 1654, where it is said, that "the merchants of Amsterdam have advice that the Lord Protector intends to dissolve the East India Company at London, and to declare the navigation and commerce of the East Indies free and open: which doth cause great jealousy at Amsterdam, *as a thing that will very much prejudice the East India Company in Holland.*"

Feeling that it was impossible to contend with the private adventurers under a system of fair competition, the moment the treaty with the Dutch had been concluded, the Company began to solicit a renewal of their charter; but in this they were not only opposed by the free traders, but by a part of themselves. To understand how this happened, it may be proper to mention that Courten's association, the origin of which has been already noticed, had begun, in 1648, to found a colony in Assuda, an island near Madagascar. The Company, alarmed at this project, applied to the Council of State to prevent its being carried into effect; and the council, without entering on the question of either party's rights, recommended them to form a union; which was accordingly effected in 1649. But the union was, for a considerable time, rather nominal than real; and when the Dutch war had been put an end to, most of those holders of the Company's stock who had belonged to Courten's association joined in petitioning the Council of State that the trade might in future be carried on, not by a joint-stock, but by a *regulated* company; so that each individual engaging in it might be allowed to employ his own stock, servants, and shipping, in whatever way he might conceive most for his own advantage.—*Petition of Adventurers*, 17th of Nov., 1656; *Bruce's Annals*, vol. i., p. 518.

This proposal was obviously most reasonable. The Company had always founded their claim to a monopoly of the trade on the alleged ground of its being necessary to maintain forts, factories, and ships of war in India; and that as this was not done by government, it could only be done by a company. But, by forming the traders with India into a regular company, they might have been subjected to whatever rules were considered most advisable; and such special duties might have been laid on the commodities they exported and imported as would have sufficed to defray the public expenses required for carrying on the trade, at the same time that the inestimable advantages of free competition would have been secured; each individual trader being left at liberty to conduct his enterprises, subject only to a few general regulations, in his own way and for his own advantage. See COMPANIES.

But notwitstanding the efforts of the petitioners, and the success that was clearly proved to have attended the operations of the private traders, the Company succeeded in obtaining a renewal of their charter from Cromwell in 1657. Charles II. confirmed this charter in 1661; and at the same time conferred on them the power of making peace or war with any power or people *not of the Christian religion;* of establishing fortifications, garrisons, and colonies; of exporting ammunition and stores to their settlements duty free; of seizing and sending to England such British subjects as should be found trading to India without their leave; and of exercising civil and criminal jurisdiction in their settlements, according to the laws of England. Still, however, as this charter was not fully confirmed by any act of Parliament, it did not prevent traders, or interlopers as they were termed, from appearing within the limits of the Company's territories. The energy of private commerce, which, to use the words of Mr. Orme, "sees its drift with eagles' eyes," formed associations at the risk of trying the consequence at law, being safe at the outset, and during the voyage, since the Company were not authorized to stop or seize the ships of those who thus attempted to come into competition with them. Hence their monopoly was by no means complete; and it was not till after the Revolution, and when a free system of government had been established at home, that, by a singular contradiction, the authority of Parliament was interposed to enable the Company wholly to engross the trade with the East.

In addition to the losses arising from this source, the Company's trade suffered severely, during the reign of Charles II., from the hostilities that were then waged with the Dutch, and from the confusion and disorders caused by contests among the native princes; but in 1668 the Company obtained a very valuable acquisition in the island of Bombay. Charles II. acquired this island as a part of the marriage portion of his wife, Catharine of Portugal; and it was now made over to the Company, on condition of their not selling or alienating it to any persons whatever, except such as were subjects of the British crown. They were allowed to legislate for their new possession; but it was enjoined that their laws should be consonant with reason, and, "as near as might be," agreeable to the practice of England. They were authorized to maintain their dominion by force of arms; and the natives of Bombay were declared to have the same liberties as natural-born subjects. The Company's western presidency was soon after transferred from Surat to Bombay.

In 1664, the French East India Company was formed; and 10 years afterward they laid the foundation of their settlement at Pondicherry.

But the reign of Charles II. is chiefly memorable in the Company's annals, from its being the era of the commencement of the tea trade. The first notice of tea in the Company's records is found in a despatch, addressed to their agent at Bantam, dated 24th of January, 1667–8, in which he is desired to send home 100 lbs. of tea—"the best he can get." (BRUCE'S *Annals*, vol. ii., p. 210.) Such was the late and feeble beginning of the tea trade, a branch of commerce that has long been of vast importance to the British nation, and without which it is more than probable that the East India Company would long since have ceased to exist, at least as a mercantile body.

In 1677 the Company obtained a fresh renewal of their charter; receiving at the same time an indemnity for all past misuse of their privileges, and authority to establish a mint at Bombay.

During the greater part of the reigns of Charles II. and James II., the Company's affairs at home were principally managed by the celebrated Sir Josiah Child, the ablest commercial writer of the time; and in India, by his brother, Sir John Child. In 1681, Sir Josiah published an apology for the company, under the signature of *Φιλοπατρις*—"A Treatise whererein is Demonstrated that the East India Trade is the most National of all Foreign Trades"—in which, besides endeavoring to vindicate the Company from the objections that had been made against it, he gives an account of its state at the time. From this account it appears that the Company consisted of 556 partners; that they had from 35 to 36 ships, of from 775 to 100 tons, employed in the trade between England and India, and from port to port in India (p. 23); that the customs duties upon the trade amounted to about £60,000 a year; and that the value of the exports, "in lead, tin, cloth, and stuffs, and other commodities of the production and manufacture of England," amounted to about £60,000 or £70,000 a year. Sir Josiah seems to have been struck, as he well might, by the inconsiderable amount of the trade; and he therefore dwells on the advantages of which it was indirectly productive, in enabling us to obtain supplies of raw silk, pepper, etc., at a much lower price than they would otherwise have fetched. But this, though true, proved nothing in favor of the Company—it being an admitted fact, that those articles were furnished at a still lower price by the interlopers or private traders.

Sir Josiah Child was one of the first who projected the formation of a territorial empire in India. But the expedition fitted out in 1686, in the view of accomplishing this purpose, proved unsuccessful; and the Company were glad to accept peace on the terms offered by the Mogul. Sir John Child, having died during the course of these transactions, was succeeded in the principal management of the Company's affairs in India by Mr. Vaux. On the appointment of the latter, Sir Josiah Child, to whom he owed his advancement, exhorted him to act with vigor, and to carry whatever instructions he might receive from home into immediate effect. Mr. Vaux returned for answer, that he should endeavor to acquit himself with integrity and justice, and that he would make the laws of his country the rule of his conduct. Sir Josiah Child's answer to this letter is curious: "He told Mr. Vaux roundly that he expected his orders were to be his rules, and not the laws of England, which were a heap of nonsense, compiled by a few ignorant country gentlemen, who hardly knew how to make laws for the good government of their own private families, much less for the regulating of companies and foreign commerce." (HAMILTON's *New Account of the East Indies*, vol. i., p. 232.)

During the latter part of the reign of Charles II. and that of his successor, the number of private adventurers, or interlopers, in the Indian trade, increased in an unusual degree. The Company vigorously exerted themselves in defense of what they conceived to be their rights; and the question with respect to the validity of the powers conferred on them by their charter was at length brought to issue, by a prosecution carried on at their instance against Mr. Thomas Sandys, for trading to the East Indies without their license. Judgment was given in favor of the Company in 1685. But this decision was ascribed to corrupt influence; and instead of allaying, only served to increase the clamor against them. The meeting of the Convention Parliament gave the Company's opponents hopes of a successful issue to their efforts; and had they been united, they might probably have succeeded. Their opinions were, however, divided—part being for throwing the trade open, and part for the formation of a new company on a more liberal footing. The latter being formed into a body, and acting in unison, the struggle against the Company was chiefly carried on by them. The proceedings that took place on this occasion are among the most disgraceful in the history of the country. The most open and unblushing corruption was practiced by all parties. "*It was, in fact, a trial which should bribe the highest: public authority inclining to one or other as the irresistible force of gold directed.*" (*Modern Universal History*, vol. x., p. 127.) Government appears, on the whole, to have been favorable to the Company; and they obtained a fresh charter from the crown in 1693. But in the following year the trade was virtually laid open by a vote of the House of Commons, "that all the subjects of England had an equal right to trade to the East Indies, unless prohibited by act of Parliament." Matters continued on this footing till 1698. The pecuniary difficulties in which government was then involved, induced them to apply to the Company for a loan of £2,000,000, for which they offered 8 per cent. interest. The Company offered to advance £700,000 at 4 per cent.; but the credit of government was at the time so low, that they preferred accepting an offer from the associated merchants, who had previously opposed the Company, of the £2,000,000, at 8 per cent., on condition of their being formed into a new and exclusive company. While this project was in agitation, the advocates of free trade were not idle, but exerted themselves to show that, instead of establishing a new company, the old one ought to be abolished. But, however conclusive, their arguments, having no adventitious recommendations in their favor, failed of making any impression. The new company was established by authority of the legislature; and as the charter of the old company was not yet expired, the novel spectacle was exhibited of two legally constituted bodies, each claiming an exclusive right to the trade of the same possessions!

Notwithstanding all the pretensions set up by those who had obtained the new charter, during their struggle with the old company, it was immediately seen that they were as anxious as the latter to suppress every thing like free trade. They had not, it was obvious, been actuated by any enlarged views, but merely by a wish to grasp at the monopoly, which they believed would redound to their own individual interest. The public, in consequence, became equally disgusted with both parties; or, if there were any difference, it is probable that the new company was looked upon with the greatest aversion, inasmuch as we are naturally more exasperated by what we conceive to be duplicity and bad faith, than by fair undisguised hostility.

At first the mutual hatred of the rival associations knew no bounds. But they were not long in perceiving that such conduct would infallibly end in their ruin; and that while one was laboring to destroy the other, the friends of free trade might step in and procure the dissolution of both. In consequence, they became gradually reconciled; and in 1702, having adjusted their differences, they resolved to form themseves into one company, entitled *The United Company of Merchants of England trading to the East Indies.*

The authority of Parliament was soon after interposed to give effect to this agreement.

The United Company engaged to advance £1,200,000 to government without interest, which, as a previous advance had been made of £2,000,000 at 8 per cent., made the total sum due to them by the public £3,200,000, bearing interest at 5 per cent.; and government agreed to ratify the terms of their agreement, and extend the charter to the 25th of March, 1726, with 3 years' notice.

While these important matters were transacting at home, the Company had acquired some additional possessions in India. In 1692, the Bengal agency was transferred from Hooghly to Calcutta. In 1698, the Company acquired a grant from one of the grandsons of Aurengzebe, of Calcutta and 2 adjoining villages; with leave to exercise judiciary powers over the inhabitants, and to erect fortifications. These were soon after constructed, and received, in compliment to William III., then king of England, the name of Fort William. The agency at Bengal, which had hitherto been subsidiary only, was now raised to the rank of a presidency.

The vigorous competition that had been carried on for some years before the coalition of the old and new Companies, between them and the private traders, had occasioned a great additional importation of Indian silks, piece goods, and other products, and a great reduction of their price. These circumstances occasioned the most vehement complaints among the home manufacturers, who resorted to the arguments invaria-made use of on such occasions by those who wish to exclude foreign competition; affirming that manufactured India goods had been largely substituted for those of England; that the English manufacturers had been reduced to the cruel necessity either of selling nothing, or of selling their commodities at such a price as left them no profit; that great numbers of their workmen had been thrown out of employment; and, last of all, that Indian goods were not bought by British goods, but by gold and silver, the exportation of which had caused the general impoverishment of the kingdom! The merchants and others interested in the India trade could not, as had previously happened to them in the controversy with respect to the exportation of bullion, meet these statements without attacking the principles on which they rested, and maintaining, in opposition to them, that it was for the advantage of every people to buy the products they wanted in the cheapest market. This just and sound principle was, in consequence, enforced in several petitions presented to Parliament by the importers of Indian goods; and it was also enforced in several able publications that appeared at the time. But these arguments, how unanswerable soever they may now appear, had then but little influence; and, in 1701, an act was passed, prohibiting the importation of Indian manufactured goods for home consumption.

For some years after the re-establishment of the Company, it continued to prosecute its efforts to consolidate and extend its commerce. But the unsettled state of the Mogul empire, coupled with the determination of the Company to establish factories in every convenient situation, exposed their affairs to perpetual vicissitudes. In 1715, it was resolved to send an embassy to Delhi, to solicit from Furucksur, an unworthy descendant of Aurengzebe, an extension and confirmation of the Company's territory and privileges. Address, accident, and the proper application of *presents*, conspired to insure the success of the embassy. The grants or patents solicited by the Company, were issued in 1717. They were in all 34. The substance of the privileges they conferred was, that English vessels wrecked on the coasts of the empire should be exempt from plunder; that the annual payment of a stipulated sum to the government of Surat should free the English trade at that port from all duties and exactions; that those villages contiguous to Madras formerly granted and afterward refused by the government of Arcot, should be restored to the Company; that the island of Diu, near the port of Masulipatam, should belong to the Company, paying for it a fixed rent; that in Bengal, all persons, whether European or native, indebted or accountable to the Company, should be delivered up to the presidency on demand; that goods of export or import, belonging to the English, might, under a *dustuck* or passport from the president of Calcutta, be conveyed duty free through the Bengal provinces; and that the English should be at liberty to purchase the lordship of 37 towns contiguous to Calcutta, and, in fact, commanding both banks of the river for 10 miles south of that city.—GRANT'S *Sketch of the History of the East India Company*, p. 128.

The important privileges thus granted were long regarded as constituting the great charter of the English in India. Some of them, however, were not fully conceded; but were withheld or modified by the influence of the Emperor's lieutenants, or soubahdars.

In 1717, the Company found themselves in danger from a new competitor. In the course of that year some ships appeared in India, fitted out by private adventurers from Ostend. Their success encouraged others to engage in the same line; and in 1722, the adventurers were formed into a company under a charter from his Imperial Majesty. The Dutch and English Companies, who had so long been hostile to each other, at once laid aside their animosities, and joined heartily in an attempt to crush their new competitors. Remonstrances being found ineffectual, force was resorted to; and the vessels of the Ostend Company were captured, under the most frivolous pretenses, in the open seas and on the coasts of Brazil. The British and Dutch governments abetted the selfish spirit of hostility displayed by their respective Companies. And the emperor was, in the end, glad to purchase the support of Great Britain and Holland to the pragmatic sanction, by the sacrifice of the Company at Ostend.

Though the Company's trade had increased, it was still inconsiderable, and it is very difficult, indeed, when one examines the accounts that have from time to time been published of the Company's mercantile affairs, to imagine how the idea ever came to be entertained that their commerce was of any considerable, much less paramount, importance. At an average of the 10 years ending with 1724, the total value of the British manufactures and other products annually exported to India, amounted to only £92,410 12s. 6d. The average value of the bullion annually exported, during the same period, amounted to £518,102 11s. 0d., making the total annual average export £617,513 3s. 10d.; a truly pitiful sum, when we consider the wealth, population, and industry of the countries between which the Company's commerce was carried on; and affording, by its smallness, a strong presumptive proof of the effect of the monopoly in preventing the growth of the trade.

At this period (1773) the total number of proprietors of East India stock, with their qualifications as they stood in the Company's book, were as follows:

	Proprietors.	Stock.
Englishmen, possessing £1,000 stock and upward.........	487	£1,018,398
Foreigners, possessing £1,000 stock and upward.........	325	890,940
Englishmen, possessing £500 stock and upward.........	1,246	634,464
Foreigners, possessing £500 stock and upward.........	95	50,226
Total.....................	2,153	£2,594,029

Notwithstanding the vast extension of the Company's territories, their trade continued to be apparently insignificant. During the 3 years ending with 1773, the value of the entire exports of British produce and manufactures, including military stores, exported by the Company to India and China, amounted to £1,469,411, being at the rate of £489,803 a year; the annual exports of bullion during the same period being only £84,933. During the same 3 years, 23 ships sailed annually for India. The truth, indeed, seems to be, that, but for the increased consumption of tea in Great Britain, the Company would have entirely ceased to carry on any branch of trade with the East; and that the monopoly would have excluded us as effectually from the markets of India and China as if the trade had reverted to its ancient channels, and the route by the Cape of Good Hope been relinquished.

In 1781, the exclusive privileges of the Company were extended to 1791, with three years' notice; the dividend on the Company's stock was fixed at 8 per cent.; three fourths of their surplus revenues, after paying the dividend, and the sum of £400,000 payable to government, was to be applied to the public service, and the remaining fourth to the Company's own use. In 1780, the value of British produce and manufactures exported by the Company to India and China amounted to only £386,152; the bullion exported during the same year was £15,014. The total value of the exports during the same year was £12,648,616; showing that the East India trade formed only *one thirty-second* part of the entire foreign trade of the empire!

The administration of Mr. Hastings was one continued scene of war, negotiation, and intrigue. The state of the country, instead of being improved, became worse; so much so, that in a council minute by Marquis Cornwallis, dated the 18th of September, 1789, it is distinctly stated, "*that one third part of the Company's territory is now a jungle for wild beasts.*" Some abuses in the conduct of their servants were, indeed, rectified; but, notwithstanding, the nett revenue of Bengal, Bahar, and Orissa, which, in 1772, had amounted to £2,126,766, declined, in 1785, to £2,072,963. This exhaustion of the country, and the expenses incurred in the war with Hyder Ali and France, involved the Company in fresh difficulties; and being unable to meet them, they were obliged, in 1783, to present a petition to Parliament, setting forth their inability to pay the stipulated sum of £400,000 a year to the public, and praying to be excused from that payment and to be supported by a loan of £900,000.

During the administration of Marquis Cornwallis, who succeeded Mr. Hastings, Tippoo Saib, the son of Hyder Ali, was stripped of nearly half his dominions; the Company's territorial revenue was, in consequence, greatly increased; at the same time that the permanent settlement was carried into effect in Bengal, and other important changes accomplished. Opinion has been long divided as to the influence of these changes. On the whole, however, we are inclined to think that they have been decidedly advantageous. Lord Cornwallis was, beyond all question, a sincere friend to the people of India; and labored earnestly, if not always successfully, to promote their interests, which he well knew were identified with those of the British nation. During the 3 years ending with 1793, the value of the Company's exports of British produce and manufactures fluctuated from £928,783 to £1,031,262. But this increase is wholly to be ascribed to the reduction of the duty on tea in 1784, and the vast increase that, consequently, took place in its consumption. (See article TEA.) Had the consumption of tea continued stationary, there appear no grounds for thinking that the Company's exports in 1793 would have been greater than in 1780, unless an increase had taken place in the quantity of military stores exported.

In 1793, the Company's charter was prolonged till the 1st of March, 1814. In the act for this purpose, a species of provision was made for opening the trade to India to private individuals. All his majesty's subjects, residing in any part of his European dominions, were allowed to export to India any article of the produce or manufacture of the British dominions, except military stores, ammunition, masts, spars, cordage, pitch, tar, and copper; and the Company's civil servants in India, and the free merchants resident there, were allowed to ship, on their own account and risk, all kinds of Indian goods, except calicoes, dimities, muslins, and other piece goods. But neither the merchants in England, nor the Company's servants or merchants in India, were allowed to export or import except in Company's ships. And in order to insure such conveyance, it was enacted that the Company should annually appropriate 3,000 tons of shipping for the use of private traders; it being stipulated that they were to pay, in time of peace, £5 outward, and £15 homeward, for every ton occupied by them in the Company's ships; and that this freight might be raised in time of war, with the approbation of the Board of Control.

It might have been, and, indeed, most probably was, foreseen that very few British merchants or manufacturers would be inclined to avail themselves of the privilege of sending out goods in Company's ships; or of engaging in a trade fettered on all sides by the jealousy of powerful monopolists, and where, consequently, their superior judgment and economy would have availed almost nothing. As far, therefore, as they were concerned, the relaxation was more apparent than real, and did not produce any useful results. It was, however, made use of to a considerable extent by private merchants in India; and also by the Company's servants returning from India, many of whom invested a part, and some the whole, of their fortune, in produce fit for the European markets.

Notwithstanding the vast additions made to their territories, the Company's commerce with them continued to be very inconsiderable. During the 5 years ending with 1811, the exports to India by the Company, exclusive of those made on account of individuals in their ships, were as under:

1807..........	£952,416	1810.........	£1,010,815
1808..........	919,544	1811.........	1,033,816
1809..........	866,158		

The exports by the private trade, and the *privilege* trade, that is, the commanders and officers of the Company's ships, during the above-mentioned years, were about as large. During the 5 years ending with 1807–8, the annual average imports into India by British private traders only, amounted to £305,496.—*Papers published by the East India Company in* 1813. 4to. p. 56.

The Company's exports include the value of the military stores sent from Great Britain to India. The ships employed in the trade to India and China, during the same 5 years, varied from 44 to 53, and their burden from 36,671 to 45,342 tons.

For some years previously to the termination of the Company's charter in 1813, the conviction had been gaining ground among all classes, that the trade to the East was capable of being very greatly extended; and that it was solely owing to the want of enterprise and competition, occasioned by its being subjected to a monopoly, that it was confined within such narrow limits. Very great efforts were, consequently, made by the manufacturing and commercial interests to have the monopoly set aside, and the trade to the East thrown open. The Company vigorously resisted these pretensions; and had interest enough to procure a prolongation of the privilege of carrying on an exclusive trade to China to the 10th of April, 1831, with 3 years' notice; the government of India being continued in their hands for the same period. Fortunately, however, the trade to India was opened under certain conditions to the public. The principal of these conditions were, that private individuals should trade, directly only, with the presidencies of Calcutta, Madras, and Bombay, and the port of Penang; that the vessels fitted out by them should not be under 350 tons' burden; and that they should abstain, unless permitted by the Company, or the Board of Control, from engaging in the carrying trade of India, or in the trade between India and China. And yet, despite these disadvantages, such is the energy of individual enterprise as compared with monopoly, that the private traders gained an almost immediate ascendancy over the East India Company, and in a very short time more than *trebled* our trade with India!

But besides being injurious to the private trader, and to the public generally, both in India and England, this trade was of no advantage to the East India Company. How, indeed, could it be otherwise? A Company that maintained armies and retailed tea, that carried a sword in the one hand and a ledger in the other, was a contradiction; and, had she traded with success, would have been a prodigy. It was impossible for her to pay that attention to details that is indispensable to the carrying on of commerce with advantage. She may have gained something by the monopoly of the tea trade, though even that is questionable; but it is admitted on all hands that she lost heavily by her trade to India. When, therefore, the question as to the renewal of the charter came to be discussed in 1832, the Company had no reasonable objection to urge against their being deprived of the privilege of trading. And the act 3 and 4 Will. 4. c. 85., for continuing the charter till 1854, *terminated the Company's commercial character;* by enacting, that the Company's trade to China was to cease on the 22d of April, 1834, and that the Company was as soon as possible after that date to dispose of their stocks on hand, and close their commercial business. And the wonderful increase that has since taken place in the trade with the East is the best proof of the sagacity and soundness of the opinions of those by whose efforts the incubus of monopoly was removed.

II. EAST INDIA COMPANY (CONSTITUTION OF).—At present the functions of the East India Company are wholly political. She is said to govern India, with the concurrence and under the supervision of the Board of Control, nearly on the plan laid down in Mr. Pitt's act. But, in point of fact, the government is substantially vested in the latter; the Company's directors acting, except on some rare occasions, rather as a council to the President of the Board of Control, than as exercising an independent, or co-equal authority. All the real and personal property belonging to the Company on the 22d of April, 1834, was vested in the crown, and is held or managed by the Company in trust for the same, subject of course to all claims, debts, contracts, etc., already in existence, or that may hereafter be brought into existence by competent authority. The Company's debts and liabilities are all charged on India. The dividend, which is 10½ per cent., is paid in England out of the revenues of India; and provision is made for the establishment of a *security fund* for its discharge. The dividend may be redeemed by Parliament, on payment of £200 for £100 stock, any time after April, 1874; but it was provided, in the event of the Company being deprived of the government of India in 1854, that they might claim redemption of the dividend any time thereafter, upon three years' notice.—(3 & 4 *Will.* 4. c. 85.)—J. R. MCCULLOCH.

East, (Germ. *Ost.*) The point of the horizon at which the sun rises at the time of the equinoxes; or the point determined by a perpendicular to the meridian drawn toward the quarter of sunrise. The *east* is one of the four *cardinal points* of the compas.

East India. See INDIA.

East River communicates with the Hudson in the Bay of New York, and is formed by the narrowing of Long Island Sound, which opens with a broad mouth at the eastern end into, and receives a strong impulse from the tides in the Atlantic. This channel is so called in contradistinction to the North River (the Hudson). As the Sound contracts, to the west of the broad expanse in front of New Haven, and forms what is called *East River*, the oceanic currents act with a force that increases with the diminishing width of the stream; and this causes higher tides here than at any other place around the island, arriving at New York about three quarters of an hour earlier than those by the Narrows. This current drives upward along the east shore of the Hudson many miles in advance of the other, on the west; and thus the Hudson has two tides, which hardly unite their action till they have passed Tappan and Haverstraw bays. Horll-Gate, Hell-Gate, or Hurl-Gate, a dangerous and very crooked strait in East River, eight miles N. E. of New York, was called by the Dutch *Horll-Gatt*, signifying *whirlpool.* The strait is formed by projecting rocks that confine the water to a narrow and crooked channel, occasioning strong eddy currents. There is a sufficient depth of water for any vessels, but the passage of large ships should only be attempted with skillful pilots.—E. A.

Eau de Cologne. This well-known perfume is a solution of different volatile oils in pure strong spirit. The principal condition for the preparation of a fine water is the employment of a spirit quite devoid of fusil-oil (oil of grain), and of all foreign odor. In respect to the proportion and kind of oils employed, we have numerous formulæ. It is of importance that these oils, which are usually purchased of the druggists of the south of France, should be of the finest quality, and that no oil should be used in sufficient quantity to allow of its peculiar odor being recognizable in the mixture. The oils are to be dissolved in spirit, and the mixture allowed to stand for some weeks (or still better for some months), to improve its odor. Distillation does not affect this; on the contrary a fresh distilled water requires to be kept a much longer time. Distillation is indeed objectionable; for on account of the great volatility of the spirit, the oils in part remain behind in the still. Distillation can improve the odor only when the less volatile oil has been used in too great a quantity, and we wish to obtain a better proportion. Before all things, we should employ a pure, old, strong spirit, and not too much of, nor too strongly smelling oil. The different sorts of volatile oil which are obtained from varieties of citrons, oranges, and lemons, in different states of maturity, are the most important; and, therefore, it is most important to ascertain their purity and goodness. Forster gives the following formula for the preparation of fine eau de Cologne: Take of rectified spirit 82 per cent., of Tralles (=sp. gr. 0·855), 6 (wine) quarts; essence of oranges, essence of bergamot, essence of citron, essence of limette, and essence of petits grains, of each, ℥ j; essence of cedro, essence of sedrat essence de Portugal, and essence de neroli, of each ℥ ss; oil of rosemary, ʒ ij; and oil of thyme, ʒ j.

Otto gives the following formula for a good eau de Cologne: Rectified spirit of 86 per cent.; of Tralles (=0·846 sp. gr.), 200 (wine) quarts; oil of citrons, ℔. iv; oil of bergamot, ℔. ij; oil of neroli ⅝ ℔.; oil of lavender, ℔. ss; oil of rosemary, ¼ ℔.; and spirit of ammonia, ℥ ss. Mix: don't distill.

This preparation has long possessed great celebrity, in consequence chiefly of the numerous virtues ascribed to it by its venders; and is resorted to by many votaries of fashion as a panacea against ailments of every kind. It is, however, nothing more than aromatized alcohol, and as such an agreeable companion for the toilet. Numerous fictitious recipes have been offered for preparing eau de Cologne; the following may be reckoned authentic, having been imparted by Farina himself to a friend.

Take 60 gallons of silent brandy; sage, and thyme, each ʒ vi; balm-mint and spearmint, each ℥ xij; calamus aromaticus, ʒ iv; root of angelica, ʒ ij; camphor, ʒ j; petals of roses and violets, each ℥ iv; flowers of lavender, ℥ ij; flowers of orange, ʒ iv; wormwood, ℥ j.; nutmegs, cloves, cassia, lignea, and mace, each ʒ iv; 2 oranges and 2 lemons, cut in pieces. Allow the whole to macerate in the spirit during 24 hours, then distill off 40 gallons by the heat of a water bath. Add to the product; essence of lemons, of cedrat, of balm-mint, and of lavender, each ʒ xij; neroli and the essence of the seed of anthos, each ʒ iv; essence of jasmin, ℥ j; of bergamot, ℥ xij. Filter, and preserve for use.

Cadet de Gassincourt has proposed to prepare eau de Cologne by the following recipe: Take alcohol at 32° B., 2 quarts; neroli, essence of cedrat, of orange, of lemon, of bergamot, of rosemary, each 24 drops; add ʒ ij of the seeds of lesser cardamoms; distill by the heat of a water bath a pint and a half. When prepared as thus by simple mixture of essences, without distillation, it is never so good. There is a curious contest in Germany concerning the veritable Farina, who makes the celebrated eau de Cologne. The contest was carried even into the Crystal Palace, where there were four John Maria Farinas, all claiming to be the original. It appears that speculation is carried to so high a pitch in Cologne, that any child entitled to the surname of Farina is bargained for as soon as born, and christened Jean Maria. At times this event is even anticipated.

Eau de Luce. A strong solution of ammonia, scented, and rendered milky by the addition of a little mastic and oil of amber. It is considered an effective remedy in India against the bite of poisonous snakes.

Ebony (Ger. *Ebenholz*; Du. *Ebbenout*; Fr. *Ebéne*; It. *Ebano*; Rus. *Ebenowoederewo*; Lat. *Ebenus*), a species of wood brought principally from the East. It is exceedingly hard and heavy, of great durability, susceptible of a very fine polish, and on that account used in mosaic and other inlaid work. There are many species of ebony. The best is that which is jet black, free from veins and rind, very compact, astringent, and of an acrid pungent taste. This species (denominated by botanists *Diospyrus Ebenus*) is found principally in Madagascar, the Mauritius, and Ceylon. The centre only of the tree is said to be valuable. In 1837, 2160 cwt. of ebony, of the estimated value of £1275 were exported from the Mauritius. Besides the black, there are red, green, and yellow ebony; but the latter are not so much esteemed as the former. Cabinet-makers are in the habit of substituting pear-tree and other woods dyed black, in the place of genuine ebony; these however, want its polish and lustre, though they hold glue better. The price of ebony varies in the London market from £5 to £20 a ton. The quantities imported are but inconsiderable.

Ecuador. See EQUADOR.

Eddy (Sax. ed, *water*, and ea, *backward*), is the water of a stream or tide which, in consequence of striking against some obstacle, is thrown backward, and runs in a direction opposite to that of the general current. More frequently, however, the term is used to denote the whirling or circular motion caused by the meeting of two opposite currents; and in this sense it is also applied to a similar motion of atmosphere.

Eel (*Anguilla murœna* of Linnæus), a fish, the appearance of which is too well known to require any description. It is a native of almost all the waters of Europe, frequenting not only rivers but stagnant pools. Eels are, in many places, extremely abundant, particularly in Holland and Jutland. Several ponds are appropriated in England to the raising of eels; and considerable numbers are taken in the Thames and other rivers. But a large portion of the eels used in England are furnished by Holland. Indeed, very few except Dutch eels are ever seen in London; and even Hampton and Richmond are principally supplied by them. The trade is carried on by Dutch traders, who employ in it several small vessels, by means of which the market is regularly and amply provided for.

Effervescence (Lat. *effervesco*). The escape of gaseous matter from liquids, as in the act of fermentation. All liquids from which bubbles of gas rapidly escape, so as to resemble boiling, are said to effervesce.

Efflorescence (Lat. *effloresco*, *I flower*). The spontaneous crumbling down of transparent crystals, in consequence of the loss of water.

Eggs (Fr. *Œufs*; Lat. *Ova*), are too well known to require to be described. They differ in size, color, taste, etc., according to the different species of birds that lay them. The eggs of poultry are those most commonly used as food; and form an article of very considerable importance in a commercial point of view. The eggs of plovers are esteemed a great delicacy, and make, indeed, a perpetually recurring dish at fashionable dinners.

Egypt, a country situated at the north-eastern extremity of Africa, between N. lat. 31° 37′ and 24° 1′, and E. long. 27° 18′ and 34° 12′; bounded on the north by the Mediterranean Sea, on the south by Nubia, on the east by Palestine, Arabia, and the Red Sea, and on the west by the Great Desert. The chief field-produce is wheat (which is more grown than any other kind of corn), barley, several sorts of millet, maize, rice, oats, clover, peas, the sugar-cane, roses, two species of the tobacco-plant, and cotton. The sugar-cane is extensively cultivated, and excellent sugar is manufactured from it. There are fields of roses in the Feiyoom, which supply the market with rose-water. The tobacco produced in Egypt is coarse and strong compared with that which is used by the middle and upper classes, and imported from Syria and Turkey. That of Syria is considered the best. Of textile plants, the principal are hemp, cotton, and flax; and of plants used for dyeing, bastard, saffron, madder, woad, and the indigo-plant. The intoxicating hasheesh, which some smoke in a kind of water-pipe, formed of a cocoa-nut, two tubes, and a bowl, seldom used for any other narcotic, is not, as has been erroneously supposed, opium, but hemp. The effect is most baneful. The leaves of the hinnè-plant, grown in abundance, are used to tinge, of a bright-red color, the palms of the hands, the soles of the feet, and the nails of both hande and feet, of women and children, the hair of old ladies, and the tails of horses. Indigo is very extensively employed to dye the shirts of the natives, of the poorer classes, and is, when very dark, the color of mourning; therefore women, at funerals, and generally after a death, smear themselves with it. Oil is extracted from the seeds of the cotton-plant, hemp, colewort, the poppy, the castor-oil plant, sesame, and flax. The high, coarse grass, called halfeh (*Poa synosuroïdes*) grows in great quantity in waste places and among ancient ruins.

Mr. Lane (1834) estimates the population of Egypt at less than 2,000,000, and gives the following numbers as nearly those of the several classes of which it is mainly composed:

Moslem Egyptians (felláheen or peasants, and townspeople)	1,750,000
Christian Egyptians (Copts)	150,000
Osmánlees, or Turks	10,000
Syrians	5,000
Greeks	5,000
Armenians	2,000
Jews	5,000

and the remainder, exclusive of the Arabs of the desert, about 70,000.

Sir Gardner Wilkinson (1843) computes the total at about 1,800,000; but Clot-Bey (1840), not always an impartial writer, places it much higher, upward of 3,000,000. The following result of the government census, taken in 1847–8, is remarkable as showing the system of falsifying statistics for state purposes. It is copied from an official return:

Middle Egypt	591,294	El-Kuseyr	3,435
El-Gharbeeyeh	529,930	Rosetta	18,405
El-Kalyoobeeyeh	184,240	Damietta	28,922
Upper Egypt	1,190,118	Suez	17,399
Esh-Sharkeeyeh	342,509	El-'Areesh	2,347
El-Geezeh	223,554	Alexandria	148,134
El-Boheyreh	215,810	Cairo	258,541
El-Meneofeeyeh	440,519		
El-Dakahleeyeh	347,347	Total	4,542,620
Shubra	10,116		

Since the conclusion of the Syrian war, until the present struggle, the navy has been totally inactive. At the former period, it numbered 11 ships of the line, 6 frigates (one moved by steam-power), 5 corvettes, 9 brigs (3 being steamers), and 2 cutters. Some of these were constructed in the naval yard at Alexandria, but the larger number were contracted for in Europe. Great care was bestowed on the formation of the navy, and the establishments connected with it at Alexandria, but the Egyptians do not seem to be a maritime people, or, at any rate, their men-of-war have none of the tautness and neatness of European ships of the class.—E B.

The trade with Europe is carried on through Alexandria. The traffic with the interior of Africa is carried on by means of caravans, which bring, in exchange for European and Egyptian products, ivory, gold-dust, skins, wool, gum, ostrich-feathers, and metals. The chief commercial relations with Arabia and India are carried on by Cosseir and Suez. Since the establishment of regular steam-packets in the Mediterranean and the Indian Ocean, Egypt has become the route to India for all the correspondence of Europe, as well as for the greater portion of travelers. The principal means of communication at present are the Nile, which is traversed by steam-packets, and the canals, many of which have been repaired by Mehemet Ali; but even the best of them are often unnavigable during a great part of the year. The route from Cairo to Suez (180 miles) is traversed by horses and vans, and the mail is conveyed in 18 hours. The project of uniting the Mediterranean with the Red Sea, by re-opening the ancient canal, has been recently revived, but it is surrounded with difficulties, and not likely to be carried into effect. The more practicable and safe plan of a railroad communication between Cairo and Suez has been resolved on, and a portion of it built. This may again render Egypt the principal entrepôt of commerce between the eastern and the western worlds.

Commerce.—The general commerce of Egypt in 1851, reached a total of 144,509,000 francs, or, in round numbers, $28,902,000; which shows an increase, when compared with 1841, of 44,000,000 francs, or nearly $9,000,000.

It is difficult to obtain any accurate returns of the commercial movements of Egypt, except such as are prepared by the foreign consuls residing at the different ports of that country, and transmitted to their respective governments. From such sources the following table is compiled, showing the export trade of Egypt, and vessels employed, during a period of 11 years, ending with 1851:

Years.	Piastres.	Dollars.	Vessels.
1841............	198,270,150	9,913,507	1,230
1842............	180,446,600	9,022,330	1,350
1843............	191,538,400	9,576,920	1,370
1844............	167,868,430	8,393,421	1,207
1845............	185,782,200	9,289,110	1,097
1846............	187,341,080	9,367,054	1,221
1847............	301,343,500	15,067,175	1,815
1848............	157,236,546	7,861,827	1,608
1849............	203,056,232	10,152,811	1,609
1850............	315,357,800	15,767,890	1,650
1851............	325,804,695	16,290,234	1,793

The value of the piastre varies. That of Alexandria is reckoned at 5 cents United States' currency; that of Turkey generally is equivalent to 4 cents.

The import trade in 1841, the first year given in the table, reached 187,000,000 piastres=$9,350,000, and ascended in 1851, the last year, to 230,000,000 piastres, or about $11,500,000. The articles which diminished in the import returns during the period, were sugar, linens, certain kinds of silks, and rum; and the diminution was about equal to the increased production of those articles in Egypt. The importation increased in woolens, cottons, French silks, and articles of fashion.

Commerce in 1855 (Value in Pounds Sterling).

Importation, 2,141,000.		Exportation 4,600,000.	
From England..	905,000	To England...	2,600,000
" France...	177,000	" France....	511,000
" Austria...	200,000	" Austria....	444,000

Navigation in 1854 and 1855.

Entered and cleared.	Vessels.	Tonnage.
1854...........	8,952	788,457
1855...........	4,449	913,216

The English flag occupies the first rank in the returns from which the preceding figures are taken, though, since the repeal of the navigation laws of Great Britain in 1850, the importations under the flags of other countries of northern Europe have largely increased.

Alexandria.—The trade of this port has increased rapidly since the opening of the canal which communicates between Alexandria and the Nile at Atfeh. This communication has taken away from the ports of Damietta and Rosetta the extensive commerce formerly enjoyed by them, and for which, from their position on the two mouths of the Nile, they possessed great advantages. The total trade of Alexandria in 1840, amounted in value to $11,997,145, of which there were for imports $6,636,980, and for exports $5,360,165. This trade in 1842 reached in value $21,000,000, an increase over 1840 of over $9,000,000. The treaty of 1838, placing foreign commerce on a more secure basis than had previously existed, and the tranquillity which followed the settlement of the difficulties of 1840, were the causes of this great augmentation in the trade of 1842. Among the exports of this year, raw cotton reached in value $1,800,000, of which Austria received upward of $1,000,000 in value. The trade of 1843 exhibits a falling off from that of the preceding year, aggregating only (imports and exports united) about $19,000,000, of which raw cotton reached in value about $2,000,000. In 1844 the total trade of this port fell again to about $13,000,000; and in 1846 the totals reached nearly $18,000,000, of which, for cotton, there were $2,000,000. In 1849 the foreign trade of Alexandria reached $16,000,000, of which for imports, there were $7,500,000, and for exports, $8,500,000. The raw cotton exported this year reached in quantity 258,000 quintals (the quintal, or cantar, is estimated at 100 lbs.), or 25,800,000 lbs., valued at $2,775,000. The tranquillity which prevailed in Egypt during the ten years anterior to 1850, was highly favorable to the development of its foreign commerce. The treaty of 1838, guarantying the unrestricted circulation through Egypt of European merchandise, and its freedom from the vexatious taxes to which it was subjected before that period, contributed in like manner to the prosperity of this port in 1850. The total trade exceeded in value $19,000,000, a figure which it had never before reached, excepting in the year 1842, when the large augmentation was brought about by causes purely accidental. Of this sum, imports reached nearly $8,000,000, and exports about 11,000,000. Of the latter, raw cotton amounted in quantity to 82,084,500 lbs., and in value to $4,200,000.

The establishment of a national bank in Alexandria, under the title of Bank of Egypt, has already, though not in operation, commenced a revolution in the ideas of the fellahs, or cultivators of the soil, with respect to money matters. It is well known that the fellahs have hitherto hoarded or buried the cash they have received for their produce. Since they have been paid by drafts on the Bank of Egypt, and they find the mode in which those drafts are cashed is so satisfactory, some of the more wealthy have opened accounts with the bank, and deposited their savings there for safe keeping. Should this practice become general, and the many millions which are known to be hoarded by the fellahs be brought into circulation and laid out in profitable investments, it must produce an enormous effect on the prosperity of the country in general.

It is worthy of notice, that, in the voluminous reports from which the preceding statements of the trade, both of Egypt and its principal port, Alexandria, are extracted, the United States does not once appear. A despatch to the State Department, dated Alexandria, May 1, 1856, states that "the increase in foreign traders is very perceptible, but there are few branches of American houses among them." England, France, and Austria, seem to have been the principal foreign countries which participated in this trade. The total trade of 1851 reached $29,000,000, and that of 1852 ascended to upward of $31,000,000, of which a large share is assigned to Turkey and Syria. The quantity of raw cotton exported the latter year was 718,655 quintals, valued at $6,960,249. The whole of this cotton was sent to England, France, and Austria, in the following proportions: to England, 426,118 quintals; to Austria, 159,300 quintals; and to France, 128,030 quintals. These figures, as well as those employed throughout this digest, generally, are derived from French official sources, which purport to be based on those of Egyptian authorities. The latter, however, are deemed by no means reliable. The following statement exhibiting the export trade of Alexandria for 1855, transmitted from the United States' Consulate-general at that place, is stated to have been drawn from private sources:

Countries.	Cotton.	Wheat.	Beans.	Flax.	Indian corn.	Wool.	Linseed.
	Cantars.*	Ardebs.†	Ardebs.	Cantars.	Ardebs.	Cantars.	Ardebs.
Great Britain..............	270,615	1,114,614	392,840	56,425	103,737	19,275	46,994
France.....................	108,248	130,441	700	1,250	....	1,680	1,090
Austria....................	140,412	27,580	10,952	3,416	13,035	639	724
Other countries............	1,611	402,217	40,754	14,258	3,851	1,900	3,180
Total.................	520,886	1,674,852	445,246	75,349	120,623	23,494	51,988

* The cantar of Egypt is estimated at 100 pounds.

† The ardeb equals 5 bushels.

During the same year, an English house at Alexandria sent two vessels to New York, and an Austrian house two more to the same destination, loaded chiefly with gums, rags, etc. There is no doubt that a profitable trade might be established between the United States and the port of Alexandria, by sending out such merchandise as usually finds a market in Egypt, and receiving in return the rich and varied exports of that extensive emporium.

Cotton.—The cotton culture of Egypt commenced in 1818, and exportation to England in 1823. The seed is said to have been imported by the pacha "from America, the Mediterranean, and Brazil;" and these different kinds of cotton may, therefore, be met in cultivation. The attempt to cultivate the sea island cotton is pronounced a failure—the quality deteriorating rapidly after the first crop—although the best Egyptian cotton, called *Maho* (so called from Maho-Bey, in whose garden, at Cairo, the plant was first discovered, having, probably, been introduced from the Isle of Bourbon during the French invasion), is ranked next to sea island in length of staple. The comparative tabular statement subjoined, made up from consular returns (the bale being estimated at 300 lbs.), shows the quantities of cotton exported at the port of Alexandria, and the countries to which exported, respectively, during a period of three years. The quantity exported in 1852 is stated to have been as follows: to Great Britain, 57,623,400 lbs.; to France, 12,350,100 lbs.; to Austria, 11,429,700 lbs.; elsewhere, 359,100 lbs.; presenting an aggregate of 81,762,300 lbs., and far exceeding that of either of the three ensuing years, as given in the following table:

POUNDS OF COTTON EXPORTED FROM ALEXANDRIA, 1853—1855.

Countries.	1853.	1854.	1855.
	Pounds.	Pounds.	Pounds.
Great Britain..	26,439,900	24,938,700	33,980,100
France........	10,726,500	7,454,100	9,451,200
Austria........	6,321,000	10,165,200	12,774,900
Elsewhere.....	397,800	988,500	668,100
Total......	43,885,200	43,546,500	56,874,300

If to the aggregate exported, be added from five to six millions pounds consumed in the country, a liberal estimate of the annual amount of cotton produced in Egypt—between fifty and sixty million pounds—will have been made. The factories established by Mehemet Ali are, it is stated, going rapidly to ruin. The cotton goods manufactured are coarse "captas," or soldiers' "nizam" uniform. Much cotton is used also in making up divans, the usual furniture in Egypt.—*Com. Relations U. S.* See article ALEXANDRIA.

The Egyptian measures are, the "fitr," or space measured by the extension of the thumb and first finger; the "shibr," or span; the common cubit=22⅔ inches, the cubit of about 25 inches, used principally for Indian goods, and the cubit of about 26½ inches, used for European cloth. Of the measures of land, the feddán was equal to about one English acre and one tenth; it is now less than an acre. It is divided into "keeráts," or 24ths, and consists of 333⅓ kasabehs or rods. The kasabeh is 22 "kabdahs," and the kabdah, about 6¼ inches, or the measure of a man's fist with the thumb erect. The Egyptian league varies in Upper and Lower Egypt, and is stated to be, in the former, equal to a journey of an hour and a half, and in the latter, to one hour's journey. The "ardeb" is equal to very nearly five bushels, and consists of six "weybehs," and each weybeh of four "rubas."

Weights.—The weights are the "kamhah" (or grain of wheat), the 64th of a "dirhem," and 4th of a "keerát." It is equal to about ¾ of an English grain. The "habbeh" (or grain of barley) is the 48th of a dirhem and 3d of a keerát, and=127-128th English grain. The keerát, or carat, is the 24th of a "mitkál;" and=from 2 125-128ths to 3 English grains. The dirhem =47 5-8ths to 48 English grains. The mitkál=weight of a deenár=from 71 7-16ths to 72 English grains. The "wukeeyeh," or ounce=from 571½ to 576 English grains. The "ratl," or pound=from 1 lb. 2 oz. 5¾ dwt. to about 1 lb. 2 oz. 8 dwt. troy. The "wukkah," or oke=from 3 lb. 3 oz. 13¾ dwt. to 3 lb. 4 oz. troy. The "cantár," or 100 weight=from 98 lbs., less 200 grs., to about 98 lb. avoirdupois.

Money.—European sovereigns and dollars are current in Egypt, the former being now equivalent to about 100 piastres, the latter, if French, to about 20 piastres, and if Spanish (pillar-dollars), to about 22 piastres; but the value of these coins is constantly changing. The Spanish doubloon, and Venetian sequin are also current, and so are Constantinople coins. Of native coin, the "faddah," or para, is equal to 6-25ths of a farthing, and there are pieces of 5, 10, and 20 faddahs. The "kirsh," or Egyptian piastre, contains 40 faddahs, and is equal to 2 and 2-5ths pence. These coins are of silver and copper. Of gold coins, there are the "kheyreeyeh," of 4 piastres, and the kheyreeyeh of 9 piastres (but the value of these coins has recently depreciated), and pieces of 5, 10, 20, and 100 piastres. The "riyál beledee," or native dollar, is equal to 90 paras, but is only a nominal money, as is the "kees," or purse, which contains 500 piastres, and the "khazneh," or treasury of 1,000 purses. For the weights, measures, and money, we are indebted to the *Modern Egyptians.*—E. B. See ALEXANDRIA.

Eider-duck. The species of duck so-called is one of the largest and most valuable of the *Anatidæ*, and, from certain modifications of the beak and sternum, constitutes the type of a subgenus, called *Somateria.* The common eider (*Somateria mollissima*) frequents, in great numbers, the Orkneys, Hebrides, and Shetland isles. It is defended from the cold of the dreary northern coasts by the development of an unusual quantity of the finest down beneath its dense exterior plumage, which is equally well adapted to form an impenetrable barrier to the wet. The down of the eider constitutes its chief value, as it combines with its peculiar softness, fineness, and lightness, so great a degree of elasticity that the quantity of this material which might be compressed and concealed between two hands will serve to stuff a coverlet. As the female plucks from her own body a quantity of her finest down to line her nest, the Orcadians avail themselves of this instinct, and take an early opportunity to rob the nest of both eggs and down. She then begins to lay afresh, and envelopes her eggs with another layer of down; and if this be removed, the male is said to contribute his own down, when the female can afford no more. Lastly, when the brood of ducklings is hatched, the nest is again visited and the down removed. Thus a considerable quantity of the valuable material furnished by the eider-duck is obtained independently of that which is plucked from the slaughtered birds. Besides the down and eggs, the islanders turn the skins and flesh of the eiders to profit; while these birds cost them no expense, as they feed entirely on sea-weed and other natural productions of the ocean.

Elastic Bands. (*Tissus Elastiques*, Fr.; *Federharz-zeige*, Germ.) The manufacture of braces and garters, with threads of caoutchouc, either naked or covered, seems to have originated, some time ago, in Vienna, whence it was a few years since imported into Paris, and thence into this country. At first, the pear-shaped bottle of the Indian rubber was cut into long narrow strips by the scissors; a single operative turning off only about 100 yards in a day, by cutting the pear in a spiral direction. He succeeded next in separating with a pair of pincers the several layers of which the bottle was composed. Another mode of obtaining fine threads was to cut them out of a bottle which had been rendered thin by inflation with a forcing pump. All these operations are facilitated by previously steeping the caoutchouc in boiling water, in its moderately inflated state. More recently, machines have been successfully employed for cutting out these filaments, but for this purpose the bottle of caoutchouc is transformed into a disc of equal thickness in all its parts, and perfectly circular. This preliminary operation is executed as follows: 1. The bottle, softened in hot water, is squeezed between the two plates of a press, the neck having been removed beforehand, as useless in this point of view; 2. The bottle is then cut into two equal parts, and is allowed to consolidate by cooling, before subjecting it to the cutting instrument. When the bottle is strong enough, and of variable thickness in its different points, each half is submitted to powerful pressure in a very strong cylindrical mold of metal, into which a metallic plunger descends, which forces the caoutchouc to take the form of a flat cylinder with a circular base. The mold is plunged into hot water during the compression. A stem or rod of iron, which goes across the hollow mold and piston, retains the latter in its place, notwithstanding the resilience of the caoutchouc, when the mold is taken from the press. The mold being then cooled in water, the caoutchouc is withdrawn.

The transformation of the disc of caoutchouc into fine threads is performed by two machines; the first of which cuts it into a ribbon of equal thickness in its whole extent, running in a spiral direction from the circumference to the centre; the second subdivides this ribbon lengthwise into several parallel filaments much narrower but equally thick.—URE'S *Dict.*

Elba, called *Ilva* by the Romans, and *Æthalia* by the Greeks, an island in the Mediterranean Sea lying off the promontory of Populonium, at equal distances from Corsica and the Italian mainland, though somewhat nearer the latter. Its outline is extremely irregular, and its sides are indented by numerous inlets and arms of the sea, reducing its breadth in some places to about 3 miles. The extreme length of the island is about 18 miles; its extreme breadth about 12 miles; and its area about 150 miles. The whole length of the island is occupied by a mountain range, one peak of which (that of Capanna) rises to the height of about 3500 feet above the sea. The mountains of this range, though themselves barren, inclose valleys of considerable fertility. Vines, olives, and mulberries, grow in large quantities in this island, which also produces wheat, Indian corn, and vegetables in abundance. Some of the wine produced in Elba is of excellent quality, and a considerable quantity of it is annually exported. The smaller domestic animals thrive well and are very numerous in the island; but the larger kinds, such as oxen and horses, are somewhat scarce The fisheries off the coast are important.

The iron mines of Elba, in modern, as in ancient times, are extremely valuable. The great facility with which the metal is worked, and the abundance in which it is found, render these mines among the most valuable of their kind in the world. The ore is dug from a hill, 500 feet high and nearly 2 miles in circumference, which is itself almost entirely one mass of ore. When smelted, it is found to contain on an average about 60 per cent. of pure iron. Fuel on the island is very scarce; and the ore is consequently conveyed on shipboard to the adjoining mainland to be smelted. The total quantity of iron ore annually extracted amounts to nearly 20,000 tons, giving employment to 130 miners. The salt mines of Elba are hardly inferior in celebrity to the iron ones. About 4,000,000 pounds are annually produced, giving employment to about 100 workmen. Besides Porto Ferrajo, the capital, and the town of Porto Longone, Elba contains no town of any size or importance. Campo, Capo Liveri, Marciana, and Rio are mere villages or fishing stations. In ancient history, the name of Elba very rarely occurs; and in modern times it is chiefly memorable as having been the residence of the Emperor Napoleon, after his first abdication, from May 1814 till February 1815. From that time till the present, Elba has been an appanage of the Grand Duchy of Tuscany. Pop. (1854) 21,559.

Elbe (the *Albis* of the ancients), a large river of Germany, which rises in the *Riesen Gebirge*, or Giant's Mountains, between Silesia and Bohemia, and is known at its source by the Sclavonic name of *Labbe.* Its principal sources are the White Fountain, at the base of the *Schnee-Kuppe*, and the 11 fountains of the Elbe in the Navarian meadow. To the number of streams which descend into Bohemia from the neighboring mountains it owes its early increase. After its junction with the river Eger, it becomes navigable; and, entering Saxony, it passes successively Dresden, Meissen, Torgau, and Wittenberg. In its course, which is northerly, it receives as tributaries the Muldau and the Saale; and running through the territory of Magdeburg and the duchies of Mecklenburg and Lauenburg, it discharges itself at last into the German Ocean, about 70 miles below Hamburg, after a course of 500 miles. The Elbe has always been an important river in a military point of view. With respect to commerce, it is of inestimable value to the countries of north-west and central Germany, being the channel by which they export their surplus products, and receive their imports from abroad. It gives to Hamburg its command of the navigation far into the interior, although the voyage is difficult on account of the numerous sand-banks with which the estuary and the rivers are encumbered. It communicates with the Havel by the canal of Plauen, in the territory of Magdeburg; and at Hamburg it is connected in like manner with the Trave at Lubec. It is also joined to the Weser by a canal running between Vegesak and Stade. By the railway from Leitmeritz to Vienna it communicates with the Danube; and the other railways that touch upon other quarters of the river supply channels for distributing merchandise through the various districts which they traverse. About 40 miles from its source, the elevation of the river above the level of the sea, is only 658 feet; at Schandau it is 341 feet; at Dresden, 279 feet; and at Arneburg in Brandenburg, only 176 feet.

Formerly 3 entrepôts (Pirna, Dresden, and Magdeburg), and 35 tolls, and numerous corporations of privileged watermen, opposed almost insurmountable difficulties to the navigation: the Austrians and the Saxons could alone navigate the Upper Elbe, that is, from Magdeburg to where it ceases to be navigable, and the Prussians and Hamburgers had the sole privilege of navigating the Lower Elbe. But the navigation of the river was definitely regulated by a convention concluded on the 13th June, 1821, between all the bordering states, viz., Austria, Saxony, Prussia, Hanover, Denmark (for Holstein and Lauenburg), the grand duchy of Mecklenburg-Schwerin, and the three principalities of Anhalt. This convention established the principle of free navigation, allowing every merchant, to whatever bordering state he might belong, with his own vessel and crew to navigate the whole course of the river without interruption; the 35 tolls were reduced to 14; the heavy dues which were levied upon goods of the first necessity were reduced to those which are paid, one for the cargo (*Elbe Toll*), and the other for the ship (*Recognitionsgebühr*); and each state was bound to watch over the portion of river which passed through their territories, and to preserve it from every thing injurious to the commerce or navigation. But notwithstanding these regulations, merchants are still exposed to vexatious burdens and interruptions. Wood, stones, fruits, and earthenware, are the principal articles that are brought down the Elbe. Corn, salt, and colonial produce are the principal articles which are carried up, and on these the greater part of the duties are levied. For a later ordinance relating to the abolishment of all tolls on the Elbe except the ordinary port charges, see article HAMBURG.

El Dorado (Span. *the golden region*). The name given by the Spaniards to an imaginary country, supposed in the 16th century to be situated in the interior of South America, between the Rivers Orinoco and Amazon, and, as the name implied, abounding in gold and all manner of precious stones. After the Spanish conquest of Mexico and Peru, the most exaggerated accounts of the wealth and riches of the newly acquired territory were circulated and believed. A new region was fabled to exist far surpassing the wealth and splendor of Peru; expeditions were fitted out for the purpose of discovering it; and though all such attempts proved abortive, the rumors of its existence continued to be believed down to the beginning of last century. The term has now passed into the language of poetry, in which it is used to express a land of boundless wealth and felicity, like the ancient Elysium or the Mohammedan Paradise. See a learned article on "Sir Walter Raleigh," in vol. lxxii., of the *Edin. Review*, which contains a *resumé* of all the speculations that have been entertained upon this subject.

Electrography. The copying of an exquisite line engraving, from a copper or steel plate to an electro-copper deposit, although now become a very familiar process, is really a wonderful one; for, let the lines of the engraving be as fine and minute as they may, the deposited atoms of copper mark them all distinctly—so infinitely small is each atom or particle compared with any magnitude which human hands can produce. Like many other wonderful and beautiful processes, this is a very simple one. Let us suppose that a large steel or copper engraving is to be so copied. The plate is immersed in a chemical solution of copper, and a thick film is precipitated on it by electro deposit. This film may be easily loosened from the plate, and its surface then presents a reverse to the plate, protuberances instead of engraved lines, and cavities instead of plain or raised portions. The film is employed as a sort of mold; for it is in its turn, immersed in the solution, and made the basis for a second deposition. This second deposition is allowed to continue until a plate as thick as the original is produced; and this plate, when separated from its parent film, is seen to be an exact counterpart of the engraved plate first operated upon. So perfect is the resemblance, that, if the electro-plate be made with care, an inked impression printed from it can be detected from one printed from the original plate only by an experienced judge: to ordinary eyes they are equal in all respects.

To M. Jacobi—almost simultaneously with Mr. Spencer—we are indebted for one of the simplest and most elegant applications of electricity—the galvanoplastic art, or Volatype. In this, advantage is taken of the perfectly metallic state in which the base of a metallic salt is deposited at the negative pole of a volatile combination. In the case, for example, of the decomposition of sulphate of copper, the sulphuric acid unites with the positive wire, or remains suspended, while the metallic copper is slowly and homogeneously deposited on the surface of any object (rendered conducting by the application of black lead or otherwise), of which it forms a perfect mold, from which a fresh cast or *fac-simile* in metal of the original object may be obtained by a repetition of the process. To see the veins of a leaf, or the delicate wing of an insect thus metallized, is certainly an astonishing thing; and the applications to the useful arts are far too numerous to be noticed here. Daniel's invention of the Constant Battery evidently suggested the Volatype.

Elemi, a resin obtained from the *Amyris elemifera*, a tree growing in different parts of America, Turkey, etc. It is obtained by wounding the bark in dry weather, the juice being left to thicken in the sun. It is of a pale yellow color, semi-transparent—at first softish, but it hardens by keeping. Its taste is slightly bitter and warm. Its smell, which is, at first, strong and fragrant, gradually diminishes. It used to be imported in long roundish cakes, wrapped in flag-leaves, but it is now usually imported in mats and chests.—THOMSON'S *Chemistry*.

Elixir (Arab), a term applied in old pharmacy to certain essences or tinctures; a mixture of an aromatic tincture with sulphuric acid was called *elixir of vitriol*. The alchemists applied the term *elixir* to various solutions employed in the art of transmutation.

Ell (Lat. *Ulna*), a measure used chiefly for cloth, and varying in length in different countries. The English and Flemish ells were those most in use in Great Britain. The English ell is 45 inches, while the Flemish ell is only 27 inches or ¾ of a yard. In Scotland the ell is 37 1-5 English inches.

Elm (*Ulmus*), a forest tree of which there are several varieties. It attains to a great size, and lives to a great age. Its trunk is often rugged and crooked, and it is of slow growth. The color of the heart-wood of elm is generally darker than that of oak, and of a redder brown. The sap-wood is of a yellowish or brownish white, with pores inclined to red. It is in general porous and cross-grained, sometimes coarse-grained, and has no large septa. It has a peculiar odor. It twists and warps much in drying, and shrinks very much both in length and breadth. It is difficult to work, but is not liable to split, and bears the driving of bolts and nails better than any other timber. In Scotland, chairs and other articles of household furniture are frequently made of elm wood; but in England, where the wood is inferior, it is chiefly used in the manufacture of coffins, casks, pumps, pipes, etc. It is appropriated to these purposes because of its great durability in water, which also occasions its extensive use as piles, and planking for wet foundations. The naves of wheels are frequently made of elm; those of the heavy wagons and drays are made of oak, which supports a heavier weight, but does not hold the spokes so firmly. Elm is said to bear transplanting better than any other large tree.—TREDGOLD'S *Principles of Carpentry*.

The wood of the *Ulmus Americana*, like that of the European elm, is of a dark brown color, and is liable to decay when exposed to the alternations of moisture and dryness; and when cut transversely or obliquely to the longitudinal fibres, it exhibits the same numerous and fine undulations; but it splits more easily and has less compactness, hardness, and strength—weighing, when perfectly dry, only 33 pounds to a cubic foot. The principal uses to which this timber is applied, are for making naves or hubs to wheels, for piles and foundation-pieces to mills, canal-locks, and for many other purposes where strength is required, and the work is constantly buried in water or mud. In the State of Maine it is occasionally employed for the keels to vessels, for which purpose it is well adapted on account of its size. It is also employed for the swingle-trees of the carriages of great-guns; and in some parts of the country, where more appropriate wood is not to be found, it is used for making ox-yokes, sleds, and other implements of husbandry. The bark, which is easily detached from the tree during 8 months of the year, is sometimes used for making bast-mats, ropes or withes, and for the bottoms of chairs. The wood, when dry, makes excellent fuel, and, when burned, yields a large proportion of ashes, which abound in alkaline salts. In Canada, and in the northern parts of the States of Maine, New Hampshire, Vermont, and New York, a profitable business is followed, especially in connection with clearing the forests, in preparing the salts of ley, for the manufacture of potash.—BROWNE'S *Trees of America.*

Elsineur, or **Helsingor,** a town of Zealand, on the Sound, about 22 miles north of Copenhagen, lat. 56° 2′ 17″ N., long. 12° 38′ 2″ E. Population about 8,000. Adjacent to Elsineur is the castle of Cronborg, which commands the entrance to the Baltic by the Sound. All merchant ships passing to and from the Baltic were obliged, until 1857, to salute Cronborg castle by hoisting their colors when abreast of the same; and no merchant ship was allowed to pass the Sound without clearing out at Elsineur, and paying toll, according to the provisions in the treaties to that effect negotiated with Denmark by the different European powers. The first treaty with England having reference to this subject, is dated in 1450. The Sound duties had their origin in an agreement between the King of Denmark on the one part, and the Hanse Towns on the other, by which the former undertook to construct lighthouses, landmarks, etc., along the Cattegat, and the latter to pay duty for the same. The duties have since been varied at different periods. (See article, DANISH SOUND DUES.) Ships of war are exempted from the payment of duties. Most maritime nations have consuls resident at Elsineur. The following plan of the Sound is taken from the admiralty chart, compiled from Danish authorities. (See opposite page.)

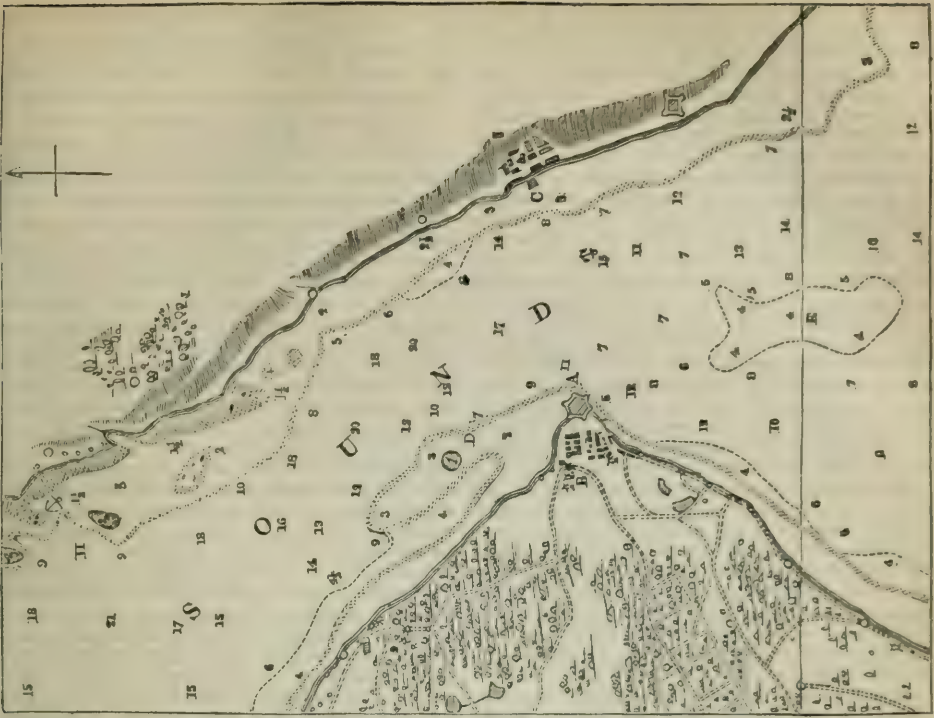
Navigation of the Baltic.—This is exhibited in the following account of the number of ships that have passed (going and returning) the Sound at different periods, from the year 1777 to the year 1852, specifying the countries to which they belonged.

Countries.	1777.	1780.	1785.	1790.	1814.	1816.	1820.	1825.	1830.	1835.	1840.	1851.	1852.
British Islands...	2,552	1,701	2,537	3,771	2,319	1,848	3,597	5,186	4,274	2,472	4,071	4,811	3,902
Holland	2.567	2,058	1,571	2,009	551	876	853	630	1,227	654	947	2,060	1,691
Sweden..........	1,773	1,880	2,136	430	2,759	2,042	1,519	1,319	1,188	991	1,364	2,255	2,100
Denmark	1,110	1,341	1,787	1,586	476	787	792	803	744	752	974	1,518	1,464
Prussia..........	472	671	1,358	599	1,033	1,014	1,554	2,391	2,253	1,938	2,996	2,664	2,319
Russia...........	47	43	114	6	495	399	242	335	405	625	814	1,047	946
United States....	....	....	20	44	....	168	169	230	152	126	143	134	76
France	21	....	20	123	12	16	63	72	199	146	239	288	283
Spain............	10	....	15	32	22	9	....	....	8	7	18	....	6
Hanover.........	....	....	....	....	55	263	458	413	645	386	768	661	545
Imperial (Austria)	5	30	66	6	....	....	....	....	....	....	....	2	....
Dantzic..........	231	174	161	248	....	....	....	....	....	....	....	....	....
Mecklenburg	....	....	....	....	....	386	517	602	664	583	962	1,077	771
Oldenburg.	....	....	....	24	18	9	47	34	56	46	85	222	183
Lubec...........	78	82	79	89	28	45	64	121	80	71	96	125	136
Bremen	82	146	176	177	248	111	59	34	79	43	59	33	22
Hamburg........	22	31	61	104	36	36	15	31	25	21	23	77	46
Rostock.........	79	104	101	339	....	....	....	....	....	....	....	....	....
Portugal.........	12	21	28	28	42	48	2	9	....	....	....	....	....
Courland	2	7	25	22	....	....	....	....	....	....	....	....	....
Venice.........	....	2	4	(It.) 6	9	....	....	....	6	....	5	....	2
Norway	....	....	....	....	83	794	946	951	1,202	1,357	2,025	2,894	3,020
Other places.....	....	....	....	99	....	....	....	....	....	37	73	51	51
Totals.......	9.053	8,291	10,268	9,742	8,186	8,871	10,926	13,160	13,212	10,255	15,662	19,919	17,563

The statements in this table for the years 1777 and 1780 are taken from the valuable work entitled *Voyage de Deux François au Nord de l'Europe* (i. 360); the other years are taken from the returns sent by the British consul at Elsineur, printed in various Parliamentary papers. We have seen no two returns of the shipping that pass the Sound quite agree, though the differences are not very material. The British consul first began to send returns of the tonnage in 1831.

The Oder, Vistula, and other great rivers which flow into the Baltic, and the many large cities that are built on or near its shores, have made it the theatre of a very extensive commerce. In this respect its importance was much increased by the foundation of Petersburg, the trade of which is now of great extent and value. Raw products, including corn, timber, hemp and flax, tallow, hides, linseed, bristles, wool, etc., constitute the principal articles of export from the Baltic ports; colonial products, manufactured goods, dry stuffs, wine, salt, coal, etc., being among the principal articles of import. The leading ports, setting out from the Sound, are Copenhagen, Lubec, Wismar, Rostock, Swinemunde, Dantzic (which next to Odessa, is the principal European port for the shipment of wheat), Konigsberg, Memel, Riga, Petersburg, and Stockholm. The United Kingdom has by far the largest portion of the foreign trade of the Baltic. This is evident from the fact of the British ships passing the Sound exceeded those of any other country. In 1852 England imported from the Baltic about 818,000 qrs. wheat, 344,000 do. barley, and 628,000 do. oats, exclusive of very large quantities of tallow, hemp and flax, timber, linseed, bristles, etc.

Pilotage, etc.—When ships come into Elsineur roads, or lie wind-bound near the Lappen, watermen come on board to inquire if the master will be carried ashore to clear; and in rough weather it is always best to make use of their services, their boats being generally very safe. The Danish authorities have published a table of rates, being the highest charge that can be made by any boatmen upon such occasions; but captains may bargain with them for as much less as they please. Most ships passing the Sound take on board pilots, the signal for one being a flag at the fore-topmast-head. Those bound for the Baltic take a pilot at Elsineur, who either carries the ship to Copenhagen, or Dragoe, a small town on the south-east extremity of the island of Amack, where she is clear of the grounds. Those leaving the Baltic take a pilot from Dragoe, who carries the ship to Elsineur. Sometimes, when the wind is fresh from the east and south-east, it is impossible for a ship bound for Copenhagen or the Baltic to double the point of Cronborg; and in that case an Elsineur pilot is sometimes employed to moor the ship in the channel toward Kull Point on the Swedish shore, in in lat. 56° 18′ 3″ N., long. 12° 26′ E. But this does



References to Plan.—A, Castle and light of Cronborg; B, Elsineur; C, Helsingborg in Sweden; D, the bank called the Lappen; E, the bank called the Disken. The soundings are in fathoms.

not often happen, as the Danish government employ steam tugs for the special purpose of bringing ships, in adverse weather, round Cronborg Point. The pilots are regularly licensed, so that, by employing them, the captain's responsibility is at an end. Their charges are fixed by authority, and depend on the ship's draught of water. We subjoin a copy of the tariff applicable to pilots taken on board at Elsineur to carry ships to Dragoe, Copenhagen, or Kull Point, with the sums both in silver and in Rigsbank paper dollars.

PILOTAGE FROM THE 1ST OF APRIL TO THE 30TH OF SEPTEMBER.

Ships drawing water.	Dragoe.				Copenhagen.				Kull Point.			
	Silver.		Paper.		Silver.		Paper.		Silver.		Paper.	
	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.
Under 8 feet	11	78	12	18	9	10	9	38	5	72	5	89
Between 8 and 9 "	13	16	13	56	10	6	10	36	6	63	6	83
" 9 " 10 "	14	50	14	94	11	2	11	35	7	53	7	76
" 10 " 11 "	15	84	16	36	11	94	12	34	8	44	8	69
" 11 " 12 "	17	22	17	74	12	91	13	33	9	35	9	63
" 12 " 13 "	18	56	19	16	13	87	14	32	10	25	10	56
" 13 " 14 "	19	90	20	54	14	83	15	31	11	16	11	50
" 14 " 15 "	21	28	21	92	15	78	16	30	12	7	12	43
" 15 " 16 "	22	62	23	34	16	75	17	29	12	93	13	36
" 16 " 17 "	24	65	25	43	18	56	19	16	13	84	14	30
" 17 " 18 "	26	68	27	52	20	37	21	2	15	44	15	90
" 18 " 19 "	28	71	29	61	22	19	22	86	17	3	17	54
" 19 " 20 "	30	74	31	72	24	0	24	72	18	59	19	19
" 20 " 21 "	32	77	33	80	25	77	26	58	20	19	20	80
" 21 " 22 "	34	80	35	89	27	59	28	46	21	74	22	43
" 22 " 23 "	36	83	38	1	29	40	30	32	23	34	24	28

PILOTAGE FROM THE 1ST OF OCTOBER TO THE 30TH OF MARCH.

Ships drawing water.	Dragoe.				Copenhagen.				Kull Point.			
	Silver.		Paper.		Silver.		Paper.		Silver.		Paper.	
	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.	R. b. dr.	Sch.
Under 8 feet	14	92	15	40	11	85	11	70	7	53	7	76
Between 8 and 9 "	16	75	17	30	12	61	18	2	8	73	9	3
" 9 " 10 "	18	56	19	16	13	88	14	64	9	92	10	26
" 10 " 11 "	20	37	21	2	15	19	15	64	11	16	11	50
" 11 " 12 "	22	19	22	86	16	47	17	..	12	36	12	73
" 12 " 13 "	24	..	24	72	17	73	18	80	13	55	14	..
" 13 " 14 "	25	77	26	58	19	4	19	62	14	75	15	24
" 14 " 15 "	27	59	28	46	20	29	20	90	15	95	16	48
" 15 " 16 "	29	40	30	32	21	57	22	26	17	17	17	68
" 16 " 17 "	32	12	33	12	24	..	24	72	18	37	18	92
" 17 " 18 "	34	80	35	88	26	89	27	22	20	48	21	14
" 18 " 19 "	37	52	38	68	28	79	29	70	22	57	23	28
" 19 " 20 "	40	24	41	48	31	21	32	19	24	68	25	46
" 20 " 21 "	42	92	44	28	33	60	34	65	26	79	27	64
" 21 " 22 "	45	64	47	9	36	4	37	16	28	88	29	78
" 22 " 23 "	48	36	49	85	38	43	39	62	31	3	32	0

When a pilot is taken on board at Dragoe to carry a ship to Elsineur, the charge is the same as that given under the first head of the above column. (*Archives du Commerce*, tome iii., p. 145.) The *Moneys*, *Weights*, and *Measures* of Elsineur are the same as those of Copenhagen (which see), except that the rixdollar is divided into 4 *orts* instead of 6 marcs: thus 24 skillings make 1 ort; and 4 orts 1 rixdollar. The Sound duties are, however, levied and paid in specie rixdollars of 48 stivers, 9½ such specie rixdollars constituting 1 marc fine silver, Cologne weight. Taking silver at 5s. 2d. an ounce, the value of the specie rixdollar is 4s. 6½d., and taking it at 5s. an ounce, it is worth 52·7d., or 4s. 4¾d. nearly. In either case the value of the stiver may be taken at 1·1d. See Sound Dues.

Email Ombrant. This name, which seems to mean "shaded enamel," has been given by the Baron du Tremblay to a manufacture by which articles are produced, remarkable alike for cheapness, for novel and agreeable effect, and for the ingenuity of the process whereby they are produced. It consists in flooding colored but transparent glazes over designs stamped upon the surfaces of porcelain vessels. A plain surface is thus produced, in which the cavities of the stamped design appear as shadows of various depths—the parts in highest relief coming nearest to the surface of the glaze, and thus having the effect of the lights of a picture. It has been said that "perhaps there is no other process in the ceraunic art by which, at so cheap a rate, designs of high artistic merit can be reproduced in the most harmonious tinting, for dessert or table services, and for other useful domestic purposes."

Embalming (Lat. *balsamum*, balm), a process adopted by the ancient Egyptians, chiefly for the preservation of dead bodies from putrefaction. The term is derived from the use of balsamic substances in the operation; in addition to these, saline substances and tanning materials seem also to have been used.

Embargo, a restraint or prohibition imposed by the public authorities of a country on merchant vessels or other ships, to prevent their leaving its ports. Embargoes are usually imposed only in time of war, or in apprehension of an invasion; in which cases the government employs the ships under embargo in armaments, expeditions, and transportation of troops, etc. When it is found necessary to stop the communication of intelligence between any two places, an embargo is laid upon all ships, both foreign and under the national flag. In England, this power is invested in the crown, but it is rarely exercised except in extreme cases, and sometimes as a prelude to war. The most memorable instances of embargo were those for the prevention of corn going out of the kingdom in 1766; and for the detention of all Russian, Danish, and Swedish ships in the several ports of the kingdom, owing to the Armed Neutrality, January 14, 1801. See Armed Neutrality.

Embargo in the United States.—Embargo on all vessels in the ports of the United States, passed by Congress with reference to the quarrel with Great Britain after the attack on the United States' frigate *Chesapeake*, 1807. Repealed, and non-intercourse act passed, 1809. Embargo again laid for 90 days, April, 1812. War declared June 19, 1812. An insurance against loss by reason of the acts of one's own government, as an arrest or embargo, is valid. There is no distinction on this point between a foreign and domestic embargo; and if the embargo intervene after the commencement of the risk, it suspends, but does not dissolve, the contract of insurance, and the insured may abandon and claim a total loss. The same principle is incorporated into the new French commercial code, and it pervades universally the law of insurance. It is no objection to the right of recovery by the insured, that the loss happened by the act of the government of his own country, though he and the insurer are subjects of different states.—Kent's *Com.* See also Parsons on *Mercantile Contracts*, p. 366.

Embassador, or **Ambassador**, a word of disputed origin, but probably adopted into the English language from the French, means, in its general sense, a minister authorized by any state to represent it in some other. In its distinctive sense, as indicating a particular kind of minister so appointed, it means the highest class; and by authority as well as practice, there are states which may be represented at others, yet are understood not to be entitled to appoint so high a representative as an embassador. Messages require to be interchanged by all moderately civilized nations, unless those which, like the Chinese or the Japanese, peculiarly isolate themselves. Hence such messages, and the manner in which they were sent and received, are familiar occurrences in all histories. Some understanding that the persons who undertook such a function should enjoy freedom and safety in the state to which they were sent was absolutely necessary for its performance. The Romans adopted strict rules for the safety of embassadors; but the less definite provisions of other nations were liable to be affected by momentary impulses, and many incidents of ancient warfare arose out of insults or injuries committed on embassadors. It was on the ground of an insult offered to his embassadors that Alexander destroyed Tyre. The Persian invasions of Greece were stimulated by the slaughter of the embassadors of Darius—who, however, demanding earth and water as tokens of dependence, were rather messengers of hostility than embassadors, in any thing like the modern sense of the term. Embassadors now communicate privately with sovereigns or official persons, not with legislative bodies. In Greece, however, embassadors sometimes pleaded the cause of their state in the public assemblies, and in Rome they were formally received by the senate. The *legatus* of the Romans answered pretty nearly to our embassador extraordinary; but the term was also used to mean another and totally different officer who accompanied the proconsul or governor of a province, and was more like a colonial secretary. It became the practice to give honorary legations of this kind on account of the privileges which they conferred on the holder in the province to which he was accredited. There is, however, a distinction of a generic and very characteristic kind between the embassador of modern diplomacy and any ancient representatives of states. The embassador of old was chosen for a particular message or negotiation, and a permanent resident representative of one state within another was unknown, at least as a system. It is not yet intelligible to nations beyond the circle of European diplomacy. The Turks had the inveterate practice, on going to war with a state, of committing its representative to the seven towers; and though the reason assigned for the practice was the safety of the person of the embassador from outrage, even this, if it were sincere, showed that the feelings of hatred indulged against a member of a hostile state would break out too strongly to be controlled even by that despotic government. The Chinese, and their neighbors nearer Hindostan, can look on an embassador or diplomatic agent as merely a dignified spy, to whose presence nothing but necessity compels them to submit. Nor are they entirely wrong, since the European embassies may be counted a mutually tolerated system of espionage. Even Wickefort calls the embassador an honorable spy, protected by the law of nations; and La Bruyère says epigrammatically, that the embassador's function is to cheat without being cheated. The understanding that an embassador was a person ever ready to do whatever he could with safety to the advantage of his own country, and the injury of that to which he was accredited, became a standing object of sarcasm with the wits of the seventeenth century. Sir Henry Wotton, himself an embassador when asked to write something in an album at Augsburg, could not resist a sarcasm on the same subject, and spoke of an embassador as a person sent abroad to lie for the good of his country. In its English form, his apophthegm generally involves a pun or equivoke in the words "lie abroad," of which the original Latin is, however, not susceptible. Scioppius published it as a declaration of the morality of English diplomacy, and brought Wotton under temporary disgrace with King James; to whom the jest seemed the more dangerous that it announced that false and treacherous system of diplomacy on which he, with most of the sovereigns of the age, acted when it was safe to do so.

Permanent embassies, with the eminent personal privileges conceded to embassadors, have existed in feudal Europe from an early time. To find the origin of an institution seemingly so much at variance with the selfish and ravenous national habits amid which it arose, we must look to the peculiar sacredness claimed for their persons by the great community of European monarchs. The privileges of the embassador did not arise from principles of jurisprudence founded on general public utility, but from the practice of the sovereign investing his representative with his own sacredness, and the acknowledgment on the part of the brother sovereign of the sufficiency of the investiture. Thus in ages when international law was rude and little respected, embassadors claimed privileges which would in the present day be deemed preposterous; such as total exemption from liability to the laws, civil or criminal, of the country to which they were accredited, and the right to have their official places of residence respected, as sanctuaries for criminals fleeing from justice. Embassadors of old, in fact, thus received concessions which, though claimed by them as belonging properly to their masters as sovereign princes, and descending to themselves only as substitutes, would not practically have been enjoyed by sovereign princes though theoretically conceded to them. The advantage obtained over a state by seizing the person of the sovereign, would have rendered it unsafe for the principal to trust to privileges which, in the less available person of his representative, were scrupulously respected.

It has always been difficult in countries not despotic to preserve the sacredness of embassies when circumstances have made them offensive to the people. Thus it was difficult to keep Gundomar the celebrated Spanish embassador in James the First's reign from violence by the London mob for introducing sedan-chairs, which they called a device for enslaving Englishmen and making them do the work of beasts. In the anti-Popery riots of 1780 the chapels of the Bavarian and Sardinian embassies were burned. It has ever been usual to exact high satisfaction for injuries offered to embassadors, and despotic courts have had no difficulty in conceding the demand where this was rendered prudent by the power of the offended party. Diplomatic difficulties of a serious kind have often occurred, however, in constitutional countries where the asserted privileges of the foreign embassador were found to clash with the undoubted rights of the home citizen. In 1668 the Portuguese minister was imprisoned for debt in Holland, and in 1708 a similar event produced a serious diplomatic difficulty in England. The Russian embassador, having had his audience of leave, was arrested for debt by some tradesmen in the open streets of London. Deeming that he was attacked by bravos, he defended himself, and was not secured without suffering much violence and indignity. The Czar immediately demanded the infliction of capital punishment on those who had been guilty of the outrage. Much parade was made about instituting prosecutions against all the parties concerned in the affair; but it was impossible for the government ultimately to treat it otherwise than as a matter for which unfortunately the law made no provision. All that could be done was to pass an act to remedy the defect; and to soothe the Czar its preamble denounced in very angry terms the unparalleled wickedness of those turbulent and disorderly persons who had outrageously insulted the person of his excellency the embassador extraordinary of his Czarish majesty, emperor of Great Russia, to whom a copy of the act was sent with distinguished pomp. The diplomatic body in general, discontented with the haughty tone of the English court, took up the question. When the bill was passing they objected to some parts of it, and particularly to a condition of the protection of embassadors' retinues, that their names should be recorded with the Secretary of State and the sheriffs of London; but Parliament, then exulting in the continental triumphs of Marlborough, received their demands with haughty silence.

It has been usual since the Congress of Vienna to divide representatives into three great classes—embassadors, envoys, and residents or *chargés des affaires.* The first and second are accredited from the head of the government, and communicate with the head; the third class have instructions from the foreign department of their own government, and communicate with that of the state they are sent to. The term embassador extraordinary having been applied to those sent on temporary missions of high importance, the term extraordinary came to be extended to the permanent embassadors at the courts of the great powers, as it was deemed desirable that no diplomatic rank should be deemed higher than theirs.

The custom of admitting resident ministers at each sovereign's court, was an important improvement in the security and facility of national intercourse; and this led to the settlement of a great question, which was very frequently discussed in the 15th and 16th centuries, concerning the inviolability of embassadors. It became at last a definite principle of public law, that embassadors were exempted from all local jurisdiction, civil and criminal; though Lord Coke considered the law in his day to be, that if an embassador committed any crime which was not merely *malum prohibitum,* he lost his privileged dignity as an embassador, and might be punished as any other private alien, and that he was even bound to answer civilly for his contracts that were good, *jure gentium.*—Kent's *Com.*, vol. i., p. 15.

It sometimes becomes a grave question, in national discussions, how far the sovereign is bound by the act of his minister. This will depend upon the nature and terms of his authority. It is now the usual course for every government to reserve to itself the right to ratify or dissent from the treaty agreed to by its embassador. A general letter of credence is the ordinary letter of attorney, or credential of the minister; and it is not understood to confer a power upon the minister to bind his sovereign conclusively. To do so important an act would require, at least, a distinct and special power, containing an express authority to bind the principal definitely, without the right of review, or the necessity of ratification on his part. This is not the ordinary or prudent course of business. Ministers always act under instructions which are confidential, and which, it is admitted, they are not bound to disclose; and it is a well-grounded custom, as Vattel observes, that any engagement which the minister shall enter into, is of no force among sovereigns, unless ratified by his principal. This is now the usage, although the treaty may have been signed by plenipotentiaries.—Kent's *Com.*, vol. i., p. 48.

A safe conduct or passport contains a pledge of the public faith, that it shall be duly respected, and the observance of this duty is essential to the character of the government which grants it. The statute law of the United States has provided, in furtherance of the general sanction of public law, that if any person shall violate any safe conduct or passport, granted under the authority of the United States, he shall, on conviction, be imprisoned not exceeding 3 years, and fined at the discretion of the court.

The same punishment is inflicted upon those persons who infringe the law of nations, by offering violence to the persons of embassadors and other public ministers, or by being concerned in prosecuting or arresting them or their domestic servants. This is an offense highly injurious to a free and liberal communication between different governments, and mischievous in its consequences to the dignity and well-being of the nation. It tends to provoke the resentment of the sovereign whom the embassador represents, and to bring upon the state the calamities of war. The English Parliament, under an impression of the danger to the community from violation of the rights of embassy, and urged by the spur of a particular occasion, carried the provisions of the statute of 7 Anne, c. 12, to a dangerous extent. That statute prostrated all the safeguards to life, liberty, and property, which the wisdom of the English common law had established. It declared that any person convicted of suing out or executing civil process, upon an embassador or his domestic servants, by the oath of the party, or of one witness, before the lord chancellor and the two chief justices, or any two of them, might have such penalties and corporeal punishments inflicted upon him as the judges should think fit. The preamble to the statute contains a special and inflamed recital of the breach of the law of nations which produced it, by the arrest of the Russian minister.

The Congress of the United States, during the American war, discovered great solicitude to maintain inviolate the obligations of the law of nations, and to have infractions of it punished in the only way that was then lawful—by the exercise of the authority of the legislatures of the several States. They recommended to the States to provide expeditious, exemplary, and adequate punishment for the violation of safe conducts or passports, granted under the authority of Congress, to the subjects of a foreign power in time of war; and for the commission of acts of hostility against persons in amity or league with the United States; and for the infractions of treaties and conventions to which the United States were a party; and for infractions of immunites of embassadors and other public ministers.—Kent's *Com.*, vol. i., p. 186.

A marriage, celebrated in any given place, must be celebrated according to the law of the place, and by a person whom the laws designate, unless the person by whom, or the premises in which, it is celebrated, possess the privileges of exterritoriality. Therefore it may be, according to the opinion of Lord Stowell, that the presence of a foreign sovereign sojourning in a friendly country, *or that of his minister plenipotentiary*, or the act of a clergyman in the chapel or hotel of such sovereign or his embassador, may give legality to marriage between subjects of his, or members of his suite. According to the American view, the courtesy between the United States and foreign nations, in mutually exempting from duty articles imported by certain of their public officers resident abroad, does not extend beyond ministers or *chargés des affaires*, representing their respective governments, and clothed with diplomatic powers and privileges, and does not comprehend attachés or persons belonging to the minister's suite, nor consular officers.—*Manual for Consuls U. S.*, pp. 238, 275.

From the moment a public minister enters the territory of the state to which he is sent, during the time of his residence, and until he leaves the country, he is entitled to an entire exemption from the local jurisdiction, both civil and criminal. Representing the rights, interests, and dignity of the sovereign or state by whom he is delegated, his person is sacred and inviolable. To give a more lively idea of this complete exemption from the local jurisdiction, the fiction of extraterritoriality has been invented, by which the minister, though actually in a foreign country, is supposed still to remain within the territory of his own sovereign. He continues still subject to the laws of his own country, which govern his personal *status* and rights of property, whether derived from contract, inheritance, or testament. His children born abroad are considered as natives. This exemption from the local laws and jurisdiction is founded upon mutual utility, growing out of the necessity that public ministers should be entirely independent of the local authority, in order to fulfill the duties of their mission. The act of sending the minister, on the one hand, and of receiving him, on the other, amounts to a tacit compact between the two States, that he shall be subject only to the authority of his own nation. The passports or safe conducts granted by his own government, in time of peace, or by the government to which he is sent, in time of war, are sufficient evidence of his public character for this purpose.—Wheaton's *International Law*, p. 283.

Embezzlement, in law, is a felony, consisting of the same class of acts which would in any other case amount to larceny, when committed by one employed as a clerk or servant, and by virtue of his office, on the goods and chattels of his employer.

Embezzlement by Seamen.—Mariners are bound to contribute out of their wages for embezzlements of the cargo, or injuries produced by the misconduct of any of the crew. But the circumstances must be such as to fix the wrong upon some of the crew; and then, if the individual be unknown, those of the crew upon whom the presumption of guilt rests, stand as sureties for each other, and they must contribute ratably to the loss. Some of the cases in the books have established a general contribution from all the crew for such embezzlement, even when some of them were in a situation to repel every presumption of guilt; but neither public policy nor principles of justice extend the contribution or forfeiture of wages for such embezzlements, beyond the parties immediately *in delicto*.—Kent's *Com.*, vol. iii., sect. 252.

As carriers by water were liable at common law to the same extent as land carriers, and as their responsibility was more extensive, and their risk greater, from the facilities for the commission of acts of fraud and violence upon the water, it was deemed in England a proper case for legislative interference, to a guarded and limited extent. The statute of 7 George II., ch. 15, and 26 George III., ch. 86, and 53 George III., ch. 159, exempted owners of vessels from responsibility, as common carriers, for losses by fire, and provided further that the owner should not be liable for the loss of gold, silver, diamonds, watches, jewels, or precious stones, by robbery or embezzlement, unless the shipper inserted in the bill of lading, or otherwise declared in writing to the master or owner of the vessel, the nature, quality and value of the articles; nor should he be liable for embezzlements, or loss or damage to the goods arising from any act or neglect, without his fault or privity, beyond the value of the ship and freight; nor should part owners in those cases be liable beyond their respective shares in the ship and freight.—Kent's *Com.*, vol. ii., p. 789.

Embossing, the forming of works in relief upon any substance, whether by cutting, stamping, casting, or any other method. In sculpture particularly, according as the figures are more or less prominent, they are said to be in alto, mezzo, or basso-relievo; or high, intermediate, or low relief.

Embossing of Leather. Beautiful ornaments in basso-relievo for decorating the exteriors or interiors of buildings, medallions, picture-frames, cabinet work, etc., have been recently made by the pressure of metallic blocks and dies, for which invention a patent was obtained in June, 1839, by M. Claude Schroth. The dies are made of type-metal, or of the fusible alloy with bismuth, called d'Arcet's. The leather is beaten soft in water, then wrung, pressed, rolled and fulled as it were, by working it with the hands till it becomes thicker, and quite supple. In this state it is laid on the mold, and forced into all its cavities by means of a wooden, bone, or copper tool. In other cases the embossing is performed by the force of a press. The leather, when it has become dry, is easily taken off of the mold, however deeply it may be inserted into its crevices, by virtue of its elasticity. A full detail of all the processes is given in NEWTON's *Journal*, vol. xi., p. 122.

Embossing Wood (*Bossage*, Fr.; *Erhabenes*, *Arbeit*, Ger.), raised figures upon wood, such as are employed in picture-frames and other articles of ornamental cabinet work, are usually produced by means of carving, or by casting the pattern in plaster of Paris or other composition, and cementing or otherwise fixing it on the surface of the wood. The former mode is expensive; the latter is inapplicable on many occasions. The invention of Mr. Streaker may be used either by itself, or in aid of carving; and depends on the fact, that if a depression be made by a blunt instrument on the surface of the wood, such depressed part will again rise to its original level by subsequent immersion in the water. The wood to be ornamented having been first worked out to its proposed shape, is in a state to receive the drawing of the pattern; this being put on, a blunt steel tool, or burnisher, or die, is to be applied successively to all those parts of the pattern intended to be in relief, and, at the same time, is to be driven very cautiously, without breaking the grain of the wood, till the depth of the depression is equal to the intended prominence of the figure. The ground is then to be reduced by planing or filing to the level of the depressed part; after which, the piece of wood being placed in water, either hot or cold, the part previously depressed will rise to its former height, and will then form an embossed pattern, which may be finished by the usual operations of carving.

Embouchure (Fr.), signifies the mouth of a river: it is used also for the mouth-piece of a musical instrument.

Embroidering Machine. (*Machine à broder*, Fr.; *Steckmaschine*, Ger.) This art has been till of late merely a handicraft employment, cultivated on account of its elegance by ladies of rank. But a few years ago M. Heilmann, of Mulhause, invented a machine of a most ingenious kind, which enables a female to embroider any design with 80 or 100 needles as accurately and expeditiously as she formerly could do with one. A brief account of this remarkable invention will, therefore, be acceptable to many readers. It was displayed at the national exposition of the products of industry in Paris for 1834, and was unquestionably the object which stood highest in public esteem; for whether at rest or in motion, it was always surrounded with a crowd of curious visitors, admiring the figures which it had formed, or inspecting its movements and investigating its mechanism. 130 needles were occupied in copying the same pattern with perfect regularity, all set in motion by one person.—URE's *Dictionary of Arts*.

Embroidery is the name given to the art of working figures on stuffs or muslins with a needle and thread. All embroidery may be divided into two sorts, embroidery on *stuffs* and on *muslin:* the former is used chiefly in church vestments, housings, standards, articles of furniture, etc., and is executed with silk, cotton, wool, gold and silver threads, and sometimes ornamented with spangles, real or mock pearls, precious or imitation stones, etc. The latter is employed mostly in articles of female apparel, as caps, collars, etc., and is performed only with cotton. In Germany this division is indicated by the expression *weisse* (*white* or muslin), and *bunte Stickerei* (*colored* or cloth) *embroidery*. The embroidery of *stuffs* is performed on a kind of loom or frame; that of *muslin* by stretching it on a pattern already designed. The modes of embroidering stuffs or muslins with the common needle are extremely various; but a minute description of these processes would be as difficult as it would be uninteresting to the general reader. They consist for the most part of a combination of ordinary *stitches*; but no limit can be assigned to their number or variety. The art of embroidery was well known to the ancients. As early as the time of Moses we find it practiced successfully by the Hebrews; and long before the Trojan war the women of Sidon had acquired celebrity for their skill in embroidery. At a later period, this art was introduced into Greece, probably by the Phrygians (by some considered as the inventors); and to such a degree of skill did the Grecian women attain in it, that their performances were said to rival the finest paintings. In our own times, the art of embroidery has been cultivated with great success, more especially in Germany and France; and though for a long period it was practiced only by the ladies of these countries as an elegant accomplishment, it is now regarded as a staple of traffic, and furnishes employment for a large portion of the population. In England also it appears to have taken deep root, as it now forms an accomplishment of which almost every lady is in possession. About seven years ago a great impetus was given to the cultivation of this art, both on the Continent and in England, by the invention of a machine which enables a female to execute the most complex patterns with 130 needles, all in motion at once, as accurately as she could formerly do with one. But as no account of this remarkable invention which we might give could be intelligible without the aid of illustrations, which would be out of place in this work, we must refer the reader to Dr. Ure's *Dictionary of Arts*, etc., for full information respecting it. One such machine, with 130 needles, is estimated to perform daily the work of 15 hand embroiderers employed in the ordinary way. Many of them are now mounted in Germany, France, and Switzerland; and in Manchester there is one factory where they do beautiful work. See the *Art of Needlework*, edited by the Countess of Wilton. London, 1840.—BRANDE, *Ency.*

There is one branch of manufacture connected with cotton embroideries to which it would be wrong not to particularly allude, and that is the embroidering of muslins, better known under the common designation of "sewed muslins." This is comparatively a new manufacture, having only being first started in Scotland about the year 1825. At that period there were only two or three persons engaged in the manufacture; now there are fifty or sixty. The importance of this branch may in some measure be estimated from the fact that it gives employment to a vast number of females in the rural districts, for whom no other useful work is provided in the intervals of field labor. In Ireland alone, where it is practiced from the Giant's Causeway to Cape Clear, and from St. George's Channel to the Achill and other remote islands, it is a source of great comfort to the female population, as it enables them to add to the food and clothing of their families without entailing on them any of the evils of the factory system, the work being supplied to them by agents of the large manufacturers scattered over all the country, and executed entirely at their own firesides. As the workers are only engaged a portion of their time at this species of industry, it is impossible to estimate their numbers; but it is computed that the amount paid in the western counties of Scotland and in Ireland, reaches no less a sum than three quarters of a million sterling annually. Like all other fancy trades, it has been subject to its periods of depression, but its progress has been regular, from a total produce of a few thousand pounds a year paid for labor in 1825 to the amount above stated, the greatest increase having, however, taken place since 1845.

Emerald (Fr. *Emeraude;* Germ. *Smaragd;* It. *Smeraldo;* Lat. *Smaragdus;* Sp. *Esmeralda*), a precious stone in high estimation. It is distinguished from all other gems by its peculiar *emerald green* lustre, varying in intensity from the palest possible tinge to a full and deep color, than which, as Pliny has truly stated, nothing can be more beautiful and pleasing; *nullius coloris aspectus jucundior est.* "It emulates," he continues, "if it does not surpass, the verdure of the spring; and the eye satiated by the dazzling glare of the more brilliant gems, or wearied by intense application, is refreshed and strengthened by the quiet enlivening green of the emerald." In Pliny's time the best came from Scythia. Those met with in modern times do not often exceed the size of a walnut. Some of a much larger size, and perfect, have been found, but they are extremly rare. Nero used one as an eye-glass in surveying the combats of the gladiators. Hitherto it has always been found crystallized. Specific gravity from 2·6 to 2·77.— PLINY'S *Hist. Nat.*, lib. xxxvii., chap. 5; THOMSON'S *Chemistry.*

For the last two centuries and more, the only country known to yield emeralds is Peru, where they occur in Santa Fé, and in the valley of Tunca. Several large stones have appeared in Europe. About two years ago I cut one, exceeding two ounces in weight, for the Emperor of Morocco, but it was full of imperfections. The largest specimen known is a hexagonal crystal, nearly six inches long, and about two in diameter. This gem, however small, is so rarely seen perfect that "an emerald without a flaw" has passed into a proverb. A fine stone of four carats may be valued at £40 or £50, or even more, if very pure. Inferior stones of one or two carats are sold at from 40*s.* to 70*s.* per carat; and if smaller, and defective, at 10*s.* or 15*s.* per carat. Fine emeralds are rare, and in such demand, that a particular suit has been known to have passed into the possession of a series of purchasers, and to have made the tour of Europe in the course of half a century.—MAWE *on Diamonds*, 2d ed., p. 104.

Emery (Fr. *Emeril, Emeri;* Germ. *Smirgel;* It. *Smerglio, Smeregio;* Sp. *Esmeril;* Rus. *Nashdak;* Lat. *Smiris*). This mineral was long regarded as an ore of iron; and was called by Haüy *fer oxidé quartzifère.* It is very abundant in the island of Naxos, at Cape Emeri, whence it is imported in large quantities. It occurs also in the islands of Jersey and Guernsey, at Almaden, in Poland, Saxony, Sweden, Persia, etc. Its color varies from red brown to dark brown; its specific gravity is about 4·000. It is so hard as to scratch quartz and many precious stones. By Mr. Tenant's analysis, it consists of alumina, 80; silica, 3; iron, 4. Another inferior kind yields 32 of iron, and only 50 of alumina. We have recent accounts of emery discoveries in Minnesota; but nearly all that is used at present in the arts comes from Turkey, near ancient Smyrna. Dr. Lawrence Smith, the American geologist, made a discovery of a deposit of emery while residing in Smyrna, and he made an examination of the locality in 1847. Dr. Smith having reported his discoveries to the Turkish government, a commission of inquiry was instituted, and the business soon assumed a mercantile form. The monopoly of the emery of Turkey was sold to a mercantile house in Smyrna, and since then the price has diminished in the market. The mining of the emery is of the simplest character. The natural decomposition of the rock in which it occurs facilitates its extraction. The rock decomposes into an earth, in which the emery is found embedded. The quantity procured under these circumstances is so great that it is rarely necessary to explore the rock. The earth in the neighborhood of the block is almost always of a red color, and serves as an indication to those who are in search of the mineral. Sometimes, before beginning to excavate, the spots are sounded by an iron rod with a steel point, and when any resistance is met with, the rod is rubbed in contact with the resisting body, and the effect produced on the point enables a practiced eye to decide whether it has been done by emery or not. The blocks which are of a convenient size are transported in their natural state, but are frequently broken by large hammers. When they resist the action of the hammer, they are subjected to the action of fire for several hours, and on cooling they most commonly yield to blows. It sometimes happens that large masses are abandoned from the impossibility of breaking them into pieces of a convenient size.

Emery paper is prepared by brushing the paper over with thin glue, and dusting the emery-powder over it from a sieve. There are about six degrees of coarseness. Sieves with 30 and 90 meshes per linear inch, are in general the coarsest and finest sizes employed. When used by artizans, the emery-paper is commonly wrapped around a file or slip of wood, and applied just like a file, with or without oil, according to circumstances. The emery-paper cuts more smoothly with oil, but leaves the work dull.

Emery-cloth only differs from emery-paper in the use of thin cotton cloth instead of paper, as the material upon which the emery is fixed by means of glue. The emery-cloth, when folded around a file, does not ply so readily to it as emery-paper, and is apt to unroll. Hence smiths, engineers, and others prefer emery-paper and emery-sticks; but for household and other purposes, where the hand alone is used, the greater durability of the cloth is advantageous.

Emery-sticks are rods of board, about 8 or 12 inches long, planed up square; or with one side rounded like a half-rounded file. Nails are driven into each end of the stick as temporary handles; they are then brushed over, one at a time, with thin glue, and dabbed at all parts in a heap of emery-powder, and knocked at one end to shake off the excess. Two coats of glue and emery are generally used. The emery-sticks are much more economical than emery-paper wrapped on a file, which is liable to be torn.

Emery-cake consists of emery mixed with a little beeswax, so as to constitute a solid lump, with which to dress the edges of buff and glaze wheels. The ingredients should be thoroughly incorporated by stirring the mixture while fluid, after which it is frequently poured into water, and thoroughly kneaded with the hands, and rolled into lumps before it has time to cool. The emery-cake is sometimes applied to the wheels while they are revolving; but the more usual course is, to stop the wheel, and rub in the emery-cake by the hand. It is afterward smoothed down by the thumb.

Emery-paper, or patent razor-strop paper, an article in which fine emery and glass are mixed with paper pulp, and made into sheets, as in making ordinary paper; the emery and glass are said to constitute together 60 per cent. of the weight of the paper, which resembles drawing-paper, except that it has a delicate fawn color. The emery-paper is directed to be pasted or glued upon a piece of wood, and when rubbed with a little oil, to be used as razor-strop. See URE'S *Dictionary of Arts.*

Emigration is the act of leaving the country or place in which one has previously resided, in the view of residing in some other country or place. Persons so leaving the place of their residence are called emigrants; and latterly the term immigrants has been employed to designate persons arriving from a distance in some place or country with the intention of settling in it. Persons leaving a country for awhile, to which they intend to return, are not reckoned emigrants. This term is appropriated to those who leave their present habitations to establith themselves permanently elsewhere. The motives which lead to emigration are various in the extreme; but, whatever its immediate cause may be, all emigrants expect either to avoid some considerable evil, or to improve or amend their situation. The natural multiplication of man and of the animals which he domesticates, and the tendency of both to increase beyond such means of subsistence as may be easily made available for their support, have been in all ages the great cause of emigrations. When the flocks and herds of the occupiers of particular districts began to be so numerous that pasture became deficient, it was an obvious resource, in the event of any unoccupied lands being in their vicinity, for a portion of the tribe to emigrate to them. The Book of Genesis affords a striking illustration of what is now stated. The herds of Abraham and Lot, it is there stated, had so greatly increased, that, there not being room for them both, contests took place between their servants. Whereupon Abraham said to Lot, "Is not the whole land before thee? Separate thyself, I pray thee, from me. If thou wilt take the left hand, then I will go to the right; or if thou depart to the right hand, then I will go to the left. Then Lot chose him all the plain of Jordan, and Lot journeyed east; and they separated themselves, the one from the other." (Chap. xiii. 8-11.)

Female Emigrants.—Owing to causes which are too obvious to need being pointed out, the greater number of emigrants, especially of those who go to new settlements, consist of males; and the want of a proper proportion of females is often productive of the worst consequences. Inasmuch, too, as the female portion of the population in old settled countries is generally that which is most in excess, it is plain that every facility and encouragement should be given to the emigration of women. Nothing, therefore, can be more consistent with sound policy than the efforts which have recently been made by government, and by private individuals, to send out well-conducted females to Australia; and it is to be hoped that they will not relax in their benevolent labors till the wide disproportion which now (1857) exists between the sexes in that continent be materially reduced.

The application of steam to the propulsion of vessels and the other improvements that have been made in the art of navigation, have greatly diminished the cost, risk, and time spent in distant voyages, and have given a proportional extension to emigration. Notwithstanding their great distance, the emigration from Europe to America and Australia, but especially the former, has latterly attained to a magnitude which, previously to the employment of steam in navigation, would not have been conceived possible. For a lengthened period the United Kingdom has furnished the largest supply of transatlantic emigrants; but of late years the emigration from Germany has become very extensive, and promises at no distant period to equal, if it do not surpass, that which is carried on from Great Britain. The vast majority of the German emigrants are destined for the United States, where they occupy extensive districts, and have established themselves in great numbers. The States have also become, since 1835, the principal resort of the emigrants from the United Kingdom, more particularly of those from Ireland; though large numbers of the English and Scotch emigrants, with a smaller number of Irish, continue to resort in preference to Canada. Since the discovery of the gold fields of Australia, great numbers of emigrants have gone to that continent. But its much greater distance, and the consequent length and cost of the voyage, make it difficult for the poorer classes to find, without assistance, their way to this new El Dorado. And we may add, that to the natural difficulties in the way of emigration to Australia have been superadded those which arise from an extravagant *minimum* price of five dollars an acres having been set on all waste land in that continent, even though it should require three, four, or five acres to pasture a single sheep.

Next to the United Kingdom and Germany, China furnishes the greater number of over-sea emigrants. A Chinese population has long been settled in large numbers in many parts of the Eastern Archipelago, where they are distinguished by their industry and good order; and recently many thousands of them have found their way to California and Australia. We subjoin an account of the number of emigrants from the United Kingdom in each year from 1815 to 1853, both inclusive, specifying the countries for which they sailed, and the numbers that sailed for each:

Year.	North American colonies.	United States.	Australian colonies and New Zealand.	All other places.	Total.
1815	680	1,209	....	192	2,081
1816	3,370	9,022	....	118	12,510
1817	9,797	10,280	....	557	20,634
1818	15,136	12,429	....	222	27,787
1819	23,534	10,674	....	579	34,787
1820	17,921	6,745	....	1,063	25,729
1821	12,955	4,958	....	384	18,297
1822	16,013	4,137	....	279	20,429
1823	11,355	5,032	....	163	16,550
1824	8,774	5,152	....	99	14,025
1825	8,741	5,551	485	114	14,891
1826	12,818	7,063	903	116	20,900
1827	12,648	14,526	715	114	28,003
1828	12,084	12,817	1,056	135	26,092
1829	13,307	15,678	2,016	197	31,198
1830	30,574	24,887	1,242	204	56,907
1831	58,067	23,418	1,561	114	83,160
1832	66,339	32,872	3,733	196	103,140
1833	28,808	29,109	4,093	517	62,527
1834	40,060	33,074	2,800	288	76,222
1835	15,573	26,720	1,860	325	44,478
1836	34,226	37,774	3,124	293	75,417
1837	29,884	36,770	5,054	326	72,034
1838	4,577	14,332	14,021	292	33,222
1839	12,658	33,536	15,786	227	62,207
1840	32,293	40,642	15,850	1,958	90,743
1841	38,164	45,017	32,625	2,786	118,592
1842	54,123	63,852	8,534	1,835	128,344
1843	23,518	28,335	3,478	1,881	57,212
1844	22,924	43,660	2,229	1,873	70,686
1845	31,803	58,538	830	2,330	93,501
1846	43,439	82,239	2,347	1,826	129,851
1847	109,680	142,154	4,949	1,487	258,270
1848	31,065	188,233	23,904	4,887	248,089
1849	41,367	219,450	32,091	6,590	299,498
1850	32,961	223,078	16,037	8,773	280,849
1851	42,605	267,357	21,532	4,472	335,966
1852	32,876	244,261	87,424	4,203	368,764
1853	34,522	230,885	61,401	3,129	329,937
Total	1,071,239	2,295,466	371,680	55,144	3,793,529

Average annual emigration from the United Kingdom:
From 1815 to 1853.... 97,269
For the five years ending 1853. 323,002

Emigration to America. Report from the State Department. Department of State, 1856.—In compliance with the act of Congress of March 2d, 1819, regulating passenger ships and vessels, I have the honor to communicate herewith the annual statement of the number and designation of passengers arriving in the United States by sea from foreign countries, during the year ending December 31, 1855, compiled from returns made to this Department by collectors of customs pursuant to provisions of said act.

The measures adopted by the Department in 1853 with a view to obviate the previous absence of uniformity, and to secure accuracy in the returns of collectors, on which the statement is based, and which were referred to in the letter that accompanied the last annual statement, and in that which accompanied the preceding one, have conduced most favorably to the desired end.

Previously to the statement of 1854 but two recapitulations were appended to the returns, namely, one embracing the "arrivals" in each State during the year; the other the number of passengers belonging to each "country." The statement now submitted will be found to embrace recapitulations exhibiting the following facts:

1. Arrival of passengers in 1855.
2. Country where born.
3. Country where they mean to reside.

4. Age and sex.
5. Occupation.
6. Died on the voyage.
7. Comparative statement showing the countries in which were born passengers arriving in the United States from foreign countries, from December 31, 1852, to December 31, 1855.
8. Comparative statement showing the age and sex of passengers arriving in the United States from foreign countries, from December 31, 1852, to December 31, 1855.
9. Comparative statement showing the occupation of passengers arriving in the United States from foreign countries, from December 31, 1852, to December 31, 1855.
10. Comparative statement of the number of passengers arriving in the United States, by sea, from foreign countries, from September 30, 1843, to December 31, 1855.

Attention is once more invited to the fact, that by the act of Congress of 1819, requiring immigration returns, passengers "arriving by sea" seem alone contemplated, and that an amendment of that act, so as to embrace also those arriving by land, seems to be demanded. The attention of collectors at frontier custom-houses, especially on the northern border, has been directed to such immigration by this Department, and the result has been returns from the collector at Oswego, embracing the arrivals of 5,072 passengers during the last three quarters of the year.

Although the returns of collectors of customs of the passengers arriving within their districts have been characterized by greater precision during the past year than heretofore, there is still room for improvement; and the present statement will, like its predecessors for the last two years, be transmitted to them with a view to aid them in causing their returns to conform to the requirements of law.

I have the honor to be sir, your obedient servant,
W. L. Marcy.

Hon. N. P. Banks, Jr., Speaker of the House of Representatives.

Subjoined are the more important tables accompanying the Secretary's letter:

No. I.—Arrival of Passengers in the United States in 1855.

States.	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Males.	Females.	Sex not stated.	Total.
Maine	278	1,082	1,134	502	2,147	849	..	2,996
New Hampshire	....	4	14	3	17	4	..	21
Massachusetts	1,362	5,383	6,935	4,292	10,434	7,539	..	17,973
Rhode Island	1	18	51	13	52	31	..	83
New York	19,517	59,516	46,774	40,755	101,765	64,797	..	166,562
Pennsylvania	574	4,119	1,448	1,440	3,909	3,672	..	7,581
Maryland	1,213	1,911	1,914	1,792	3,682	3,138	..	6,830
Virginia	...	3	3	....	3	3	..	6
North Carolina	....	4	....	3	3	4	..	7
South Carolina	203	244	82	243	555	205	12	772
Florida	30	27	81	81	142	77	..	219
Alabama	137	14	2	13	97	69	..	166
Louisiana	7,173	6,254	368	6,593	11,741	7,647	..	20,388
Texas	211	699	135	1,077	1,167	955	..	2,122
California	1,151	2,200	1,064	335	4,457	293	..	4,750
Total	31,850	81,478	60,005	57,143	140,181	90,283	12	230,476

No. II.—Country where Born.

Countries.	Total.	Countries.	Total.
England	38,871	Norway & Sweden.	821
Ireland	49,627	South America	191
Scotland	5,275	Mexico	420
Wales	1,176	Central America	1
Great Britain	2,251	China	526
British America	7,761	West Indies	887
France	6,044	Azores	175
Spain	951	Society Islands	1
Portugal	205	Sandwich Islands	7
Switzerland	4,433	East Indies	6
Italy	1,024	Australia	4
Sicily	23	Asia	8
Sardinia	5	Madeira Islands	1
Turkey	9	Africa	14
Holland	2,588	United States	29,599
Denmark	528	Not stated	145
Prussia	5,609		
Belgium	1,506	Total	230,476
Russia	13	Citizens of the U. S.	29,599
Germany	66,219		
Poland	462	Aliens	200,877

No. III.—Country where they mean to Reside.

United States	205,217
In other countries	6,285
Country of proposed residence not stated	18,974
Total	230,476

No. IV.—Age and Sex.

Age.	Males.	Females.	Sex not stated.	Total.
Under 5 years	10,117	9,819	....	19,936
Between 5 & 10	9,200	8,833	....	18,033
" 10 " 15	8,005	7,071	....	15,076
" 15 " 20	20,008	17.302	....	37,310
" 20 " 25	24,154	15,413	....	39,567
" 25 " 30	24,030	10,798	....	34,828
" 30 " 35	15,609	6,099	....	21,708
" 35 " 40	12,777	5,250	....	18,827
40 and upward	15,074	9,281	....	25,155
Age not stated	407	417	12	836
Total	140,181	90,283	12	230,476

English writers say that the late extraordinary emigration from Ireland (1846—1854) has done much to improve its condition.

No. V.—Occupation.

Occupations.	Males.	Females.	Sex not stated.	Total.
Merchants	14,759	....	....	14,759
Mechanics	14,997	....	....	14,997
Farmers	34,693	....	....	34,693
Mariners	1,156	....	....	1,156
Miners	232	....	....	232
Laborers	42,580	....	....	42,580
Lawyers	224	....	....	224
Physicians	247	....	....	247
Clergymen	149	....	....	149
Servants	62	2,536	....	2,598
Other occupations	1,496	345	....	1,841
Not stated	29,586	87,402	12	117,000
Total	140,181	90,263	12	230,476

No. VI.—Died on the Voyage.

	Males.	Females.	Sex not stated.	Total.
To ports of Mass	3	5	..	8
" New York	182	150	..	332
" Penn	2	3	2	7
" Maryland	7	2	..	9
" Louisiana	22	20	..	42
" Texas	..	1	4	5
Total	216	181	6	403

No. X.—Statement of the Number of Passengers Arriving in the United States by Sea from Foreign Countries, from Sept. 30, 1854, to Dec. 31, 1855.

Years ending	Males.	Females.	Sex not stated.	Total.
Sept. 30, 1844	48,897	35,867	....	84,764
1845	69,188	49,290	1,406	119,884
1846	90,973	66.778	897	158,648
1847	134,750	96,747	1,057	232,534
1848	136,128	92,883	472	229,483
1849	179,258	119,915	442	299,610
1850	200,903	113,392	1,038	315,333
Dec. 31, 1850	38,282	27,107	181	65,570
1851	245,017	163,745	66	408,828
1852	....	....	398,470	398,470
1853	236,596	164,181	....	400,777
1854	284,887	175.587	....	460,474
1855	140,181	90,287	12	230,476
Total	1,805,055	1,195,775	404,041	3,402,871

In addition to this government table here—which begins at September, 1843, and does not give the means of comparison between calendar years till 1850, we insert one prepared from the original authorities in a form somewhat more available:

United States' Return of Arrivals from Abroad.

Years.		Americans and Foreigners.	Of whom were Foreigners.
	1820—1830	203,979	....
	1830—1840	762,369	....
July, 1840—July,	1841	83,504	....
	1842	101,107	....
	1843	75,107	....
Jan. 1—Dec. 31,	1844	93,367	....
	1845	130,759	....
	1846	178,685	....
	1847	238,976	....
	1848	242,180	....
	1849	298,543	....
	1850	325,451	284,504
	1851	408,828	379,461
	1852	398,470	372,725
	1853	400,777	368,643
	1854	460,474	427,833
	1855	230,476	200,877

We also add the following table, which shows the rapid advance of the German emigration to the United States. Up to 1851, it is from a paper by Dr. Gaebler in Hubnen's Statistik; and includes only those who sailed from German ports. The years 1852 and 1853 are from our government returns, and include all arrivals. There is a considerable business done in bringing German emigrants to England for them to take passage thence to America; others sail from Antwerp and Havre. Gaebler's Statistics after 1845 are made up from the returns of different sea-ports:

Emigrants to the United States from Germany.

1819	4,700	1838	20,000
1820	2,200	1839	28,000
1821	2,400	1840	28,000
1822	2,500	1841	22,000
1823	2,700	1842	20,000
1824	4,300	1843	23,000
1825	4,800	1844	43,701
1826	11,000	1845	67,209
1827	9,500	1846	106,662
1828	8,000	1847	110,434
1829	15,000	1848	83,511
1830	no return.	1849	85,127
1831	15,100	1850	89,833
1832	24,200	1851	113,199
1833	20,000	From U. S. Reports.	
1834	24,000	1852	144,894
1835	17,000	1853	141,928
1836	24,000	1854	215,000
1837	33 000	1855	71,823

The arrivals from Germany and Prussia in the government tables are here added together.

Ages of Emigrants.—The following table, which was among those sent to Congress by the State Department a few days since, has not till now been published. It gives the details of a matter which has been a good deal discussed, the age and chance of life of the foreigners who arrive here:

Comparative Statement showing the Age and Sex of Passengers arriving in the United States from Foreign Countries, from Dec. 31, 1852, to Dec. 31, 1855.

Age.	1853.			1854.			1855.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 5 years	15,470	14,388	29,858	18,789	17,692	36,481	10,117	9,819	19,936
Between 5 and 10	15,320	14,752	30,072	17,920	16,406	34,326	9,200	8,833	18,033
" 10 " 15	14,506	13,377	27,883	15,589	13,617	29,206	8,005	7,071	15,076
" 15 " 20	29,112	25,105	54,217	43,841	32,033	75,874	20,008	17,302	37,310
" 20 " 25	61,022	37,541	98,563	56,441	32,807	89,248	24,154	15,418	39,567
" 25 " 30	33,053	20,556	53,609	51,940	22,824	74,764	24,030	10,798	34,828
" 30 " 35	26,367	14,081	40,448	30,028	12,376	42,404	15,609	6,099	21,708
" 35 " 40	14,575	7,015	21,590	20,555	9,456	30,011	12,777	5,250	18,027
40 and upward	26,685	17,366	44,051	29,476	17,901	47,377	15,874	9,981	25,155

The following table shows the immigration at New York for the last four years, with monthly comparisons:

Months.	1853.	1854.	1855.	1856.
January	4,901	15,514	7,485	2,344
February	11,958	4,445	6,123	2,224
March	9,685	3,758	2,069	4,584
April	23,283	31,148	10,195	8,295
May	30,212	54,078	24,177	19,006
June	45,578	25,807	19,428	20,024
July	22,898	35,247	15,716	15,846
August	33,632	39,416	9,180	17,253
September	30,288	25,759	11,706	14,078
October	23,201	38,378	13,342	16,986
November	31,485	20,276	7,453	16,746
December	17,824	25,396	9,360	4,287
Total	284,945	319,223	136,233	141,673

The proportion of Irish and Germans arrived during the year 1856 appears from the following table:

Months.	Irish.	Germans.	Total.
January	584	548	2,344
February	220	444	2,224
March	1,040	1,205	4,584
April	3,237	2,220	8,295
May	6,516	6,303	19,006
June	6,015	6,045	20,024
July	5,068	5,005	15,846
August	5,090	7,789	17,253
September	4,286	5,247	14,078
October	5,591	7,515	16,986
November	5,201	7,344	16,745
December	1,338	2,241	4,287
Total	43,996	55,846	141,672

Last year there was an unusually small amount of emigration, owing to the war, the drafts for the army and navy, increased employment at home, and the check given to emigration to the United States by the stringent American regulations and the political objections to Catholics and the Irish, and to naturalization, which had before been freely granted. The employment of many large steamers now disengaged from the transport service and reduced fares, coupled with the prosperous state of Canada and Australia, will lead to an increased emigration in 1857.

Statistics of Emigration to the United States.—The emigration of the past year shows an increase as compared with that of the year 1855, but is much less than any other year since 1848. The following are the figures:

From 1800—1810	70,081	1851	289,601
" 1810—1820	114,006	1852	300,992
" 1820—1830	135,986	1853	284,945
" 1830—1840	570,000	1854	319,223
" 1840—1850	1,678,338	1855	136,233
		1856	141,915

The tide of emigration during the year 1856 did not set in steadily until June and July.

The following shows the number of arrivals and the proportion of emigrants:

Countries.	Arrivals.	Countries.	Arrivals.
Ireland	44,090	Portugal	20
Germany	55,855	Belgium	335
England	23,681	West Indies	225
Scotland	4,678	Nova Scotia	30
Wales	1,376	Sardinia	420
France	2,931	South America	161
Spain	324	Canada	67
Switzerland	2,758	China	8
Holland	3,137	Sicily	10
Norway	488	Mexico	18
Sweden	918	Russia	57
Denmark	471	Turkey	4
Italy	690	Greece	8

From the want of coal, Ireland is ill-fitted for manufacturing industry; and from the nature of its soil and climate, it is much better suited to pasturage than to tillage. In 1854 the further reduction of its population by one or two millions, by emigration, was considered favorable to its well-being.

Months.	Citizens.	Emigrants.	Total.
January	2,002	2,344	4,348
February..................	2,003	2,244	4,207
March....................	2,576	4,584	7,154
April......................	4,184	8,285	12,479
May.......................	6,551	19,006	25,557
June......................	5,119	25,024	25,143
July	4,231	15,848	20.076
August	3,930	17,253	21,183
September	3,439	14,058	17,497
October..................	3,973	16,986	20,959
November...............	3,518	16,745	20,263
December...............	1,800	4,550	6,350
Total................	39,319	141,915	185,234

The following tables, in connection with the above figures, will be found interesting:

THE PER CENT. INCREASE OF POPULATION IN THE UNITED STATES.

1800—1810.....	7,389,884	Increase	about	40	per cent.
1810—1820.....	9,638,131	“	“	30	“
1820—1830.....	12,868,020	“	“	33⅓	“
1830—1840.....	17,669,458	“	“	33⅓	“
1840—1850.....	23,191,870	“	“	34	“

THE PER CENT. INCREASE OF IMMIGRATION IN THE UNITED STATES.

1800—1810......	70,801	Increase	about	1	per cent.
1810—1820......	114.006	“	“	1¼	“
1820—1830......	135,086	“	“	1⅛	“
1830—1840......	570,000	“	“	3⅓	“
1840—1850......	1,678,338	“	“	7	“

The Emigration of 1856.—The following table, showing the destination of emigrants who landed at Castle Garden, New York, during the year 1856, and the amount of cash means they possessed at the time of arrival, is made up from the official table prepared by the Superintendent of the Commissioners of Emigration:

Destination.	Passengers.	Cash means.	Average per head.
Maine................	148	$3,986 50	$26 93
New Hampshire.....	177	2,772 81	15 66
Vermont	250	5,357 50	21 43
Massachusetts........	6.494	162,986 23	26 63
Rhode Island........	1,354	29,921 60	22 09
Connecticut..........	2,262	99,581 39	43 44
New York...........	55,055	2,101,656 80	38 17
New Jersey..........	3.243	295,430 66	91 12
Pennsylvania........	11,749	694,785 48	59 13
Ohio.................	7,085	681,637 81	96 20
Indiana..............	1,388	150,184 72	108 20
Illinois	11,664	1,400,482 43	126 62
Michigan............	3,296	331,087 38	100 44
Wisconsin......	13,827	1,984,125 10	148 88
Iowa.................	2,380	342,583 75	143 94
California............	778	167,608 25	215 43
Delaware............	81	4,102 50	40 64
Maryland............	1,164	60,704 28	52 15
Virginia.............	567	25,192 43	44 43
North Carolina.......	66	3,829 50	58 02
South Carolina.......	178	8,945 50	50 25
Georgia..............	47	8,207 00	174 61
Florida..............	12	668 00	55 58
Alabama.............	30	1,707 50	56 91
Louisiana............	171	10,058 22	58 80
Texas................	76	8,325 75	109 54
Arkansas............	30	4,709 00	156 66
Missouri.............	1,064	109,122 19	102 55
Mississippi...........	14	1,380 00	98 57
Tennessee...........	178	11,306 50	63 51
Kentucky............	460	25,317 75	55 03
District of Columbia..	407	34.691 59	85 23
Kansas..............	11	3,288 00	298 82
Nebraska............	2	300 00	150 00
Minnesota...........	427	56,043 00	181 00
New Mexico.........	....	....	....
Utah................	1,574	82,036 38	22 82
Oregon..............	....	....	....
Washington..........	....	....	....
Canada..............	8,526	652,328 35	76 51
New Brunswick......	....	....	....
Nova Scotia..........	2	15 00	7 50
West Indies..........	11	1,107 00	100 63
South America.......	30	1,722 50	57 41
Mexico..............	12	1,327 56	110 63
Central America......	....	....	....
Australia.............	1	20 00	20 00
Uncertain............	2,113	120,979 98	57 25
Unknown............	....	....	....
Total...........	141,625	$9,642,104 00	$68 08

The total number of arrivals during the year is about six thousand more than the previous year, and the proportion of cash means to each passenger is considerable larger than during the last five months of 1855. The account of cash means was not kept until after the first seven months of 1855. The number of vessels bringing emigrants last year was 579, from 21 different ports of Europe, and not one serious accident has occurred during the disembarkation. Some emigrants, ill-advised by interested parties, have declined to avail themselves of the facilities afforded by the Commissioners of Emigration, and have consequently been plundered in various ways, sometimes irremediably. The governments of Hamburg and Bremen have made it a penal offense to solicit or book emigrants for inland travel in foreign countries, and it is to be hoped that other European governments will follow their example.

Since the 22d of August last a system of aiding destitute emigrants has been established, which has proved highly beneficial. Since that date in 1855, 210 families were assisted to the amount of $2,309 25; in 158 the advances have already been repaid, amounting to $1,456 25.

The following is a list of arrivals during two weeks of January, 1857, only:

Date.	Vessel.	Where from.	Number of passengers.
Jan. 1......	Henry Clay....	Liverpool......	219
“ 1......	Columbia......	“	418
“ 2......	Victoria	London	123
“ 2......	Fidelia	Liverpool......	250
“ 2......	Palestine	London..........	119
“ 2......	Calhoun........	Liverpool......	280
“ 2......	Red Rover.....	Havre..........	158
“ 2......	Wm. Neilson...	“	303
“ 3......	Wm. V. Moses.	“	280
“ 3......	St. Nicholas....	“	165
“ 3......	Orpheus.......	Bremen........	320
“ 5......	Switzerland.....	Liverpool......	308
“ 5......	Northampton..	London.........	115
“ 8......	Union..........	Bremen........	49
“ 13......	Germania......	Havre..........	77
“ 14......	Gauntlet.......	“	67
			3,250

The Destination of Emigrants.—The following table shows the destination and amount of money possessed by all the emigrants who arrived at New York during the eleven months previous to July 30, 1856:

Destination.	Number of Emigrants.	Amount of their Cash Capital.
Six New England States	8,148	$121,523 01
Fifteen Slave States and D. C....	3,256	194.888 73
New York........................	39,943	1,291,628 09
New Jersey.......................	2,272	214,955 79
Pennsylvania.....................	9,421	546,038 78
Ohio..............................	6,117	479,633 90
Indiana...........................	1,309	101,861 63
Illinois...........................	7,713	698,456 31
Michigan.........................	2,887	199,360 86
Wisconsin........................	10,000	1,045,661 38
Iowa..............................	1,855	248,335 40
California........................	806	165,125 18
Minnesota........................	305	35,156 00
Kansas............................	3	128 00
Utah..............................	1,829	55,670 93
Oregon...........................	1	10 00
Total..........................	105,707	$5,398,369 54
Total of the Free States and Territories............	102,451	$5,203,480 81

Of late years (1853—1857) there has been more immigration to the State of Texas than formerly, especially by Germans, who have formed large settlements in several counties in the western portions of the State, where land can be had at 50 cents to $1 per acre, and where the climate and soil are favorable.

EMIGRATION AND IMMIGRATION.—The following from HUBNER'S "*Jährbucher*" for 1854, gives the destinations of natives of Germany embarking from the ports of Hamburg and Bremen:

Destination.	1847.	1848.	1849.	1850.	1851.	1852.
United States.....	32.287	33,559	32,120	31,431	44,531	70,934
British America..	7,352	1,322	315	593	647	4,948
All other places...	1,671	1,651	1,814	1,244	4.594	4,585
Total.	41,310	36,532	34,249	33,268	49,772	80,467

EMIGRATION FROM GREAT BRITAIN.

Years.	To North American colonies.	To the United States.		To Australian Colonies and New Zealand.	To all other places.	Total.
		Number.	Rate per cent. to whole emigration.			
1825	8,741	5,551	37·28	485	114	14,891
1826	12,818	7,063	33·79	903	116	20,900
1827	12,648	14,526	51·87	715	114	28,003
1828	12,084	12,817	49·12	1,056	135	26,092
1829	13,307	15,678	50·25	2,016	197	31,198
1830	30,574	24,887	43·78	1,242	204	56,907
1831	58,067	23,418	28·16	1,561	114	83,160
1832	66,339	32,872	31·87	3,733	196	103,140
1833	28,808	29,109	46·55	4,093	517	62,527
1834	40,060	33,074	43·39	2,800	288	76,222
1835	15,573	26,720	60·07	1,860	325	44,478
1836	34,226	37,774	50·09	3,124	293	75,417
1837	29,884	36,770	51·05	5,054	326	72,034
1838	4,577	14,332	43·14	14,021	292	33,222
1839	12,658	33,536	53·91	15,786	227	62,207
1840	32,293	40,642	44·79	15,850	1,958	90,743
1841	38,164	45,017	37·96	32,625	2,786	118,592
1842	54,123	63,852	49·75	8,534	1,835	128,344
1843	23,518	28,335	49·53	3,478	1,881	57,212
1844	22,924	43,660	61·77	2,229	1,873	70,686
1845	31,803	58,538	62·61	830	2,330	93,501
1846	43,439	82,239	63·33	2,347	1,826	129,851
1847	109,680	142,154	55·04	4,949	1,487	258,270
1848	31,065	188,233	75·87	23,904	4,887	248,089
1849	41,367	219,450	73·27	32,191	6,490	299,498
1850	32,961	223,078	79·43	16,037	8,773	280,849
1851, to March 31st	1,197	53,142	91·57	2,962	736	58,036
Total	842,898	1,536,467	58·55	204,385	40,320	2,624,070

Whether the foreign immigration can be kept up very long at its present high figure must be doubted. The wars in Europe, which it was thought would check the tide, have, however, had no effect as yet. The number arrived in New York for the quarter ending March 31st, 1854, was 29,023, against 29,657 in the corresponding quarter of 1853.

The following table shows the occupations of the emigrants from England in 1854 and '55:

	1854.	1855.
Blacksmiths and farriers	1,574	381
Braziers, tinsmiths, and whitesmiths	318	148
Brick and tile makers, potters, etc	111	82
Bricklayers, masons, plasterers and slaters	3,984	1,814
Builders	69	35
Cabinet-makers and upholsterers	182	81
Carpenters and joiners	5,185	2,541
Carvers and gilders	65	64
Coach-makers, etc	50	25
Coal miners	177	62
Coopers	269	171
Engineers	317	285
Millwrights	36	10
Miners and quarrymen	4,112	1,673
Painters, plumbers, paper-hangers and glaziers	697	661
Sawyers	213	141
Shipwrights	61	15
Smiths (general)	216	258
Surveyors	27	32
Turners	45	25
Wheelwrights	196	106
Mechanics not before specified	3,398	2,545
Total	21,347	11,155

To this statement the following remarks are subjoined: The total number of such adults who emigrated in the two years having been respectively 134,789 and 65,363, it follows that the mechanics and skilled workmen connected with the building and constructive trades, who leave the country, form the proportion of about one sixth of the whole number. Farmers, agricultural and general laborers, and those identified with land, constitute one half of the bulk of emigrants.

The number of foreigners who arrived in the United States, since 1790, may be stated as follows; the arrivals from 1790 to 1820 are given on the authority of Professor Tucker; those subsequent to that period, are obtained from the custom-house reports.

ARRIVALS OF FOREIGNERS IN THE UNITED STATES.

Years.	Arrivals.	Years.	Arrivals.
1790—1800	50,000	1836—1837	78,083
1800—1810	70,000	1837—1838	59,363
1810—1820	114,000	1838—1839	52,163
1820—1821	5,993	1839—1840	84,146
1821—1822	7,329	1840—1841	83,504
1822—1823	6,749	1841—1842	101,107
1823—1824	7,088	1842—1843	75,159
1824—1825	8,532	1843—1844	74,607
1825—1826	10,151	1844—1845	102,415
1826—1827	12,418	1845—1846	147,051
1827—1828	26,114	1846—1847	229,182
1828—1829	24,459	1848 (15 mos.) to Sept. 30	296,387
1829—1830	27,153	1849, 1 year to "	296,938
1830—1831	23,074	1850, " "	279,980
1831—1832	45,287	1852, (15 mos) to Jan. 1	439,437
1832—1833	56,547	1853, to 1st January	372,725
1833—1834	65,335	1854, " "	368,643
1834—1835	52,899	1855, " "	136,233
1835—1836	62,473	1856, " "	141,950

NATIVITIES OF PASSENGERS ARRIVING IN THE UNITED STATES.

Where born.	Year ending Sept. 30, 1845.			Year ending Sept. 30, 1847.			Year ending Dec. 31, 1852.		
	Male.	Female.	Sex not stated.	Male.	Female.	Sex not stated.	Male.	Female.	Sex not stated.
United States	4,221	1,126	165	3,081	1,408	25	23,053	2,474	....
Ireland	8,858	3,961	822	15,966	13,359	215	85,715	71,808	25
Great Britain and Ireland	32,781	30,183	887	72,429	56,087	222	109,253	88,937	....
Germany	19,718	13,074	....	43,850	29,306	286	84,205	56,624	2,600
Prussia, Austria, Germany and Holland	21,148	14,010	....	45,921	30,705	286	86,625	58,342	2,600
All others	11,088	8,971	419	17,735	11,125	456	15,434	8,704	2,953

Law in Regard to Emigrants.—By the law of the State of New York, passed April, 1857, it is provided that,

> No person shall, in any city of this State, solicit emigrant passengers or their luggage for emigrant boarding-houses, passenger-offices, forwarding transportation lines, or for steamers, ships or vessels bound or about to proceed to any port not within this State; or for any person or for any company selling, or offering for sale, passage-tickets, or contracting or offering to contract for passage in any such steamer, ship or vessel without a license for that purpose, which shall expire at the end of one year from its date; such license may be issued and revoked in the discretion of the Mayor of the city where such license may have been granted, except in the city of New York, in which such license may be issued or revoked only by and in the discretion of the Commissioners of Emigration. Such persons receiving such license shall pay the sum of $20, and give a bond, with two sufficient sureties, in the penalty of $500, conditioned for the good behavior and the observance to him of the provisions this act, to the Mayor of the city issuing the same, or to the Commissioners of Emi-

gration, as the case may be. The money thus received or collected on said bonds shall be for the benefit of said city, or of the emigrant fund. Every person so licensed shall wear in a conspicuous place about his person a badge or plate, of such character and in such time and manner as said Mayor, in the city of New York, as such Commissioners shall prescribe, with the words, "Licensed Emigrant Runner" inscribed thereon, with his name and the number of his license. No person who is not of approved good moral character shall be licensed as such runner. Every person who shall solicit alien emigrant passengers or others, for the benefit of boarding-houses, passenger-offices, or forwarding or transportation lines, or for any steamer, ship or vessel bound or about to proceed to any port not within the State of New York, or for any person or company selling or offering for sale passage-tickets, or contracting or offering to contract for passage in any such steam-ship or vessel, upon any street, lane, alley, or upon any dock, pier or public highway, or in any other place within the corporate bounds of any city in this State, or upon any waters adjacent thereto, over which any of said cities may have jurisdiction, without such license, shall be deemed guilty of a misdemeanor, and shall be punished by imprisonment in the county prison or jail not less than three months, nor exceeding one year.

The bonds mentioned in the foregoing sections may be sued by and in the name of the Mayor of the city in which such license may have been issued, and in the city of New York by and in the name of the Commissioners of Emigration in any court having cognizance thereof; and in case of a breach, the Mayor, or the said Commissioners, shall recover the full penalty of said bond.

All personal baggage of emigrant passengers arriving at the port of and destined for the city of New York, shall be landed at the place or pier designated as the landing-place in said city for emigrant passengers; and the captain, owners, and consignees of every ship or vessel arriving at said port with emigrant passengers destined for said city, shall be jointly and severally subject and liable to a penalty of $50 for each and every emigrant passenger, or his personal baggage, landed at any place or pier other than the place or pier aforesaid; which penalty shall be a lien upon such ship or vessel, and may be enforced and recovered by and in the name of the Commissioners of Emigration, either by an action or by warrant of attachment, under and pursuant to article first of title eighth of chapter eighth of the first part of the Revised Statutes.

The Health Officer shall give notice in writing to the owner or owners, consignee or consignees, master, commander or person having charge of every vessel having emigrant passengers on board of such vessel, destined for the city of New York, to land such passengers and their personal baggage, at such pier or place in the said city of New York as has been or may at any time be designated specially by the Commissioners of Emigration for the landing of emigrant passengers and their personal baggage; and it shall not be lawful to land such passengers or their personal baggage at any other pier or place; and the owner and master of any vessel, from which passengers or their personal baggage shall be landed, in violation of the provisions of this section, shall be subject to a penalty of $50 for each and every person or his baggage so landed in violation thereof; which penalty shall be forthwith a lien on such ship or vessel, and may be immediately, upon such violation, sued for, enforced and recovered, with costs of suit, in the name of and by the Commissioners of Emigration, either by an action in any court having cognizance thereof, or by an attachment under and pursuant to article first of title eighth, chapter eighth, of the first part of the Revised Statutes, for which purpose the said Commissioners of Emigration shall forthwith be creditors of such ship or vessel, and having a direct lien on such ship or vessel, for said penalty; the said penalty, when recovered, to be applied and used by the said Commissioners for the purposes for which said Commissioners are constituted.

Eminent Domain. The right of the State to its public property or domain is *absolute*, and excludes that of its own subjects as well as other nations. The national proprietary right in respect to those things belonging to private individuals, or bodies corporate, within its territorial limits, is *absolute*, so far as it excludes that of other nations; but in respect to the numbers of the State, it is *paramount* only, and forms what is called the eminent domain; that is, the right, in case of necessity or for the public safety, of disposing of all the property of every kind within the limits of the State.—WHEAT. *Inter. Law.* See Corres. between Mr. WEBSTER and Lord ASHBURTON, Dec. 1837.

Empire (Lat. *Imperium*). Originally the territory or extent of land under the command and jurisdiction of an emperor. The dominions under the sway of ancient Rome were the first to which the term empire was applied; they consisted of two grand divisions —the Empire of the East, or, as it was afterward called, the Lower Empire; and the Empire of the West. The former admitted of various subdivisions in reference to the different dynasties to which it was subject; and the latter became, about the end of the 9th century, the German or Holy Roman Empire. In all these cases, the sovereign, or chief person in the empire, was named the emperor. But the term empire has in several instances been employed to designate *a large extent of dominion*, without reference to the title of the ruler or sovereign of a country; thus we hear of the empire of Persia, Hindostan, etc. The dominions of the Queen of England are invariably designated the British Empire; and the epithet "imperial" is officially prefixed to the Parliament of the United Kingdom. The term empire was applied from 1804 to 1814 to the dominions of France, including all the countries then incorporated with it by the conquests of Napoleon.

Emporium, in a general sense, signifies a city or a place where extensive commercial transactions are carried on; but it is more particularly applied to the commercial centre of a country, or the place to which buyers and sellers, from various countries, resort.

Empyreuma (Gr. *εμπυρευω*, *I kindle*). A burned odor; hence, the oils obtained by distilling various organic substances at high temperatures, are called *empyreumatic oils.*

Enamel (Fr. *émail*) a semi-transparent or opaque vitrified substance, of the nature of glass, but differing from it by possessing a greater degree of fusibility and opacity. The compound which serves as a basis to most kinds of enamel is formed by the fusion of a pure crystal glass or frit, ground up with a fine calyx of lead and tin, in certain proportions; to which is usually added white salt of tartar. The different kinds of enamel are made by the addition of coloring substances, and melting or incorporating the whole by fusion. For white enamel, Neri (*De Arte Vitriar.*) directs only manganese to be added to the matter which constitutes the basis; for azure, zaffer mixed with calx of brass; for green, calx of brass with scales of iron, or with crocus martis; for black, zaffer with manganese or with crocus martis, or manganese with tartar; for red, manganese, or calx of copper and crude tartar; for purple, manganese with calx of brass; for yellow, tartar and manganese; and for violet-colored enamel, manganese with thrice-calcined brass; In making these enamels great nicety is requisite. The general way of making the colored enamel is this: Powder, sift, and grind all the colors very nicely, and first mix them with one another, and then with the common matter of enamels; next set them in pots in a furnace, and when they are well mixed and incorporated, cast them into water; when dry, set them in a furnace again to melt; and when melted, take a proof of the enamel. If too deep-colored, add more of the common matter of enamels; and if too pale, add more of the colors.

Enameling, the art of laying enamel upon metals, as gold, silver, copper, etc. Enamel ornaments for trinkets, in almost endless variety, may be produced by the aid of the blowpipe. The enamel is usually first drawn out into threads, or reduced to thin laminæ, to facilitate the process of fusion; and by the same means the enamel may be laid upon metals. Very elegant ornamental work may be thus produced. Enameling also signifies to paint in enamel.

Enamel Painting is performed on plates of gold or of copper, but seldom on silver, as this metal is apt to occasion imperfections in the surface of the enamel. Copper is the metal most generally used for this purpose, enameled with the white enamel, on which painting is executed with colors which are melted in the fire, where they take a brightness and luster like that of glass. This kind of painting is particularly prized for its peculiar brightness and vivacity, which is permanent, the force of its colors not being liable to be effaced or sullied with time, as in other painting, and continuing always as fresh as when it came out of the workman's hands. This method of painting is almost entirely confined to miniature; larger works being liable to certain accidents in the operation. The most perfect kind of enameling is practiced on plates of gold, the other metals being less pure. Copper, for instance, sometimes scales with the application; and silver turns the yellow white. To obviate the cracking of the enamel, the plates are generally made a little round or oval and rather thin. The operation is usually commenced by laying on a couch of white enamel on both sides of the plate, which prevents the metal from swelling and blistering; and this first layer serves for the ground of all the other colors. The next step is to draw out exactly the subject to be painted with red vitriol, mixed with oil of spike, marking all parts of the design very lightly with a pencil. After this, the colors (very finely ground, and mixed with oil of spike somewhat thick), are to be laid on, attention being given to the mixtures and colors which agree to the different parts of the subject; for which purpose it is necessary to understand painting in miniature. When the colors are all laid, the painting is to be gently dried over a slow fire to evaporate the oil, and the colors are afterward melted to incorporate them with the enamel, making the plate red-hot in a fire such as enamelers use.

Enchasing, or **Chasing**, the art of embossing or making figures in low relief upon gold, silver, and other metals. It is practiced only on hollow thin works, such as watch-cases, tankards, cups, etc. The design having been traced on the exterior surface of the metal, the work is hammered upon steel blocks or puncheons introduced within; and thus the workman proceeds to indent the metal by the successive application of the block and hammer to the several parts of the design; after which the work is cleared with small chisels and gravers. In this simple manner a skillful artist is able to represent foliages, figures, etc., with admirable precision.

Encyclopædia (*ἐν*, *in*, *κύκλος*, *a circle*, *παιδεία*, *instruction*), a term nearly synonymous with CYCLOPÆDIA, but sometimes adopted in preference to it, as being etymologically more definite and complete. For, as it has been justly remarked—*Cyclopæia* may denote "the instruction *of* a circle," as *Cyropædia* is "the instruction of Cyrus;" whereas in EN*cyclopædia*, the preposition determines the meaning to be "instruction *in* a circle." Vossius, in his book *De Vitiis Sermonis*, observes, "that *Cyclopædia* is used by some authors, but *Encyclopædia* by the best." See CYCLOPÆDIA.

England, the southern, and by far the most fertile division of Britain, corresponds in latitude with Holland and the north of Germany, extending from 50° to 55° 45′ N. Its figure is nearly triangular, and its extent of coast is very great, both from being much indented, and from the sea bounding it on all sides except along a width of 70 miles on the Scottish border. The adjacent seas are the German Ocean on the east, St. George's Channel on the west, and the English Channel on the south. No country can be more fortunately situated; its climate is temperate; its extent is sufficient for its political security; while its insular position not only presents the greatest capabilities of aggrandizement in a commercial sense, but has, by rendering a great military force unnecessary, in all probability been the chief cause of preventing the executive branch from usurping absolute power, as in the countries of the Continent.

Its superficial extent had long been a question of considerable doubt, and the different estimates varied no less than 10,000,000 of acres. Mr. Pitt, on the authority of Arthur Young, assumed, in 1798, the superficial extent of England and Wales to be nearly 47,000,000 of acres; a later calculation by Dr. Beeke, approaching more to accuracy than any preceding one, fixed it at 38,500,000 acres. But according to the census of 1851, the area of the great territorial subdivisions of Great Britian is as follows, viz.: England, 50,922 square miles; Scotland, 31,324; Wales, 7398; and the Islands in the British Seas, 394 square miles; making the area of England and Wales 58,320 square miles, or 37,324,915 imperial acres. The forms of the islands are irregular, and do not approach simple geometrical figures, if we except England, which was not inaptly compared by the ancients to a triangle. The area of Great Britain is equal to a square of 299 miles to the side; England to a square of 226 miles to the side; Scotland to a square of 177 miles to the side; Wales to a square of 86 miles to the side; the Islands in the British Seas to a square of 20 miles to the side. While the area is in the ratio of these squares, or as 51, 31, 7, and 4-10, the population is nearly as 17, 3, 1, and 1-7; England has, on an average, to a square mile 322 persons, Wales 136, Scotland only 92, the Islands in the British Seas 363 persons. While about 21,200,000 acres of territory lie north, and 36,400,000 acres south of 55° of north latitude; the populations on the north and south side of the line are respectively about 3,173,000 and 17,787,000.

Harbors.—Portsmouth, Milford Haven, and Plymouth, are the finest harbors in England, and are surpassed by few, if any, in the world. Of these, Portsmouth is entitled to the pre-eminence. This noble harbor is about as wide at its mouth as the Thames is at Westminster Bridge, expanding within into a capacious basin, almost sufficient to contain the whole navy of Great Britain. Its entrance is unobstructed by any bar or shallow; and it has throughout water adequate to float the largest man-of-war at the lowest tides. The anchorage-ground is excellent, and it is entirely free from sunken rocks, sand-banks, or any similar obstructions. The western side of the harbor is formed by the island of Portsea; and on its southwestern extremity, at the entrance to the harbor, is situated the town of Portsmouth, and its large and important suburb of Portsea. Here are docks and other establishments for the building, repair, and outfit of ships of war, constructed upon a very large scale, and furnished with every convenience. II. Portsmouth harbor has the additional and important advantage of opening into the celebrated road of Spithead, lying between the Hampshire coast and the Isle of Wight, and forming a safe and convenient retreat for the largest fleets. III. Milford Haven deeply indents the southern part of Pembrokeshire. It is of great extent, and has within it many bays, creeks, and roads. The water is deep, and the anchorage-ground excellent; and being completely land-locked, ships lie as safely in it as if they were in dock. IV. Plymouth, which, after Portsmouth, is the principal naval dépôt of England, has an admirable double harbor. The roadstead in Plymouth Sound has been much improved by the construction, at a vast expense, of a stupendous breakwater more than 1,700 yards in length. This bulwark protects the ships lying inside from the effects of the heavy swell thrown into the Sound by southerly and south-easterly winds.

London stands at the head of the river ports of Great Britain. Considering the limited course of the Thames, there is probably no river that is navigable for large ships to so great a distance from the sea, or whose mouth is less obstructed by banks. London is mainly indebted for the unrivaled magnitude of her commerce to her favorable situation on this noble river; which not only gives her all the advantages of an excellent port, accessible at all times to the largest ships, but renders her the emporium of the extensive, rich, and populous country comprised in the basin of the Thames. The port of London extends from London Bridge to a little below Blackwall, and is divided into the Pool, Limehouse Reach, Greenwich Reach, Blackwall Reach, and Bugsby's Reach. The coasting trade of London is greater than that of any port in the world, and gives it superiority over Liverpool.

Liverpool, the principal seaport of England, lat. 53° 25′ N., long. 2° 69′ W., is situated on the eastern bank of the Mersey river, while on the west side are the docks, warehouses, and other commercial buildings. The area of the wet docks is about 185 acres, and of the dry docks 20 acres. The entrance of the Mersey is impeded by shoals, but at high water may be entered by the largest ships. The docks are the finest in the world, and in connection with its situation and inland communication, give it the position it holds, of the first port in England, and having, next to New York, the largest commercial marine. The Mersey, now the second commercial river in the empire, is more incommoded with banks than the Thames, and is in all respects inferior, as a channel of navigation, to the latter. Still, however, it gives to Liverpool very great advantages; and the new channel which has recently been discovered in the banks promises to be of much importance in facilitating the access to and from the port.

Bristol and Hull are both river ports. Owing to the extraordinary rise in the Bristol channel, the former is accessible even to the largest ships. The Humber is a good deal impeded by banks; but it also is navigable as far as Hull by very large vessels. The Tyne admits vessels of very considerable burden as far as Newcastle, which is one of the most important shipping ports in the empire.

Statistics.—The total length of railways in England and Wales open for traffic at 31st December, 1853, was 5,811 miles. The number of passengers conveyed in that year was 84,222,961, of whom considerably more than one half were first and second class passengers. The receipts from the goods traffic somewhat exceed those from the passenger traffic. The length of lines in course of construction at 30th June, 1853, was 491, while the length authorized was 2,969 miles, nearly 2,500 miles being neither open nor in course of construction. The total amount of capital and loans authorized to be raised by railway companies in the United Kingdom previous to 31st December, 1852 (after deducting amounts proposed for lines subsequently abandoned), was £356,610,456, of which £264,165,680 had been raised: the amount raised in 1852 was £16,398,993. The number of passengers that traveled by railway in the half year ended 30th June, 1854, was 45,080,316; the amount of receipts from passengers was £4,092,661; from horses, carriages, luggage, and mails, £505,116; from general merchandise, cattle, minerals, etc., £4,826,825; total for six months, £9,424,602. See RAILROADS.

Electric Telegraph.—Connected with the railways is the electric telegraph, which is now stretched along thousands of miles across the length and breadth of the land, or sunk in the depths of the ocean, conveying intelligence between distant points with the rapidity of lightning. In 1846, an association under the title of the Electric Telegraph Company, obtained an act of incorporation, and having bought up the various patents for electric telegraphs, they secured the exclusive right of sending intelligence through the kingdom by this means. Since then they have been extending their operations in all directions; but great as are the advantages conferred on the country by this invention, there is reason to expect that they will be vastly increased and extended, as the instrument is capable of still greater improvements; and when the charges for the conveyance of intelligence are reduced to their proper level, the electric telegraph will be much more generally used.

Canals.—The canals of England are extremely numerous; in fact no country except Holland can enter into competition with her in this respect. The English canals are of moderate size, being from 25 to 30, 35, and 40 feet in width, and, in general, from 5 to 6 feet in depth; the barges navigating them are very long, frequently 70 or 80 feet, on a width of 10, 12, or 14 feet; but in many cases their dimensions, at least their width, are necessarily smaller, the less frequented canals being narrower than those we have mentioned. Could the application of steam to navigation have been foreseen, the canals of England would probably have been made wider. For full details with respect to the canals of England, and the recent improvements in their construction, and in traveling by them, the reader is referred to the article CANALS.

Bridges.—The principal bridges in the kingdom are the railway bridges across the Tweed and the Tyne, and the seven erected across the Thames at London, four of which have been opened since 1817. Of these, two, the Southwark and Vauxhall, are of cast-iron, the one being of three very large arches, and the other of nine arches, each of 78 feet span. The first example of an iron bridge on a large scale, either in England or any other country, was that erected in 1796, at Wearmouth in Durham, the span of which was 240 feet. The chain bridge over the Menai Straits, and the tubular bridge over the same place, are wonderful examples of engineering skill. See article BRIDGES, etc.

The principal crops cultivated in England and Wales are wheat, oats and beans, barley and rye, turnips and potatoes, with clover, hops, flax, etc. It is to be regretted that no estimate, derived from authentic returns, has been formed on which much reliance can be placed, either of the extent of land under different crops, or of the average product per acre. Mr. Caird, in his work on *English Agriculture*, p. 522, gives the following estimate as the result of his survey of England in 1850–51 of the extent of land under the different species of crops, and in fallow, in England:

	Acres.
Wheat	3,416,750
Barley and rye	1,416,750
Oats and rye	2,000,000
Beans and peas	1,139,000
Clover	2,277,750
Roots (turnips, mangold, potatoes, etc.)	2,116,750
Hops, gardens of all sorts, etc	150,000
Fallow and rape	1,300,000
	13,817,000

Mines—Quarries—Iron, Copper, Tin, and Salt Works.—In regard to minerals, England does not yield to any country in Europe in natural abundance, and takes the lead of all in the extent to which these rude treasures have been converted to purposes of utility. England's great superiority lies in her coal mines, which are not only more productive, but more advantageously situated, than those of the Continent. To the mines along the coast a ready conveyance is afforded by her insular position, and to those in the interior by her inland navigation. The consumption of coal in England for domestic use has been estimated at 20,000,000 tons annually. Large as this quantity is, and larger as it must be when we add to it the vast consumption of manufactories, such as iron-works, copper-works, salt-works, glass-houses, and the like, there is no reason to apprehend the exhaustion of this precious mineral; the depth of the coal-beds being very great, and the extent of ground containing them amounting to many hundred thousand acres. The principal coal-beds lie in Northumberland, Durham, Derbyshire, Staffordshire, and Glamorganshire. The ports for shipping coal in large quantities are Newcastle, Sunderland, and Hartlepool. The motive of the tax on coal exported to foreign countries was thus neither an apprehension of eventual scarcity, nor even a calculation of revenue, so much as a dread of giving her Continental neighbors the means of rivaling her manufactures. Coal is not wanting in France and Germany, but the mines are at a distance from water-carriage, and as yet very imperfectly wrought; while for the purpose of domestic fuel the inhabitants give a preference to wood. After various changes, the export duty on coal was totally abolished in 1850.

According to the census of 1851 the total number of persons engaged in the coal trade is 239,459.

In 1853 the exports of coal to foreign countries, according to the real or declared value, amounted to £1,602,762. See article COAL.

In quarries, whether of stone or slate, England is not rich, particularly the eastern half of the kingdom; and hence the almost universal use of brick in ordinary buildings. It is not till the traveler reaches Durham that he finds stone commonly used. In the northern counties quarries occur frequently; in the southern, those of Portland and Bath are the most considerable. Still the annual profits of the whole are small.

No branch of industry has increased more rapidly in the present age than iron-works. A century ago it was computed that England required an annual importation of 20,000 tons of foreign iron; an importation, which, for many years seems to have been on the increase, so as, after the middle of last century, to carry the quantity required to 30,000, 40,000, and even to 50,000 tons. This supply was brought from Sweden and Russia, and, though burdened with duty, it was in quantity more than double the native produce. But fortunately, after the year 1780, discoveries were made which increased greatly the supply at home. Bar iron had been manufactured in England as on the Continent, with charcoal fuel only, coal being deemed inapplicable to that purpose. Under that impression, the rapid consumption of the wood in the neighborhood of the different iron-works had necessitated a removal, at a great expense, of materials from one spot to another, and was on the point of causing an alarming decay in the business, when the iron-masters, after long perseverence, succeeded in applying coal to their manufacture. They had to contend with various prejudices, particularly the supposed inferiority of iron so made; but, in the course of years, the manufacture acquired such an extent that there were, in 1805, 220 blast-furnaces, making 250,000 tons of pig iron.

The transition from war to peace did a good deal of injury to some branches of the iron trade; but the effect of the change was not of long duration, and the production of iron in England has since been astonishingly increased. In 1820 the produce was calculated at 400,000 tons. The excitement and speculation of 1824 and 1825 had a wonderful influence on this department. According to careful inquiries made at the time, the furnaces at work in England and Wales in 1827, with their produce, were as under:

	Furnaces	Tons.
Staffordshire	95	216,000
Shropshire	31	78,000
South Wales	90	272,000
North Wales	12	24,000
Yorkshire	24	48,000
Derbyshire	14	20,500
Total	266	653,500

Owing to the failure of varions railroad and other projects set on foot in 1825 and 1826, the supply of iron seems to have greatly exceeded the demand; and there was a very heavy fall of prices in 1828, 1829, and 1830, and again in 1850 and 1851. But within the last two years prices have again risen; and the iron trade is, at this moment, in a state of great activity. The produce of the various furnaces of England and Wales, may be estimated at nearly 2,000,000 tons.

ACCOUNT OF THE NUMBER OF FURNACES AND OF THE QUANTITIES OF IRON PRODUCED IN GREAT BRITAIN IN 1825 AND 1848.

	1825.		1848.	
	Total Furnaces.	Produce of Iron.	Total Furnaces.	Produce of Iron.
		Tons.		Tons.
South Wales	107	230,412	196	706,680
North Wales	14	17,756	11	16,120
Northumberland	..	....	86	100,000
Yorkshire	34	39,104	28	66,560
Derbyshire	19	22,672	30	95,000
Staffordshire	107	182,156	158	885,840
Shropshire	48	89,596	34	88,000
Scotland	25	33,540	130	550,000
Totals	354	615,236	623	2,008,200

The quantity of iron of all kinds manufactured and unmanufactured, exported in 1852, amounted to 1,035,884 tons, besides 25,289 tons of cutlery of the declared value of £2,691,697. Now that the railways are nearly completed, it might have been expected that this would have caused a stagnation in its manufacture; but iron is now so extensively used in the construction of steam-vessels, that the demand has been maintained. For more ample details, the reader is referred to the article IRON.

Copper-mines have long been known in England, but they were wrought with very little skill or effect until toward the year 1700. Even at that time the annual produce, after smelting the metal from the ore, was only a few hundred tons of copper; and it hardly exceeded 1000 tons annually, down to the middle of last century. From that time forward, the increase became considerable, as well in Cornwall as in Devon, North Wales, and Derbyshire; in all of which, copper-mines were discovered and wrought. In North Wales, there were two mines, Parys and Mona, which, for some time after the year 1780, yielded annually a large quantity of ore, but they are no longer so productive; the mines of Devon and Derbyshire continue to be wrought, but the great product is from Cornwall; the mines of Cornwall and Devon in 1853 yielded 181,969 tons of copper ore, the metal obtained from which, at the rate of 6½ per 100, produced 11,823 tons of standard copper, which, at the average rate of £140 per ton, amounted to £1,655,220. It is the Welsh collieries which afford to Cornwall, as to Devonshire, the means of smelting; and as the ore is less heavy than the coal required for this operation (1 ton of ore requiring from 2 to 2½ tons of coal), the practice is to convey the ore in vast quantities to Wales, particularly to Swansea. In this, as in other minerals, France is greatly behind England. She has various copper-mines, but her coal-mines, at least those hitherto wrought, are at too great a distance to make such undertakings profitable; and she consequently requires an annual importation from England.

In 1854 there were exported of brass and copper manufactures 1,851,689 cwt., of the value of £1,761,878.

Cornwall is also the great seat of the tin-mines of England. A century ago, the average produce of the tin-mines hardly exceeded 1500 tons; it may now be estimated at 5000 tons a-year. From abroad England receives tin principally from her Indian possessions, Holland, and the United States. Of this, was imported in 1853, 49,740 cwt. The value of tin unwrought, and in plates, exported in 1854, was £1,307,246.

The lead-mines of England are principally in Cumberland, Northumberland, Derbyshire, Flintshire, and Salop. In 1852 England and Wales produced 80,790 tons of lead ore, and 57,621 tons of lead. Black lead is found in Cumberland, in the romantic district of Borrowdale. The mine was formerly opened only periodically, in order that the market might not be overstocked, but for a considerable number of years past, it has been constantly open.

There is no country better supplied than England, both with brine-springs and beds of fossil, or rock-salt. The brine-springs are found in Cheshire, in the southern part of the county, in places contiguous to the river Weaver, and at Droitwich, in Worcestershire. The beds of rock-salt, which are of great thickness, were discovered in the vicinity of Northwich and Lawton. The greater part of the salt produced is obtained from the brine-springs. Formerly considerable quantities were produced by the evaporation of sea-water, but since the abolition of the duties most of the works appropriated to this manufacture have been abandoned. From the brine-springs it is obtained at the rate of one gallon of solid salt from four gallons of liquid, while common sea-water does not yield above one in twenty-eight. The consumption of salt is immense. Necker estimated its consumption in those provinces of France which had puschased an exemption from the gabelle (*pays francs redimées*) at about 19½ lbs. (Eng.) for each individual.—*Administration des Finances*, tome ii., p. 12. From all that we have been able to learn on the subject, we believe that the consumption of the people of Great Britain may be estimated a little higher, or at 22 lbs.; the difference in food and habits, as compared with those of the French, fully accounting for this increased allowance. On this supposition, and taking the population of Great Britain at 21,000,000, the entire consumption will amount to 462,000,000 lbs., or 206,250 tons.

Exclusive of this immense home-consumption, England annually exports about 18,000,000 bushels, which, at 56 lbs. a bushel, are equivalent to 357,143 tons. The Americans are the largest consumers of British salt.

The cheapness of this important necessary of life is not less remarkable than its diffusion. Its present cost may be estimated, at a medium, at from 14s. to 16s. a ton.

Salt has been at all times a favorite subject of taxation. It was first taxed in the reign of William III. In 1798 the duties amounted to 5s. a bushel, but they were subsequently increased to 15s. a bushel, or about forty times the cost of the salt. So exorbitant a duty was productive of the worst effects, and, in particular, occasioned a great deal of smuggling. The duty having, in consequence, become exceedingly unpopular, was finally repealed in 1823.

Fisheries.—At present our space allows no more than a brief notice of the principal branches of the fisheries.

The mackerel fishery is carried on with great vigor on the coast of Kent and Sussex, in May, June, and July. Large as the supply is, it would still admit of augmentation; and herrings also might be caught in vast quantities on the coast of Kent in October and November. The desideratum with the fishermen is not so much a high price as a certain market; and the most effectual way to procure that is, to quicken, by every possible means, the conveyance to London, which has been accomplished by the employment of steamboats and railways.

The pilchard fishery takes place chiefly on the coast of Devonshire and Cornwall, and, though subject to great fluctuations, as well from the seasons as from England's political situation relative to the continent, forms on the whole an important branch, employing a number of seamen both in catching the fish and in carrying it to foreign markets. Its season is generally from June to September.

The herring, the most important of all the fisheries, is happily now in a state of rapid extension. It formed, during the 17th century, the great employment of the Dutch seamen, and was contemplated by their neighbors with very jealous eyes. Accordingly, in the reign of Charles II., particularly after the rupture with Holland in 1672, several acts were passed for the encouragement of the fishermen, and in a spirit of hostility to the Dutch. The subsequent accession of William to the throne, and the long friendship between the two countries, relaxed the exertions of the government; and it was not till after the peace of 1748, that a large bounty was given on the tonnage of the busses, or masted vessels, so employed. Still English fishermen were unable to compete with the experience and patient perseverance of the Dutch, and it was found necessary to raise the bounty from 30s. to 50s. per ton. This had the desired effect, and the number of busses increased; but the additional 20s. being withdrawn in 1771, the fishery again declined. The American war, and, subsequently, the wars of the French revolution, proved extremely adverse to its extension. At last, in 1808, an act was passed carrying the bounty to £3 a ton on the busses, with a further grant of 2s. per barrel on all herrings caught, whether in busses or boats. This act was further confirmed in 1815, and the bounty per barrel raised to 4s., with the qualification that the herrings should be gutted before curing.

In consequence of the encouragement thus afforded, the fishery was materially extended; but this was effected at a great expense, and had, besides, several bad consequences. The bounties given by government tempted persons without capital or skill to enter into the business, to the great injury of the regular fishermen; so that notwithstanding the extension of the business, it was found, as is invariably the case with all departments carried on by means of a bounty, to be in a very unhealthy state. In consequence partly of the circumstances now stated, and partly in consideration of the real and substantial relief given to the fishery by the abolition of the duties on salt, it was resolved gradually to withdraw the bounty, which totally ceased in 1830. And it may be stated, that though the fishery fell off while the bounty was in the course of being withdrawn, it has since been materially increased, and is now in a better situation than at any former period. From the year 1811 to 1830, the year when the bounty ceased, the greatest number of barrels cured in Great Britain was 442,195; and in the year ending December, 1853, they amounted to 778,039, the largest number cured in any previous year. The quantities cured in each year vary considerably, according to the abundance of the shoals that appear upon the coasts in different seasons; but since 1838, the annual quantity cured has never fallen below 500,000 barrels, while for the 25 previous years they would scarcely average 300,000. In 1851 there were exported 239,330 barrels of the declared value of £228,835.

The cod fishery is next in importance to that of the herring. It is carried on in a great variety of places contiguous to the British shores. The finest fish is caught round the edges of the Dogger Bank, but within these few years London has been principally supplied with cod taken between Yarmouth and the Nore. The fisheries in the neighborhood of the Shetland and Orkney Islands, are productive and valuable, but the great bank of Newfoundland is the principal station of the distant cod fishery. About 2,000 men are employed in the sole fishery.

Salmon are rarely caught except in estuaries or rivers, which in most instances are private property. It is found in most English rivers, but in such small quantities as to make the fishing an object of little consequence.

England is chiefly supplied from the fisheries in the Scotch and Irish rivers, but from some cause or other there is a growing scarcity in this fish, probably from the weirs or salmon-traps placed in the rivers and estuaries in the way of the fish when ascending the rivers to spawn.

Greenland was first discovered by the English; but in this, as in other branches of navigation she long allowed the Dutch to take a lead. It was not till after 1750 that, the government having granted a bounty of 40s. a ton on every vessel employed in the whale fishery, a considerable increase took place in this branch.

In 1750, the vessels employed were only 19; in 1756, they had increased to 67. The war soon caused a decrease of one half; but at the return of peace in 1763 this fishery revived, and in 1770 the vessels employed amounted to 50; in 1773, to 55; in 1775, to 96. The American war again caused a decrease, and in 1782 the vessels so employed were only 38. In 1784 they increased to 89, and in 1785 to 140. After this, they exceeded 200 annually till 1793; but the long continuance of the late wars reduced them below half the number employed previously. In 1852, the whale fishery employed ships, of the aggregate burden of 16,113 tons.

The Newfoundland fishery has been considerable for fully a century past. As a nursery for seamen, it is accounted of such consequence as to have formed the object of a specific article in most of the treaties of peace. The fish caught, particularly in time of peace, is sent less to Britain than to the Catholic countries in the south of Europe; a market subject to all the interruptions attendant on a change of political relations. The number of vessels employed in this fishery at different times was as follows:

In 1731	70
1764	140
1774	254

The American war caused a diminution; but

In 1784 the number was	286
1785 " "	292

At this rate the fishery continued until the war of 1793, after which, particularly after the rupture with Spain in 1797, it fell off greatly; the fishing-vessels in 1798 being only 140.

The continuance of war, and the aggrandizement of the French in Italy, occasioned additional depression; so that in 1810 the number of English vessels employed at Newfoundland did not exceed 92. The peace seemed to promise a revival of this important nursery of seamen; and in the year 1816 the number of vessels which arrived in Newfoundland was 795, manned by 6,000 seamen; but the trade, both then and in 1817 and 1818, proved unprofitable, in consequence of indifferent seasons, of the high duty imposed on fish imported in British vessels into Naples, and of the competition of the French fishermen, supported by a high bounty from their government. The total value of fish exported from the British colonies in North America in 1851, was £827,738.

It is a matter of surprise to foreigners that a maritime nation should not have more effectually cultivated this great means of facilitating the support of the people. The ample supply which might have been afforded by the Nymph Bank, on the south-east coast of Ireland, has been avowedly neglected; and it was only in 1818 that the discovery of a bank of almost equal productiveness in the vicinity of Orkney, was made.

Fish is little known to the mass of the people in the inland counties, though the facilities of transport afforded by the railways is gradually distributing it in larger quantities. London has always been amply supplied. Mr. Mayhew, in his pamphlet on "London Labor and the London Poor," estimates the weight of fish annually consumed in London at above 450,000,000 pounds, besides an enormous quantity of shell-fish. Calculating the fish of all kinds at 3d. per lb. on an average, the amount would exceed £5,000,000 sterling. See the article FISHERIES.

Manufactures.—In this great department of English productive industry, we begin with woolens, which, although no longer the largest of these manufactures in point of exportation, nor even in the value annually made, is entitled to the first place from the priority of its establishment, as well as from the substantial basis on which it rests. England, from the extent of her pastures, abounded in wool from a very remote age, and the inhabitants were doubtless capable of manufacturing it into rude clothing; each weaver working in his separate cottage, and with very little aid from machinery. In the 12th and 13th centuries she appears to have had only the most humble fabrics, and to have imported all cloth of finer texture; sending abroad her wool in quantities to Flanders, a country the inhabitants of which were at that period much further advanced than the rest of Europe, with the exception of Italy. It was in the middle of the 14th century that a better system was introduced. Flemish manufacturers were invited over to England, and improved greatly the quality of her home-made woolens. The seats of this branch of industry appear at that time to have been Kent and Essex; afterward Gloucestershire, and subsequently the West Riding of Yorkshire. It occupied at first the southern and more improved districts, and spread afterward to the northward, on account of the cheapness of labor, the abundance of coal, and the convenience of water-falls for the machinery. The general character of the woolen manufacture of England has been that of slow progress, but of little fluctuation; the latter evidently a consequence of its depending more on home-consumption than on exportation. In the long period from 1700 to 1780, the exports experienced a regular, but not rapid rise, amounting in the latter years to about £3,500,000, while the home-consumption increased in proportion to her augmenting numbers. More recently the manufacture has been materially improved by the adoption of various important mechanical inventions in the spinning, weaving, and dressing departments. On the whole, however, improvement has been much less rapid in it than in the cotton manufacture; so that while her exports of cotton stuffs and yarn have increased beyond all precedent, those of woolens have been comparatively stationary.

As we shall enter fully, in the article WOOLEN MANUFACTURE, into the details connected with its history, progress, and present state, it would be useless, even if our limits permitted, to anticipate these here. We shall only observe, therefore, that the entire value of the manufacture is estimated at about £25,000,000. According to the census of 1851, there were employed in the various branches of the woolen manufactures 176,131 males, and 118,642 females. By far the largest proportion of the raw material of the manufacture is the produce of her own flocks; but for many years past she has imported large quantities. Previously to 1800 the average imports did not exceed 3,000,000 lbs., mostly brought from Spain, the wool of which long maintained a high character. In 1800 the imports increased to 9,000,000 lbs. Since then they have gone on increasing, till, in 1852, they reached 93,761,458 lbs., of which 43,197,301 lbs. came from her own dependencies in Australia. In 1831 the exports of woolen manufactures amounted to £5,232,013. Since then they have annually increased, till, in 1852, they reached £8,730,934. For an account of the prices and qualities of wool, etc., the reader is referred to article WOOL.

The cotton manufacture of England is entitled to the greatest attention on different accounts. Of all her manufactures, it affords the largest export, and exhibits the most rapid improvements in machinery. Its introduction, though not remote, is less recent than is commonly supposed. It appears to have taken place early in the 17th century, when it was established at Manchester; but it was long conducted upon a very limited scale. The raw material, imported at first only from the Levant, in particular from Smyrna, began, after 1660, to be supplied by her West India colonies. The quantity imported amounted, about the year 1700, to 3,500 bales; but, increasing with the extended cultivation of her colonies, it averaged, about the year 1720, something more than 7,000 bales. From the colonial conquests of the war of 1756 her import of cotton received further augmentation; but the manufacture increased very slowly, a great part of her cotton being re-exported to Holland, for the supply of Dutch and German weavers. It was not till after the peace of 1763, and the invention first of the carding machine, and next of the spinning-jenny, that this manufacture became considerably extended. In 1775, the average import of cotton approached 18,000 bales. A variety of inventions, unequaled in the history of manufacturing industry, were now made (see article on the Cotton Manufacture), which gave an astonishing stimulus to the business. Fine calicoes and muslins were introduced; the workmen were withdrawn from their detached dwellings, and collected into large factories; and the price of the finished article experienced a reduction, notwithstanding a rise in the raw material, and in the wages of labor. The period which followed the peace of 1783 is perhaps unexampled for the reduction of price, and the consequent extension of sale that took place in regard to cotton goods. The commencement of hostilities in 1793 gave a pretty severe shock to the business; but the improvements in machinery continuing, the manufacture soon recovered, and has gone on increasing, under many vicissitudes, with a rapidity unparalleled by any other business, either in that or any other country. Neither does there seem to be any ground for fearing that this progress will be speedily checked. On the contrary, her superiority in the majority of what contributes to the advancement of the manufacture is so very decided, that, provided the public tranquillity be preserved unimpaired, she need not fear from the competition of others.

The reader is referred to the article "Cotton Manufacture" in this work for an account of the rise and progress of this great branch of national industry, and for tabular statements, exhibiting the present magnitude and importance of the trade, the sources whence the raw cotton is derived, and the foreign markets for the raw material and manufactured articles.

Hardware.—We have already noticed the surprising increase in the produce of the iron mines of England since 1780. This increase of the raw material, joined in some cases to the command of coal in the vicinity, and in all to a facility of conveyance of coal and iron by canals and railroads, has, in the last 50 years, given a great extension to her hardware manufacture. In no department has the subdivision of employment been carried to so great a length; in none are its effects in cheapening production so conspicuous. Birmingham and Sheffield are the two great workshops for English hardware; the latter is confined to iron and steel, while in the former not only iron and steel, but copper and brass, constitute the materials of labor. Sheffield fabricates articles which are less for ornament than utility, and which possess in general a certain bulk, such as grates, spades, sickles, files, knives, fenders, fire-irons; while in Birmingham there is, in addition to articles of solidity, a surprising variety of toys, fancy goods, and petty manufactures; each trifling, when considered separately, but the whole forming an aggregate of great value. The most insignificant of these, such as a brass cock or a button shank, passes through a number of hands, and each artizan performs only a single operation. He thus acquires an extraordinary dexterity in his limited department, and in the course of a day despatches several hundred, perhaps even a thousand articles, through his particular stage; the result of all which is, that the price, when sold in quantities, is incredibly low. Another and very interesting feature in the situation of Birmingham, is the populousness of its neighborhood. Yet in none of the large towns of England is living less expensive; an advantage owing partly to the abundance of coal, partly to the ready supply of milk and vegetables from the wide space occupied by the population.

Nails.—The nail trade is carried on, not in the town of of Birmingham, but in a part of the surrounding district. It is computed, by the census of 1851, to employ, in England and Wales, 16,965 males, and 9976 females, of whom 7625 are under 20 years of age; for even this heavy article admits of subdivision of employment, which lightens the labor, and enables the workman to avail himself of the aid of his family. Of the two towns, Sheffield is by much the more ancient; the command of coal and iron in the same neighborhood having rendered it, so far back as the 13th or 14th century, a place for the fabrication of the homely articles used in those days by our ancestors. It is about a century since its razors, knives, and files began to take a more delicate shape. Birmingham, however, embraced a wider range, and advanced with much greater rapidity; but Sheffield also has its adjacent district, inhabited by manufacturers, though to a much less extent than the vicinity of Birmingham. This district, called Hallamshire, extends six or seven miles to the west of Sheffield.

Hardware is made in several other places, such as Bilston, Wolverhampton, Dudley, and Walsall. Each of these towns is situated in Staffordshire, and, in point of manufacture, is small only in comparison with Birmingham or Sheffield. Articles apparently very trifling are manufactured to a surprising extent in different places, such as pins at Gloucester, needles at Red-ditch in Worcestershire, watch-movements and main-springs at Prescott in Lancashire. The total value of articles of iron, steel, brass, and copper, including the manufacture from its earliest to its most finished stage, is necessarily fluctuating, but may be computed at £30,000,000 annually; two thirds of which appear to be consumed at home, while the other third is exported to two great markets—the Continent of Europe and the United States of America. The number of persons employed in the hardware manufacture in England in 1851 was about 465,000. In the United States, iron and coal are found, where land and provisions are certainly much cheaper than in Britain; but the scattered state of American population must, during several ages, oppose serious obstacles to the division of employment necessary in all the nicer branches of the hardware manufacture; particularly as the ease with which the Mississippi and Ohio are navigated by steam opens even the Western States to the importation of British goods. Upon the whole, therefore, we look on English hardware manufactures as resting on a solid basis, because in them are combined several advantages:—the raw material, the command of cheap fuel, and the use of machinery, which the more it is adopted, will bring a greater proportion of the work within the compass of women and boys, and thus lessen the proportion borne by wages in the cost of the finished article.

Linen Trade.—Linen has never formed one of the staple manufactures of England, flax having been less cultivated there than on the opposite shore of the Netherlands; a country which, in the 14th and 15th centuries, supplied the rest of Europe with the finest linens and woolens. When England subsequently advanced in manufacturing arts, the abundant supply of wool pointed out the most suitable branch; and she was contented to continue her imports of linen from the Netherlands, from France, and from Germany, or to favor the manufacture of the sister island in a department which did not excited her jealousy. In Ireland, the linen manufacture dates about two centuries ago, and is said to have owed much of its extension to the measures of the unfortunate Wentworth, in the reign of Charles I. The annual consumption of linen in England a century ago was probably not far below that of her double population at present, owing to the very general substitution in our time of cotton articles. At that time the linen manufacture of England was established chiefly in Lancashire and Cumberland, and in a county very remote from these, namely, Dorsetshire. In 1745, government, apprised of the extension of the manufacture of coarse linen in Silesia and other parts of Germany, and actuated by the fallacious notion of making a monopoly of all kinds of productive industry, granted a bounty of 1½d. per yard on the exportation of all British linen of a value from 6d. to 18d. per yard; in other words, a premium of 20 or 25 per cent. on the prime cost of all inferior qualities exported. So large a grant soon augmented the manufacture of osnaburgs and other coarse cloths, particularly in Scotland, although the ratio of increase was infinitely smaller than in the case of cotton, where there was no premium, but a rapid improvement of machinery. The demand for bounty in the ten years ending in 1785, was about £33,000 annually. More recently these impolitic issues were greatly increased; but at length the impolicy of forcing a manufacture in this way having become obvious to every one, the bounties, after being gradually reduced, ceased finally in 1830.

The manufacture is principally carried on in the West Riding of Yorkshire, its chief seat being in Leeds and its neighborhood, and in Lancashire, Dorset, Durham, and Salop.

Ireland and Scotland, particularly Dundee, are both superior to England in the manufacture of linen. But some of the flax mills established at Hull are on a more extensive scale than any other in the empire.

	1851.	1852.
The exports of linen manufactures from Great Britain and Ireland in 1851 and 1852 were of the declared value of	£3,822,935	£3,872,491
Thread and small wares	284,461	359,295
Linen yarn	951,426	1,140,565
	£5,058,822	£5,372,351

Silk Manufacture.—In the silk manufacture, as in the linen, England has had to contend with a formidable opposition in other countries, particularly in France and Italy; and she has also had to import the whole of the raw material. It would therefore hardly have been attempted by her countrymen, but for the great profits expected from an article of general use among the higher classes. Its introduction goes back to the 15th century. About the beginning of the 17th it seems to have been carried to a considerable extent, owing certainly not to the luxury of the age, nor to any great proportion of affluent persons in the community, but to silk being almost the only article of apparel in which the vanity of dress could display itself. Toward the end of the reign of Charles II., about the year 1680, raw silk began to be imported in quantities from India; and the English manufacture received a substantial addition by the numbers and ingenuity of the Frenchmen who settled in that country after the revocation of the edict of Nantes in 1683. Various circumstances thus contributed to preserve and extend the manufacture, which continued rather upon the increase till the general substitution of cottons for silks about 1790. This gave a serious shock to the manufacture, from which it recovered only by slow degrees. Its situation had not indeed been at any time prosperous; and the continued complaints of the manufacturers occasioned within these few years a fundamental change in the policy under which it had previously been conducted.

From the first introduction of the manufacture into England down to 1825, foreign silks were either positively or virtually excluded. But the monopoly which was thus secured to the manufacturers produced, what all monopolies invariably do, an indifference to improvement. Instead of trusting to the ingenuity or to the superior skill which they might have called to their aid for preserving their ascendency in the market, the manufacturers depended upon the custom-house regulations, and additional penalties on smuggling. In consequence, invention was quite at a stand. Such, indeed, was the influence of the system in this respect, that in 1826 the member for Coventry (Mr. Edward Ellice) affirmed in his place in the House of Commons that the improved silk looms in use in various parts of the Continent enabled the workman to execute *five* times as much work as he could do in England; while in every business not protected by a monopoly the result was precisely opposite. At length, after a great deal of discussion, it was resolved to adopt a more liberal system. In 1825, a bill was in consequence passed, allowing the importation of foreign silks on payment of an *ad valorem* duty of 30 per cent., accompanied, however, by the effectual reduction of the singularly oppressive duties which had previously been imposed on the imports of raw and thrown silk. This measure, though vehemently opposed at the time, has proved most successful. We think that the silk trade has made more progress since 1826, when the new system was introduced, than it did during the whole of the preceding century. The following quantities of the raw and thrown silk were imported into the United Kingdom in

Years.	lbs.	Years.	lbs.
1822	2,680,568	1850	5,411,934
1832	4,224,897	1851	5,020,972
1849	5,606,242	1853	7,309,217

This table shows conclusively that the manufacture has increased nearly 200 per cent. since the adoption of those sound and liberal measures which have been the theme of so much ignorant invective. It is of importance, too, to observe, that not only the imports of raw silk, but also the exports of manufactured silk goods, are rapidly increasing. The following table shows this:

1822	£381,703	1851	£1,326,778
1832	529,990	1852	1,551,866
1850	1,225,641	1853	2,044,912

It is plain, therefore, that the manufacture is not increasing merely by reason of an increased demand in the home market, but because England is rapidly gaining on her rivals in the markets of foreign countries. This affords unquestionable evidence of the improvement as well as the extension of the manufacture. In 1852 her exports of wrought silks to France amounted to $257,555, and to the United States to £464,590.

Leather, however little it may figure as an article of export, is necessarily one of extensive home consumption in every civilized country, particularly in such a climate as that of England, and where there are so many rich and sumptuous equipages. It is matter of regret that there are so very few data, official or otherwise, on which to form an estimate of the export or import of hides in former ages. Such an estimate would possess interest, as indicating the extent of her pasturage and the number of her cattle in comparison with her population. Whatever may have been the case at a remote date, the custom-house returns, for many years past, show, by the annual imports, that the demand for leather has greatly exceeded the home supply of hides. For a long time this importation took place from the Continent of Europe, and from the least civilized quarters; from countries such as Lithuania and Poland, where the quantity of hides furnished by the cattle materially exceeds that of the leather required by the inhabitants. But since the opening of the trade to South America, it has been found more advantageous to import hides from that continent, where the herds of wild cattle are so numerous as to meet the eye of the traveler in almost every point of the horizon.

On an average, there are imported annually about 2,000,000 hides, tanned and untanned. The quantity of leather annually made in England and Wales may be estimated at about 50,000,000 lbs. The largest tanneries are at Bermondsey, in Southwark; but there are also very extensive establishments of the kind in the country, as in Cheshire, Lancashire, Westmoreland, Cumberland, and also in Lincolnshire. The late war, by its long continuance, and the magnitude of her army and navy, produced great orders from government for her leather manufacture. Shoes were and still are made wholesale in several towns of Staffordshire, Cheshire, and Northamptonshire; but those made in London, by the principal dealers, are, though expensive, by far the best.

Of the annual value of the leather manufactured into shoes, boots, harness, saddlery, etc., there are no means of forming a correct estimate; but we have merely to consider the population of England, and the unavoidable extent of their wants, to be satisfied that from £10,000,000 to £12,000,000 are rather below than above the mark. But while her home consumption is so considerable, her export is comparatively small—in ordinary years not exceeding £800,000; but in 1853 the exports of manufactured leather rose to £1,578,595. This large increase was probably occasioned by the reckless consignments to Australia. The leather shipped to Ireland is merely tanned: to other countries the exports are in a manufactured shape. The duty on leather was wholly abolished in 1830.

Connected with the general manufacture of leather is the glove trade, a branch of no inconsiderable extent, being carried on in several of the midland and western counties, viz., at Woodstock, Worcester, Ludlow, Hereford, Yeovil in Somersetshire, etc. This branch of industry enjoyed for a lengthened period the protection of monopoly, which, however, was abolished in 1825. Many contradictory statements have been made as to the effects of this measure. We believe, however, that the depression so much complained of has not been produced by it, but by the substitution of cotton gloves for those of leather; and we have no doubt that, had it not been for the greater cheapness and improved quality of leather gloves, caused by the abolition of the monopoly, this substitution would have been carried much farther than it has been. The increased imports of the lamb and kid skins, used in the manufacture, show conclusively that it is not declining.

The manufacture of paper, and the trades connected with it, such as printing, bookselling, bookbinding, etc., give occupation to between 60,000 and 70,000 persons. From the excise returns, it appears that the quantity of paper of all kinds manufactured in England in 1852 was 114,521,304 lbs.; and the duty, which is at the rate of 1½d. per lb., plus 5 per cent., amounted to £751,546. It is difficult to say what portion of this was used in printing books, and how much was consumed by the newspapers; but the quantity used by some of the latter is so great, that a single newspaper, *The Times*, is said to consume about 50 tons a week.

We come next to a branch of industry of a very different description, namely, the brewery, the amount of capital and labor invested in brewing establishments in England is very large, and particularly striking to those who have lived on the Continent, and have contrasted the situation of England with that of the wine countries of the south of Europe. It is only in Flanders and Germany that breweries are numerous; and in the latter, from the limited capital, and the scattered state of their population, there are hardly any of those large establishments which exist in London.

AN ACCOUNT OF THE TOTAL NUMBER OF QUARTERS OF MALT MADE BETWEEN THE 5TH DAY OF JANUARY, 1852 AND THE 5TH DAY OF JANUARY, 1853, IN THE UNITED KINGDOM; DISTINGUISHING THE QUANTITY MADE IN EACH COUNTRY, AND THE QUANTITY USED BY BREWERS AND VICTUALERS, AND BY RETAIL BREWERS; AND SIMILAR ACCOUNT FOR THE YEAR ENDING THE 5TH DAY OF JANUARY, 1854.

	YEAR ENDING 5TH JANUARY, 1853.				YEAR ENDING 5TH JANUARY, 1854.			
	Quarters of Malt made.	QUARTERS OF MALT USED			Quarters of Malt made.	QUARTERS OF MALT USED		
		By brewers and victualers.	By retail brewers.	Total.		By brewers and victualers.	By retail brewers.	Total.
England	4,435,453	3,445,245	481,007	3,926,252	4,530,730	3,576,166	487,128	4,063,294
Scotland.........	491,474	150,386	....	150,386	520,479	164,677	....	164,677
Ireland..........	207.134	160,693	....	160,693	203,759	160,929	....	160,929
United Kingdom	5,134,061	3,756,324	481,007	4,237,331	5,254,968	3,901,772	487,128	4,388,900

Quantities of spirits charged with excise duties in the United Kingdom in

	Gallons.
1850..	23,901,432
1851..	24,030,933
1852..	25,270,262

The quantity of beer brewed in England in 1830 was 4,678,428 barrels. The duty on beer having ceased on the 10th of October, 1830, there are no subsequent accounts of the quantities brewed. There can be no doubt, however, from the increased quantity of malt, that the production of beer has likewise greatly increased.

Spirituous liquors.—Spirituous liquors form one of the branches of manufacture in which England is dependent on her neighbors, as she imports an annual supply of corn spirit from Scotland and Ireland, rum from the West Indies, and brandy from France. It has been generally supposed that the consumption of gin has increased materially in England since 1825, when the duties were reduced. We are, however, inclined to doubt whether such be really the case, and are disposed to believe that the effect is more apparent than real; in fact, that it has resulted rather from a diminution of smuggling than from a positive increase of consumption. That such has been the case in Scotland and Ireland is beyond all question; and there seems no reason to conclude that it is otherwise in England. For tables of the quantity of malt used in 1853, and of the quantities of spirit charged with excise duties in 1850, 1851, 1852, see article BREWING.

To the remaining manufactures the limits allow of little space, though several of them would be accounted of great importance in any other country than England. The extent to which such articles as soap and paper are made in England is amply shown by the excise returns; but the list of her exports is of more consequence to the political economist, not from the vulgar notion that it is by export only that national profit is realized, but as indicative of those commodities for which she possesses, in her soil, her climate, or her colonial possessions—advantages that give them a superiority over their neighbors. Thus, in the case of glass, the abundance and cheapness of her coal enables her to make an annual export of above £500,000. In the manufacture of hats, likewise, her command of wool for the coarser kind, and of furs from her North American colonies for beaver hats, enables her to ship to an extent of nearly 45,000 dozen, or £44,000 a year. In earthenware England has the advantage of clay, of fuel, and of ready communication by canals. These, joined to the taste and ingenuity of individuals engaged in the manufacture, carried it, in the course of the 18th century, to an extent which has rendered it a national object—a tract of 7 or 8 miles in Staffordshire, called the Pottery District, being almost entirely appropriated to it. The population of this tract is about 60,000. The great outlet is Liverpool, and the shipments take place partly to the United States—partly to the continent of Europe. Exports (comprising porcelain) in 1853 reached £1,337,911 in real value.

The stocking manufacture is carried on chiefly in the counties of Nottingham, Derby, and Leicester. It formerly employed great numbers of women in knitting; but in this, as in most other branches, machinery has greatly superseded manual labor. Lace is made in vast quantities in the midland counties; and here also machinery is extensively applied. And so extraordinary has been the progress of invention in this department, that British lace at present commands a ready sale in all foreign markets, and is largely smuggled even into France.

Commerce and Shipping.—With Ireland the intercourse of England is very great—that country sending them grain, salted and fresh provisions, live cattle, butter, etc., to the amount of £6,000,000 or £7,000,000 annually, and taking largely in return her manufactures, particularly cotton, woolen, and hardware.

North of Europe.—From Russia her chief imports are tallow, hemp, flax, corn, linen, timber, pitch, etc.; from the Swedish dominions, iron and timber; from Poland, wheat, timber, and potash; from Prussia, wheat, timber, and flax. All these countries take her cottons, hardware, and colonial produce.

Central part of Europe.—From Holland her imports are not foreign merchandise, as in the 17th century, when the Dutch were the carriers of Europe, but agricultural produce, as oats, wheat, seeds, hemp, cheese, butter; also gin; the whole to a large amount; in return for which the Dutch take her hardware, cottons, and woolens. From France her imports have long been burdened with heavy duties, but still they are large and increasing, consisting chiefly of wine and brandy, silk, lace, gloves, etc. With Germany, her chief intercourse is through the medium of Holland and Hamburg. With these countries her exports are large, particularly in cottons, hardware, and colonial produce. Her imports are also very various and large, consisting of wool, corn, flax, timber, linen, and wine, from the vicinity of the Rhine.

South of Europe.—Here we enter on countries of much less industry. From Portugal England takes wine in very large, and fruit in smaller quantities, in return for her cottons, her woolens, and her hardware. From Spain she receives wool, wine, brandy, oil, fruits, barilla, etc. Italy, without any commercial treaty, takes a large quantity of her manufactures, and gives in return silk, oil, and fruit. With the Levant her traffic is similar—consisting of an export of manufactures, particularly printed cottons and hardware, and of an import of silk, fruit, and drugs.

The United States are, notwithstanding their tariff, her best customers, receiving from England manufactures of almost every kind to a great amount, and sending her in return vast quantities of cotton, tobacco, rice, and flour; but the merchandise received from the United States being far inferior to the value of English exports, the difference is paid by remittances in money from the continent of Europe, arising from American merchandise sold there. With South America a wide field of commercial intercourse has been opened; at present, however, the chief articles received from that vast region are bullion, hides, skins, indigo, and cochineal. The trade is, and will long be subject to the various disadvantages of a newly-settled country, bare of capital, deficient in industry, and possessing but a small number of consumers of European commodities in proportion to its extent and fertility.

COMMERCE OF THE UNITED STATES WITH ENGLAND, FROM OCTOBER 1, 1820, TO JULY 1, 1856.

Years ending.	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821......	$16,339,109	$2,125,594	$18,464,703	$23,180,862	$1,933,665	$645,529	128,729	19,546
1822......	21,072,395	1,029,224	22,101,619	32,108,947	796,218	99,920	151,030	30,238
1823......	18,968,185	978,474	19,946,659	26,301,270	365,632	282,822	132,042	50,784
1824......	18,218,841	1,268,282	19,487,123	26,647,922	312,112	149,164	140,125	42,310
1825......	32,096,390	2,031,186	34,127,576	34,271,510	303,266	82,888	172,409	39,242
1826......	19,065,185	1,569,023	20,634,208	24,362,203	698,077	122,216	147,455	41,801
1827......	23,514,421	904,596	24,419,017	28,653,883	200,101	34,111	202,976	63,706
1828......	18,737,661	2,960,261	21,697,922	30,476,139	2,852,209	20,972	133,353	75,583
1829......	21,281,334	1,767,457	23,048,791	23,892,763	673,833	89,826	179,843	60,722
1830......	23,773,020	826,946	24,599,966	22,755,040	112,229	144,231	192,714	58,589
Total...	$213,066,541	$15,461,043	$228,527,584	$272,650,539	$82,47,342	$1,621,679	1,580,676	482,521
Sept. 30, 1831......	$28,841,430	$2,367,439	$31,208,869	$41,854,323	$1,615,643	$130,830	235,345	83,461
1832......	26,635,768	2,875,137	29,510,905	34,849,096	1,112,298	83,639	189,579	96,615
1833......	29,582,673	1,452,768	31,035,441	36,668,315	244	31,903	183,928	87,602
1834......	38,673,694	2,974,726	41,648,420	45,566,065	270	5,805,613	216,256	89,836
1835......	47,990,532	945,809	48,936,341	59,066,989	39,037	1,303,438	215,810	69,582
1836......	53,302,483	1,874,737	55,177,220	75,761,713	2,509	2,322,920	233,817	78,450
1837......	46,235,102	4,884,768	51,119,870	43,546,757	1,833,070	116,299	268,068	67,125
1838......	48,899,888	1,545,188	50,445,076	44,191,851	10,185	9,009,346	344,616	76,668
1839......	54,615,327	3,953,108	58,568,435	64,863,716	3,163,490	1,420,092	269,466	92,685
1840......	51,951,778	5,096,882	57,048,660	33,114,133	4,383,786	803,306	388,512	129,213
Total...	$426,728,675	$27,970,562	$454,699,237	$479,482,958	$12,160,527	$21,027,886	2,543,397	871,237
Sept. 30, 1841......	$44,184,357	$3,371,220	$47,555,577	$45,730,007	$3,018,137	$580,530	272,631	130,768
1842......	36,681,808	2,932,140	39,613,948	33,446,499	1,702,748	205,919	285,479	139,054
9 mos. 1843......	37,149,095	1,106,064	38,255,159	26,141,118	400	14,305,714	329,985	163,174
June 30, 1844......	45,814,942	1,125,214	46,940,156	41,476,081	85,706	1,131,959	311,741	192,583
1845......	41,518,934	4,767,244	46,286,178	44,687,859	3,673,137	180,828	374,846	198,921
1846......	42,781,619	1,758,489	44,540,108	43,844,160	978,110	482,711	364,149	183,942
1847......	70,223,777	834,921	71,058,698	65,170,374	8,055	19,312,930	457,598	300,555
1848......	62,928,024	8,924,291	71,852,315	59,763,502	9,318,633	1,916,952	476,548	258,210
1849......	69,161,992	1,880,878	71,042,870	58,818,425	764,097	2,671,792	576,018	349,900
1850......	64,686,959	4,210,271	68,897,230	72,118,971	2,534,185	527,266	440,582	269,078
Total...	$515,131,507	$30,910,732	$546,042,239	$491,196,996	$22,078,208	$41,316,601	3,889,527	2,186,185
June 30. 1851......	$105,121,921	$8,151,266	$113,273,187	$90,612,238	$17,099,081	$1,098,667	621,566	274,888
1852......	107,788,657	4,536,185	112,324,842	88,119,859	34,302,284	1,487,484	672,488	306,017
1853......	112,778,859	3,209,264	115,987,623	125,774,232	18,631,900	284,799	664,892	429,174
1854......	135,111,708	5,563,631	140,675,339	140,888,733	27,926,263	85,156	858,970	488,246
1855......	129,475,967	6,158,178	135,629,145	102,436,293	47,858,015	107,464	831,464	258,945
1856......	152,561,975	1,517,560	154,079,535	118,045,544	34,161,062	421,971	923,617	339,108

For a more extended account of the commerce of England, as well as of Great Britain, see GREAT BRITAIN.

From Asia England imports tea, indigo, cotton, coffee, sugar, piece goods, ivory, drugs, etc. Her principal article of export is cotton goods, for which, how singular soever it may appear, India has, since the opening of the trade in 1814, become one of the very best markets. Besides cotton stuffs and yarn, she sends to Asia woolen goods, copper, and a great variety of other articles.

From Africa England imports drugs, ivory, teak wood, hides, etc. Her exports are but inconsiderable, consisting principally of cotton and linen manufactures. The hopes so frequently entertained, of opening an advantageous trade with the interior of Africa, have hitherto been altogether disappointed, and it is not supposed they will be more successful in future.

The recent discovery of the gold fields in Australia, and the consequent influx of immigrants into that country, have made it an important market for England's produce and manufactures. The declared value of her home produce and manufactures exported to the Australian colonies, including Van Dieman's Land and New Zealand, in 1850, was £1,574,145, while in 1851, 1852, and 1853 it respectively amounted to £2,807,356, £4,222,205, and £14,506,532. The number of ships that cleared from the United Kingdom for the various Australian colonies was 272 in 1851, 568 in 1852, and 1201 in 1853. A return of the exports and imports to the Australian colonies for 1851, 1852, and 1853, shows some curious results. The exports for 1853 exhibit in some instances an extinction, and in almost every article a decline, except wool, and of course gold, which is not noticed in the return; thus tanners' bark, of which 35,894 cwts. were exported in 1852, was reduced to 4776 cwts. in 1853; and tanned hides, of which 642,198 lbs. were exported in 1852, only amounted to 9842 lbs. in 1853; while untanned hides rose from 20,243 cwts. in 1852, to 41,987 in 1853. Flax and hemp, guano, wine, timber, tortoise-shell, whale-fins, etc., all declined or disappeared from the return. So did copper and lead ore; but copper, partly wrought, that is, in bars, rods, or ingots, increased from 373 tons in 1852, to 686 tons in 1853. Quicksilver fell from 14,631 lbs. in 1852, to 6933 lbs. in 1853; and wool rose from 43,197,301 lbs. in 1852, to 47,075,963 lbs. in 1853.

The amount of exports in 1851 being doubled in 1852, and quintupled in 1853, and probably increased still more in 1854, could not fail to cause a glut in the market, which has produced great embarrassment in the colony, and entailed heavy losses on the speculators.—E. B. For complete statistics of Great Britain, see article Great Britain.

English Channel (called by the French *la manche*), is that part of the Atlantic Ocean which lies between the north-west coast of France and the southern coast of England. Its eastern extremity is connected with the German Ocean by the Strait of Calais, and on the west it is imperceptibly confounded with the Atlantic Ocean. It lies between lat. 38° 48′ and 51° north, and long. 1° 20′ east and 5° 43′ west. At its termination—on a line drawn from Land's End to the extreme easterly point of the department of Finisterre, in France, it is about 40 leagues wide. On the French coast it forms three considerable bays; the most easterly receives the Severne; the second receives the Seine and several smaller rivers; the third and largest lies on the south-west of the peninsula of Coteulin. On the English coast is Mount Bay, between Lizard Point and Land's End. Between Lizard Point and Start Point is a large gulf, on which are situated Talmouth and Plymouth; the Gulf of Exeter lies to the east of Start Point. The principal islands in the English Channel are, the Isle of Wight, on the English coast, and the Norman Islands, lying on the French coast, the principal of which are Guernsey and Jersey. The prevailing winds are from the west. The Channel, being shallow and confined, is subject, from its communication with the Atlantic, to high and impetuous tides. Its waters contain many fish, of which the most important are the mackerel and the herring. The oysters of Concal are also famous.

Engraving (Sax. grafan, *to dig*). The art of producing by incision or corrosion designs upon blocks of wood, plates of metal, or other materials, from which impressions or prints upon paper or other soft substances are obtained by pressure. Engraving, as an art, seems to have nearly the same relation to design and painting as typography bears to written language; and its utility and great importance must be obvious to every one from its capability of giving a boundless circulation to representations of the most valuable examples of the arts and of objects connected with science. By some authors it is placed among the representations called monochromes (*μονοχρώματοι*). Xylography, or wood engraving, was the earliest method practiced; but its origin is involved in obscurity. If we might rely on Du Halde (*Description, etc., de l'Empire de la Chine*, 4to. 1735), it is possible that it was known in China 1120 years before Christ; though we think its invention is of a much later period, as the Chinese were not acquainted with the art of making paper till 95 B.C. It has been stated that this art was introduced into Europe from China through the intercourse of the Venetian merchants with its inhabitants; for it is proved that engraving on wood had been practiced in that part of Italy which borders on the Adriatic as early as the 13th century. The first wood engravings in Europe of which any thing is known with certainty were executed in 1285, by a brother and sister of a noble family of the name of Cunio. They represent the actions of Alexander; and though doubts of their authenticity are expressed by Heinecken, Mr. William Young Outley, the author of the elegant and learned *History of Engraving*, to which we are much indebted, thinks otherwise. But for the accidental discovery by a Venetian architect of the name of Temanza of a decree of the magistracy of Venice, in 1441, we might have been without positive proof of the practice of the art in Italy previous to 1467, and the Germans might still have continued to claim the honor of its introduction into Europe. This decree, dated 11th October, 1441, states in substance that the art and mystery of making cards and pointed figures had fallen to decay owing to their extensive importation; and in order that the native artists might find encouragement rather than foreigners, it was ordered that no work of the said art, printed and painted on cloth or paper—viz., altar pieces, or images, and playing-cards, and whatever other work of the said art is done with a brush and printed—should be allowed to be brought into the city, on pain of forfeiting the works, besides a pecuniary penalty. This decree plainly indicates that wood engraving was practiced in Venice as early as the commencement of the fifteenth century. In Germany and the Low Countries, the early block books seem to have existed as early as 1420, and to have given Guttemburg the hint for using movable types. At Rome, in 1467, a work entitled *Meditationes Johannis de Turrecremata*, issued from the press of Ulric Han, embellished with wood engravings, in which the design and execution of an Italian artist are evident. The decorations of the work of Valturius by Matteo Pasti, of Verona, published five years afterward, exhibit considerable spirit and accuracy; and before the end of the fifteenth century the art had been carried to great perfection, as may be proved by the delicacy and purity with which the designs are engraved in the celebrated Hypnerotomachia of Colonna. At this period, however, the discovery of copper-plate engraving had been made, and to this the more ancient art yielded place. Maso Finiguerra, a goldsmith and sculptor of Florence, and pupil of Masaccio, about the middle of the fifteenth century, seems from the most authentic accounts to have been the person to whom the world is indebted for the discovery. In his time, and for a considerable period previously, it was the practice to decorate church and other plate with works in *niello*, which were designs hatched with a steel point upon gold or silver, then engraved with the burin, and run in, while hot, with a composition called niello—a compound of silver, lead, copper, sulphur, and borax, which was more easily fusible than silver, and of a black color. The superfluous part of this niello which remained above the surface of the plate was then rubbed off with scrapers, and cleaned away with pumice-stone, leaving the engraved design on the plate with all the effect of a print. In order to preserve copies of their designs, the artists were in the habit before filling the design with the niello to take impressions of the plates with earth, over which liquid sulphur was poured, and from which, when cold, the earth was removed. But Finiguerra carried his practice beyond this; for with a mixture of soot and oil he filled the cavities of the engraving, and by pressing damp paper upon it with a roller, obtained impressions on the paper, having, as Vasari says, all the appearance of drawings done with a pen, "venivano come disignate di penna."

Engraving on Wood, or *Xylography*.—In this branch of the art the material used is a block of box or peartree wood, cut at right angles to the direction of the fibres, its thickness being regulated by the size of the print to be executed. The subject is drawn on the block with a black-lead pencil, or with a pen and Indian ink, taking care that the whole effect is represented in the lines so drawn. The whole of the wood is then cut away, except where the lines are drawn, which are left as raised parts; in which point it is that this mode of engraving differs essentially from copper-plate engraving, wherein the lines are cut out or sunk in the metal, instead of being raised from it. The impressions from wood blocks are taken in the some manner as from printing types.

Engraving on Copper is performed by cutting lines representing the subject on a copper-plate by means of a steel instrument ending in an unequal-sided pyramidal point, such instrument being called a graver or burin, without the use of aquafortis; which mode will be seen below under the art. ETCHING. Besides the graver there are other instruments used in the process; viz., a scraper, a burnisher, an oil-stone, and a cushion for supporting the plate. In cutting the lines on the copper the graver is pushed forward in the direction required, being held in the hand at a small inclination to the plane of the copper. The use of the burnisher is to soften down lines that are cut too deep, and for burnishing out scratches in the copper: it is about three inches long. The scraper, like the last, is of steel, with three sharp edges to it, and about six inches long, tapering toward the end. Its use is to scrape off the burr, raised by the action of the graver. To show the appearance of the work during its progress, and to polish off the burr, engravers use a roll of woolen or felt called a rubber, which is put in action with a little olive oil. The cushion, which is a leather bag about nine inches diameter filled with sand for laying the plate on, is now rarely used except by writing engravers. For architectural subjects, or in skies, where a series of parallel lines are wanted, an ingenious machine was invented by the late Mr. Wilson Lowry, called a ruling machine, the accuracy of whose operation is exceedingly perfect. This is made to act on an etching ground by a point or knife, connected with the apparatus, and bit in with aquafortis in the ordinary way.

Etching is a species of engraving on copper or other metals with a sharp-pointed instrument called an etching-needle. The plate is covered with a ground or varnish capable of resisting the action of aquafortis. The usual method is to draw the design on paper with a black-lead pencil; the paper being damped and laid upon the plate, prepared as above, with the drawing next the etching ground, is passed through the rolling press, and thus the design is transferred from the paper to the ground. The needle then scratches out the lines of the design; and aquafortis being poured over the plate, which is bordered round with wax, it is allowed to remain on it long enough to corrode or bite in the lines which the etching needle has made. Etching with a dry point, as it is called, is performed entirely with the point without any ground, the burr raised being taken off by the scraper. Etching with a soft ground is used to imitate chalk or black-lead drawings. For this purpose the ground is mixed with a portion of tallow or lard, according to the temperature of the air. A piece of thin paper being attached to the plate at the four corners by some turner's pitch and lying over the ground, the drawing is made on the paper and shaddowed with the black-lead pencil. The action of the pencil thus detaches the ground which adheres to the paper, according to the degree to which the finishing is carried: the paper being then removed, the work is bit in the ordinary way. *Stippling* is also executed on the etching ground by dots instead of lines made with the etching-needle, which, according to the intensity of the shadow to be represented are made thicker and closer. The work is then bit in. *Etching on Steel* is executed much in the same way as in the process on copper. The plate is bedded on common glazier's putty, and a ground of Brunswick black is laid in the usual way, through which the needle scratches. It is then bit in, in the way above described.

Mezzotinto Engraving.—In this species of engraving the artist, with a knife or instrument made for the purpose, roughs over the whole surface of the copper in every direction, so as to make it susceptible of delivering a uniform black, smooth, or flat tint. After this process the outline is traced with an etching-needle, and the lightest parts are scraped out, then the middle tints so as to leave a greater portion of the ground, and so on according to the depth required in the several parts of the work.

Aquatinta Engraving, whose effect somewhat resembles that of an Indian-ink drawing. The mode of effecting this (the design being already etched) to cover the plate with a ground made of resin and Burgundy pitch or mastic dissolved in rectified spirit of wine, which is poured over the plate lying in an inclined position. The spirit of wine, from its rapid evaporation, leaves the rest of the composition with a granulated texture over the whole of the plate, by which means a grain is produced by the aquafortis on the parts left open by the evaporation of the spirit of wine. The margin of the plate is of course protected in the usual way. After the aquafortis has bitten the lighter parts they are *stopt out*, and the aquafortis is again applied, and so on as often as any parts continue to require more depth. Formerly the grain used to be produced by covering the copper with a powder or some substance which took a granulated form, instead of using the compound above mentioned; but this process was found to be both uncertain and imperfect. In the compound the grain is rendered finer or coarser, in proportion to the quantity of resin introduced. This mode of engraving was invented by a Frenchman of the name of St. Non. about 1662. He communicated it to Jean Baptiste le Prince, who died in 1781, from whom it was acquired by Paul Sandby, who introduced it through the medium of Mr. Jukes into England. It has been practiced in this country with much greater success than elsewhere.

Etching on Glass.—The glass is covered with a thin ground of bees-wax: and the design being drawn with the etching-needle, it is subjected to the action of sulphuric acid sprinkled over with pounded flour or Derbyshire spar. After four or five hours this is removed, and the glass cleaned off with oil of turpentine, leaving the parts covered with the bees-wax untouched. This operation may be inverted by drawing the design on the glass with a solution of bees-wax and turpentine, and subjecting the ground to the action of the acid.

Engraving on Stone, or *Lithography* (*λιθος, a stone*, and *γραφειν, to write or draw*).—A modern invention, by means whereof impressions may be taken from drawings made on stone. The merit of this discovery belongs to Aloys Senefelder, a musical performer of the theatre at Munich about the year 1800. The following are the principles on which the art of lithography depends: First, the facility with which calcareous stones imbibe water; second, the great disposition they have to adhere to resinous and oily substances; third, the affinity between each other of oily and resinous substances, and the power they possess of repelling water or a body moistened with water. Hence, when drawings are made on a polished surface of calcareous stone with a resinous or oily medium, they are so adhesive that nothing short of mechanical means can effect their separation from it, and while the other parts of the stone take in the water poured upon them, the resinous or oily parts repel it. Lastly, when over a stone prepared in this manner a colored oily or resinous substance is passed, it will adhere to the drawings made as above, and not to the watery parts of the stone. It was formerly thought that England did not possess a sort of stone like that of Germany suitable to the purposes of lithography; this, however, is now known to be erroneous, as the neighborhood of Bath abounds with it, being the white *lias*, which lies immediately under the blue. It is also found in Scotland. The ink and chalk used in lithography are of a saponaceous quality: the former is prepared in Germany from a compound of tallow soap, pure white wax, a small quantity of tallow, and a portion of lamp-black, all boiled together, and when cool dissolved in distilled water. The chalk for the crayons used in drawing on the stone is a composition consisting of the ingredients above mentioned, but to it is added when boiling a small quantity of potash. After the drawing on the stone has been executed, and is perfectly dry, a very weak solution of vitriolic acid is poured upon the stone, which not only takes up the alkali from the chalk or ink, as the case may be, leaving an insoluble substance behind it, but it lowers in a very small degree that part of the surface of the stone not drawn upon, and prepares it for absorbing water with greater freedom. Weak gum water is then applied to the stone, to close its pores and keep it moist. The stone is now washed with water, and the daubing ink applied with balls as in printing; after which it is passed in the usual way through the press, the process of watering and daubing being applied for every impression.

There is a mode of transferring drawings made with the chemical ink on paper prepared with a solution of size or gum tragacanth, which being *laid on the stone and passed through the press* leaves the drawing on the stone, and the process above described for preparing the stone and taking the impressions is carried into effect. In Germany many engravings are made on stone with the burin, in the same way as on copper; but the very great inferiority of these to copper engravings makes it improbable that this method will ever come into general use. Perhaps one of the greatest advantages of the art of lithography is the extraordinary number of copies that may be taken from a block. As many as 70,000 copies or prints have been taken from one block, and the last of them nearly as good as the first. Expedition is also gained, inasmuch as a fifth more copies can be taken in the same time than from a copper-plate: and as regards economy the advantage over every other species of engraving is very great.

Zincography.—This art, which is of very recent introduction in this country (so much so, indeed, that but few specimens are as yet to be seen), is similar in principle to lithography, the surface of the plates of zinc on which it is executed being bit away, leaving the design prominent, or in relief. We have seen some beautiful examples of this art, but varying little in their appearance from those of stone engraving.—BRANDE'S *Dict. of Science.*

Engrossing, is "the buying up of corn and other dead victuals, with intent to sell them again."—*Blackstone*, book iv. cap. 42. It has been shown how absurd it is to suppose that this practice should have any injurious influence. But, for a long time, most scarcities that occurred were either entirely ascribed to the influence of engrossers and forestallers, or, at least, were supposed to be materially aggravated by their proceedings. In consequence, however, of the prevalence of more just and enlarged views upon such subjects, the statutes that had been made for the suppression and punishment of engrossing, forestalling, etc., were repealed in 1772, in Great Britain. But notwithstanding this repeal, engrossing continues to be an indictable offense, punishable at common law, by fine and imprisonment; though it is not at all likely, were an attempt made, that any jury would now be found ignorant or prejudiced enough to convict any one on such a charge.

Entrepot (French), in *Commerce*, a warehouse or magazine for goods; and hence used to designate a seaport or commercial town which exports the productions of a considerable adjacent territory, and imports foreign goods for its supply.

Envoy (Fr. *envoyer, to send*), a person deputed to negotiate a treaty, or to transact other business with a foreign prince or government. Envoys belong to the second order of diplomatic ministers; ranking below embassadors properly so called.

Epaulette (Fr. *épaule, a shoulder*), a kind of shoulder-knot or ornamental badge worn on the shoulder by military men. Officers, both naval and military, wear epaulettes on one shoulder or on both, according to their rank in the service.

Equador, or **Ecuador**, an independent state of South America, lying under the equator, from which it takes its name. It corresponds, with a trifling difference, to the old Spanish province or intendancy, of Quito; but formed anciently the northern portion of the empire of the Incas of Peru, and latterly the southwestern province of the now dissolved republic of Columbia. It is situate between S. lat. 6° and N. lat. 2°, and W. long. from Greenwich 70° and 82°—being about 830 miles in length from east to west, and 560 in breadth from north to south—and only contains an area of about 320,000 English square miles. It is bounded on the south by the state of Peru, on the north by New Granada, on the east by Brazil, and on the west by the Pacific Ocean; but the boundaries of the eastern portion of the state are not yet very well defined.

Vegetable Productions.—In the low countries that flank the base of the Andes, the banana, cycas, plantain, cacao, jatropha which produces cassava and manioc, the cotton-tree, indigo, coffee, and the sugar-cane abound; beneath the elevation of 4000 feet, the plants chiefly cultivated for food are the sweet potato, mandioc, yam, and banana, with rice, maize, and some legumes; but above 3100 feet most of these become rare, and thrive only in particular situations. The sugar-cane, however, has been grown so far up as 7500 feet. In some of the valleys are extensive plantations of sugar-cane, cotton, tobacco, and cocoa. The valley of Guayaquil is particularly fertile; the soil is alluvial, and there are few spots even between the tropics which can vie with it in richness and variety of vegetation. It is covered with groves of every kind of tropical fruit, either wild or cultivated, as the pineapple, pomegranate, shaddock, orange, lime, lemon, peach, apricot, cherimoyer, pulta, grandilla, tuna, and pacay. In the same region are found the olive, pepper plant, tomatas, and sweet potatoes, gum copal, copaiba balsam, carana, dragon's blood, sarsaparilla, and vanilla. To these succeed, in the humid and shaded clefts on the slopes of the mountains, tree-ferns and cinchona or Peruvian bark, the finest kind of which is obtained about 8 to 12 miles south of Loja among the mountains of Uritusinga, Villanaco, and Rumusitana, where the trees that yield it grow in a soil resting on mica-slate and gneiss, at the moderate elevation of 5756 to 7673 feet above the level of the sea. Between the elevations of 6000 to 9000 feet is the region best suited for the European cereals. Wheat will not form the ear lower than at 4500 feet, or ripen higher than at 10,000 feet; but barley and rye grow at an elevation 2500 feet still higher. To these may be added the guinoa, a most useful production for domestic purposes. In this region also, and a little above it, grow the potato and its congeners, all of which are extensively used as food; the chick-pea, broad-bean, cabbage, and other European vegetables, are likewise abundant. Within the cereal limits are found the oak, elm, ash, and beech, which never descend lower than 5500 feet, and are seldom found higher than 9200 feet above the level of the sea. Higher up, the larger forest trees, except the pine, begin to disappear; and on the mountains of Quito the escallonia mark the highest limit of trees at an elevation 11,600 feet. The bejarias, the highest of shrubs, terminate at 13,400 feet, above which, in rich and beauteous verdure, rises the zone of the grasses. Above these, among the trachyte rocks, only lichens, lecideas, and the brightly-colored dust-like lepraria are met with; and to these, succeed the region of perpetual snow.

Animals.—In some parts of the low country the air swarms with musquetoes and other flies still more tormenting, while the ground teems with snakes, centipedes, and other reptiles. The banks of the great rivers are crowded with caimans or alligators. Bats are exceedingly numerous, and of great size; the forests of the warmer regions abound with armadilloes, monkeys, and cavys; and everywhere are found the jaguar, the puma, the ounce, the ocelot, and several varieties of the wild cat. The pecari and deer are likewise common, as well as that singular animal the ant-eater. The characteristic animals of the Andes are the llama, the guanaco, the vicuña, and the paco or alpaca, some of which are trained as beasts of burden, while others, particularly the vicuñas, run wild among the mountains, where they are hunted by the Indians. Sheep and cattle are reared in great numbers, especially the former, in the valleys of the Andes, and on the declivities of the mountains. Horses, asses, and mules, are reared in sufficient numbers to be articles of export. The chief of the birds is the condor, which is found all along the Andes southward as far as the Strait of Magellan, but nowhere to the north of the equator. The turkey, vulture, and gallinago, are frequently met with, together with many kinds of smaller birds. In some districts, particularly along the coasts, considerable quantities of beeswax are collected; and higher up there are spots in which the cochineal insect is reared. Along the rivers of the great plain turtles are numerous; and their fat, called *manteca* butter, forms a considerable article of trade. Fishing is carried on to some extent along the coasts, and a good deal of salt-fish is prepared. A murex is also found which yields a juice used in dyeing purple.

Mineral Productions.—Equador is less rich in minerals, especially in the precious metals, than any other of the South American states. There are, indeed, several mines of gold and silver, but the yearly produce is inconsiderable. In some places are found lead and quicksilver, but the latter is found, as usual, in combination with sulphur, in the form of cinnabar. Near Azogue, 15 miles north-east by east of Cuença, the ore is found in an immensely thick bed of quartzose sandstone, containing fossil wood and asphalt. Sulphur is prepared in considerable quantities; gold has been washed from the sands of some of the rivers; and salt is obtained from sea-water along the coasts.

Population.—The settled population is composed of Spanish creoles of pure descent, meztisos, mulattoes, and negroes, the greater part of them being agriculturists, graziers, and growers of cocoa. These form about a half of the population. The other half are native Indians, of whom those that live among the mountains are mostly agriculturists, cultivating their lands with much care, and making for themselves coarse stuffs of wool and cotton. The Indians who inhabit the eastern plains are in a much lower degree of civilization. They cultivate only small patches of ground, and apply themselves chiefly to hunting and fishing. Three fourths of the population dwell in the western or mountainous part of the state; and the total number is now estimated at about 800,000.

Manufactures.—The manufactures are unimportant, consisting chiefly of coarse woolen and cotton cloths and other necessary articles. The foreign trade is almost confined to Guayaquil, and is so trifling as scarcely to deserve notice.

Political Condition.—Till 1812, Equador remained a portion of the Spanish Empire of the Indies. It then threw off the yoke of Spain, and in 1821 became a part of the newly constituted republic of Columbia. This union, however, lasted only till 1831, when Equador became an independent state. It has gone through several revolutions; and by the last (1852–3) the democratic party has gained the ascendency, and shown a tendency to adopt the United States of North America as their political model. The state has, in consequence, received a new and more liberal constitution; the Jesuits have been expelled; and laws have been made for the abolition of slavery. The government is vested in a president, with a vice-president and two chambers, all elective; but the constitution is still notably complicated by what has always been its principal characteristic, a predominating mixture of military despotism, the president being always the master of the state. More, perhaps, than any other country of South America, Equador has been slow in the development of her resources and national industry. Frequent revolutions have paralyzed its trade, and prevented the regulation of its finances. No interest has been paid on its public debt since 1826. It is emphatically the country of natural convulsions and political revolutions.

For administrative purposes, the state is divided into the three departments of Equador, Guayaquil, and Assuay; and these are subdivided into the seven provinces, of Quito, Riobamba, Ibarra, Guayaquil, Babahoyo, Cuença, Loja, or Loxa (Loh-ha), and Jaen de Bracamor. The state likewise claims the sovereignty of the Islas de los Galapagos, or islands of land turtles, lying under the equator at a distance of 700 to 900 miles from the mainland. The chief towns are Quito, with from 50,000 to 80,000 inhabitants; Guayaquil, 25,000; Cuença, 20,000; Riobamba, 15,000; Loja, Babahoyo, and Ibarra, about 10,000 each. Quito is beautifully situated in the elevated plain to which it gives its name; and Guayaquil on the banks of a navigable river, opening into the spacious bay, to which it gives its name.

The foreign commerce of Equador is chiefly carried on at the port of Guayaquil, which, with the ports of Manta and San Lorenzo, is open for general importation and the exportation of national produce. The ports open for exportation only are Santa Elena, Callao, Bahia de Caraccas, Loja, and Ibarra. Guayaquil is the only port of general deposit for re-exportation to foreign ports. The principal articles of export of this republic are cocoa, hides, cattle, tobacco, wool, straw-hats, coffee, orchilla, bark, India-rubber, and an inferior description of cotton. Cocoa is the leading staple, the quantity annually exported reaching over 15,000,000 pounds. The total value of the foreign trade of Equador may be stated at $1,000,000. The countries which participate in this trade are the United States, Mexico, Guatemala, Chili, and Peru, in America; and England, Spain, France, and Hamburg, in Europe.

The commercial relations of the United States with Equador are regulated by treaty and the local legislation of that republic. The treaty with the United States was ratified April 9, 1842, and stipulates for perfect equality and entire reciprocity of navigation and commerce, both in the direct and indirect trade. The third article has this stipulation: "That whereas, by a law of Equador, March 21, 1837, vessels built in the dock-yard of Guayaquil shall be exempted from various charges; therefore, vessels of the United States can not claim this privilege, but shall enjoy it if it should be granted to vessels belonging to Spain or Mexico and to the other Hispano-American republics." The following translation of the decree conferring special privileges on vessels constructed at Guayaquil, bearing date August 23, 1845, is made from *El Comercio de Lima*, October 6, 1846:

"The provisional government considering that the ship-yards of Guayaquil, by reason of its favorable position, and in view of the interests of commerce and of the republic, merit special attention; therefore, in order to advance these interests, and to encourage the construction of ships, it is decreed: Art. 1. Vessels constructed at Guayaquil, and retaining the national flag, shall be exempt from tonnage, anchorage, and other port dues. Art. 2. Such vessels shall be entitled to a reduction of three per cent. on all produce, merchandise, etc., imported into any of the ports of the republic for consumption."

The commerce between the United States and Equador is very limited, owing mainly to the fact that the two great staples of the latter country, cocoa and straw-hats, find but little demand in the United States—the former being of limited consumption, and the latter subject to a duty of 30 per cent. Before the treaty between Spain and Equador, in 1843, United States' vessels carried flour and domestic manufactures direct to the port of Guayaquil, and were generally chartered to transport cargoes of cocoa to Spain. Since that period, however, the high duties on cocoa in Spain, when imported in foreign vessels, have been equivalent to a prohibition. This, together with the annually increasing importation of flour from Chili, has produced a depressing effect on American trade with that republic. The following table will exhibit the condition of this trade during a period of eleven successive years. But little improvement can be expected, it is thought, so long as the present tariff regulations of the United States continue in force. The duties on navigation in the ports of Equador are—tonnage duties, 25 cents per ton; light dues, 6¼ cents per ton. When pilots are employed, the fees are $2 50 per foot of the vessel's depth. See *Com. Relations U. S.*, 1856–7.

Ecuador, which once formed part of the empire of the Incas, was discovered by Pizarro in 1526, and was held under the Spanish crown until the year 1812, when a revolution occurred, which ended in the establishment of a separate republic. In 1821 Ecuador disconnected itself with New Grenada.

Comparative Statement of the Commerce of the United States with Equador, exhibiting the Value of Exports to and Imports from each Country, and the Tonnage of American and foreign Vessels arriving from and departing to each Country, during the years designated.

YEARS.	COMMERCE.				NAVIGATION.			
	VALUE OF EXPORTS.			VALUE OF IMPORTS.	AMERICAN TONNAGE.		FOREIGN TONNAGE.	
	Domestic produce.	Foreign produce.	Total.		Entered the United States.	Cleared from the U. States.	Entered the United States.	Cleared from the U. States.
1846	....	$1,130	$1,130	....	....	....	....	614
1847	$27,253	571	27,824	....	....	....	....	168
1850	24,414	10,511	34,925	$4,618	331	299	328	1,185
1851	....	....	....	76,692	586	219	410	568
1852	....	....	....	70,585	585	....	....	760
1853	....	....	....	12,600	503	226	....	249
1854	....	....	....	57,534	1,981	....	....	192
1855	66,092	....	66,092	12,553	277	1,011	....	....

The following summary statements of the commerce of Guyaquil, condensed from the official reports for the years designated, will convey a general idea of the foreign commerce of Equador, the port of Guyaquil being the principal port of that republic:

Trade of Guayaquil for 1845.

Countries.	Imports.	Exports.	Total.
Peru	$605,140	$110,770	$715,910
Chili	143,930	170,810	314,740
Spain	37,620	190,000	227,620
Hamburg	....	177,270	177,270
France	24,320	99,750	124,070
Mexico	....	75,620	75,620
Central America	....	35,910	35,910
New Granada	5,130	14,630	19,760
England	....	6,270	6,270
Total	816,140	881,030	1,697,170

The United States does not appear in the list of countries for 1845. Indeed, the foreign trade of Equador is conducted chiefly with the ports of Lima and Valparaiso, the two principal entrepôts for the trade of South America. The following statement affords a description of the merchandise, with its values, imported in 1845, and the countries of origin:

Description of merchandise.	Values.	Countries of origin.
Textiles of cotton	$146,300	Peru.
" wool	94,430	"
" flax	83,120	"
" silk	31,540	"
Wine	79,420	Peru, Spain, France.
Spirits	76,760	Peru, Chili, France.
Flour	42,180	Peru, Chili.
Haberdashery	31,710	" "
Provisions	31,710	Peru, Chili, Spain, France
Hardware	38,760	Peru, Chili.
Paper	21,280	" "
Musical instruments and furniture	18,050	" "
Pottery and glass-wares	16,720	Chili, Peru, France.

EXPORTS.

Description of merchandise.	Values.	Whither.
Cocoa	$566,580	Spain, Hamburg, France.
Straw hats	79,990	Chili, Peru.
Sole leather	22,230	Peru.
Cotton	19,380	Chili.

The following tabular statement exhibits the description of merchandise exported from the port of Guayaquil in the year 1855, with the quantity of each article, respectively:

Exports of merchandise.		Quantities.
Cocoa	pounds	15,089,753
Straw hats	dozen	88,778
Tanned hides	sides	26,246
Tobacco	quintals	3,659
Sarsaparilla	"	657
Tamarinds,	"	699
Coffee	"	776
Orchilla	"	4,000
Bark	"	7,739
Timber	logs	9.368
Canes	pieces	73,551
Manyles	"	5,660
India-rubber	quintals	765

The countries to which the cocoa specified in the above statement was sent, together with the quantity to each, is exhibited as follows. Each carga equals 81 lbs.:

	Cargas.	lbs.
Spain	80,351	23
Hamburg	36,182	26
France	17,214	62
Peru	14,696	13
Chili	14,507	30
United States	7,544	04
Central America	5,463	69
Mexico	5,410	39
Panama	4,922	78
Total	186,298	20

The following table exhibits the quantities, in pounds, of cocoa, exported from Guayaquil during a period of ten years, from 1846 to 1855, both years inclusive:

	Pounds.		Pounds.
1846........	11,202,008	1851..........	9,567,680
1847........	12,073,615	1852..........	13,956,548
1848........	21,007,395	1853..........	13,243,024
1849........	14,234,734	1854..........	10,992,151
1850........	11,066,056	1855..........	15,089,753

The navigation returns of Guayaquil for 1849, the latest period for which they are at hand, complete, exhibit a total of 169 vessels entered and cleared, with an aggregate tonnage of 46,838 tons, distributed as follows:

Countries.	ENTERED.		CLEARED.	
	Vessels.	Tons.	Vessels.	Tons.
England...............	26	14,310	23	12,305
United States.........	5	935	5	935
France................	4	1,054	4	1,054
Spain.................	5	1,543	6	1,903
Italy and Germany....	9	1,697	8	1,567
S. American republics.	35	5,266	39	4,269
Total............	84	24,805	85	22,033

The only commercial legislation in this republic, of recent date, is embodied in a decree given at the capital, Quito, August 15, 1855, by the President, José Maria Urbina, imposing an export duty on bark and India-rubber. The United States' consul at Guayaquil, in communicating this decree, under date of September 30, 1855, says: "Against this injudicious measure of the executive, strong representations will be made to the present Congress by the commercial and industrial classes, as unlawful, and injurious to the present increasing commercial prosperity of the country; and it is probable that it will be modified into renting or selling the lands, or done away with altogether."

A translation of this decree is subjoined: "Considbring that the natural productions met with in the uncultivated lands of the republic make part of the national riches, and that that the India-rubber and bark discovered and extracted from said lands are becoming objects of speculation to many persons, and should be made to yield a revenue to the country; therefore, be it decreed: Art. 1. In the ports of the republic where custom-houses are established, there shall be exacted a duty of two dollars on ordinary, and three dollars on refined India-rubber, on every 100 lbs. exported to foreign markets. Art. 2. The bark taken from government lands, and exported to foreign countries, shall pay a duty of two dollars for every 100 lbs. on yellow, three on Callessaya, and eight on red. Art. 3. Those persons who export India-rubber and bark withot presenting the same at the custom-house, or place appointed for the collection of the duties specified in the previous articles, with the intent of avoiding the payment of said duties, shall be judged according to the process detailed in the law of the 21st November, 1853. Art. 4. Every citizen who proposes extracting India-rubber or bark from national lands, shall present himself to the respective governor, who, after hearing his proposal, and satisfying himself that the land is actually government property, shall give to the parties applying the required permission in writing. Art. 5. Those engaged in the collection of India-rubber must not cut down the tree; but, to obtain their object, should bore a small hole in the trunk, at the height of about half a yard from the ground, penetrating the greater part of the thickness of the tree, taking care not to bore through it. Art. 6. Those who are found taking India-rubber or bark from national lands without having complied with the conditions prescribed in articles 4 and 5, shall be treated as smugglers, and the substances collected taken from them and confiscated. Art. 7. The governors of provinces in the lands under their jurisdiction will take all possible measures to discover and apprehend all parties who endeavor to infringe the preceding dispositions. Art. 8. Article 6 applies, also, to those individuals who do not comply with the dispositions of articles 4 and 5, under the pretext that they are collecting the aforesaid substances from their own lands, should it be discovered that the said lands are national property. Art. 9. Those persons who collect India-rubber and bark from their own property, are not subject to any of the duties imposed in the present decree. Art. 10. The Secretary of the Treasury is charged with the due execution of this present decree, of which it is his duty to inform the Congress next ensuing."—*Com. Relations, U. S.* See GUAYAQUIL.

Equator (*æquare*, to make equal), in *astronomy* and *geography*, a great circle of the sphere, equally distant from the two poles of the world, or having the same poles as the world. It is called equator because when the sun is in it the days and nights are equal; whence also it is denominated the *equinoctial;* and when drawn on maps, planispheres, or globes, it is called the *equinoctial line*, or simply *the line.* Every point in the equator is 90 degrees, or a quadrant's distance from the poles of the world; and hence the equator divides the sphere into two equal hemispheres, in one of which is the northern, and in the other the southern pole. Terrestrial longitudes are measured on the equator, or some one of its parallel circles; commencing from some arbitrary point, which different nations assume variously, most of them adopting the meridian which passes through their capital city or principal observatory. Latitudes are counted from the equator along the meridian.

Equinox (Lat. *æquus* and *nox*, night), in astronomy, is the time at which the sun passes through the equator in one of the equinoctial points. When the sun is in the equator, the days and nights are of equal length all over the world, whence the derivation of the term. This happens twice every year, namely, about the 21st of March, and the 22d of September; the former is called the *vernal*, and the latter the *autumnal* equinox. The equinoxes do not divide the year into portions of equal length; for in consequence of the sun being at his greatest distance from the earth during the summer months, and his angular motion in his orbit being consequently slower, the interval from the vernal to the autumnal equinox is greater than that from the autumal to the vernal. In other words, the sun continues longer on the northern than on the southern side of the equator. At the beginning of the present century, the difference amounted to 7 days 16 hours and 51 minutes. The summer in the northern hemisphere is constantly longer than in the southern by this quantity; and to this circumstance some meteorologists ascribe, in part at least, the higher temperature that is found to prevail in the northern hemisphere under the same parallel of latitude.

Erie (lake), situated north of New York, Pennsylvania, and Ohio, and constitutes a part of the boundary between the United States and Canada. It is 240 miles long, and 60 broad, in its widest part. It receives the waters of Superior, Michigan, and Huron lakes, through Detroit River, and discharges its waters through Niagara River into Lake Ontario. Its surface is elevated 565 feet above tide-water in the Hudson River at Albany. The soundings by the U. S. Engineers show the lake to be divided into three sections of unequal depth, viz., one extends from the head down to Point Pellee Island, and the bottom presents a general level, with a depth of 30 feet in the average. The second is of much larger extent, and stretches to Long Point; is also a level, with a depth of 60 to 70 feet. The third section extends to Niagara River, and is an uneven bottom, with various depths of water, ranging from 60 to 240 feet. The business done on this lake is immense, and increasing. The licensed tonnage of the lake is 138,852 tons, of which a large and increasing proportion is of steam-vessels. The estimated value of the commerce amounts to $220,000,000 annually. There are 26 light-houses and beacons on the American side, and 10 on the Canadian side. A battle was fought near its west end September 10th, 1813, between the American fleet, under Commodore Perry, and the English fleet, in which the latter was captured. See Lakes, *Commerce of.*

Ermine (Ger. *Hermelin;* Fr. *Hermine, Ermine;* Rus. *Gornostai*), a species of weasel (*mustela candida*, Lin.), abundant in all cold countries, particularly Russia, Norway, Lapland, etc., and producing a most valuable species of fur. In summer the ermine is of a brown color, and is called the *stoat.* It is in winter only that the fur has that beautiful snowy whiteness and consistence so much admired. See Furs.

Esparto, a species of rush, the *stipa tenacissima* of botanists. It is found in the southern provinces of Spain; and is particularly abundant on all the sterile, uncultivated, and mountainous districts of Valencia. Beckmann (*Hist. of Invent.*, vol. ii., p. 288, Eng. ed.) supposes, apparently with good reason, that the *stipa tenacissima* is the plant described by Pliny under the name of *Sparta*, who ascribes its application to useful purposes to the Carthaginians.—*Hist. Nat.*, lib. xix., c. 2. It is still used for the same purposes as in antiquity, being manufactured into cordage, shoes, matting, baskets, nets, matresses, sacks, etc. Cables made of esparto are said to be excellent; being light, they float on the surface of the water, and are not, therefore, so liable as hempen cables to be cut or injured by a foul bottom. They are exclusively made use of in the Spanish navy. Esparto is largely consumed in the manufacture of *alpergates.* These are light shoes worn by the Valencian peasantry, having platted soles made either of esparto or hemp, but principally of the former. They are extremely cheap and commodious in hot climates; and besides being in extensive demand at home, used to be exported in immense quantities to both Indies; but since the emancipation of Spanish America, this trade has greatly fallen off. The Spanish peasantry have attained to wonderful dexterity in the manufacture of esparto. "After having soaked the rush in water, the women and children, without either wheel or spindle, contrive to twist two threads at the same time. This they do by rubbing them between the palms of their hands, in the same manner as a shoemaker forms a thread upon his knees, with this difference, that one motion gives the twist to each thread, and, at the same time, unites them. To keep the threads asunder, the thumb of the right hand is interposed between them; and when that is wanted for other purposes, the left thumb supplies its place. Two threads being thus twisted into one of the bigness of a large crow-quill, 46 yards are sold for little more than ½d., the materials being worth about a fifth part of the price." —Townsend's *Travels in Spain*, vol. iii., p. 177; see also p. 129; Fischer's *Picture of Valencia*, Eng. ed., p. 92, and p. 57, etc.

Essence D'Orient, the name of a pearly-looking matter procured from the blay or bleak, a fish of the genus *cyprinus.* This substance, which is found principally at the base of the scales, is used in the manufacture of artificial pearls. A large quantity of the scales being scraped into water in a tub, are there rubbed between the hands to separate the shining stuff which subsides on repose. The first water being decanted, more is added with agitation till the essence is thoroughly washed from all impurities; when the whole is thrown upon a sieve; the substance passes through, but the scales are retained. The water being decanted off, the essence is procured in a viscid state, of a bluish-white color, and a pearly aspect. The intestines of the same fish are also covered with this beautiful, glistening matter. Several other fish yield it, but in smaller proportion. When well prepared, it presents exactly the appearance and reflections of the real pearls, or the finest mother of pearl; properties which are probably owing to the interposition of some portions of this same substance, between the laminæ of these shelly concretions. Its chemical nature has not been investigated; it putrefies readily when kept moist, an accident which may, however, be counteracted by water of ammonia. See Pearls.

Essential Oils, or **Volatile Oils**. Under this term are included all those peculiar compounds obtained by distilling vegetable substances with water, and which pass over along with the steam, and are afterward condensed in the liquid or solid form. They appear to constitute the *odorous* principles of vegetables. Their specific gravity fluctuates on either side that of water; they are very sparingly soluble in water, and these solutions constitute the *medicated waters;* rose, peppermint, and other waters being such solutions of the respective essential oils. They dissolve in alcohol and form *essences*, many of which are used as perfumes. When these oils are pure, they evaporate from paper when held before the fire; but if adulterated with fixed oils, they leave a greasy stain, and seldom dissolve perfectly in alcohol. The more expensive of these oils are frequently adulterated with the cheaper ones, and this fraud can only be detected by an experienced nose. Their chief use is in perfumery, on account of their odor, and in medicine they form valuable stimulants. They are inflammable, and are, with few exceptions, compounds of hydrogen, oxygen, and carbon. The essence of turpentine, of lemons, and a few others, are *hydrocarbons.*

Establishment of the Port, a term used by writers on the tides, to denote the interval between the time of high water at any given port and the time of the moon's transit immediately preceding the time of high water, when the moon is in syzygy; that is, at the new or full moon. This interval is influenced by local circumstances, and consequently different at different places. See Tides.

Estrich, or **Estridge** (Fr. *Duvet d'autruche;* It. *Penna matta di strozzo;* Sp. *Plumazo de avestrux;* Lat. *Struthionum plumæ molliores*), is the fine, soft down which lies immediately under the feathers of the ostrich. The finest is used as a substitute for beaver in the manufacture of hats, and the coarser or stronger sort is employed in the fabrication of a stuff which resembles fine woolen cloth. Estridge is brought from the Levant, Italy, and other parts of the Mediterranean.

Ether (Gr. *αιθηρ*). In chemistry this term is applied to a highly volatile, fragrant, inflammable, and intoxicating liquid, produced by distilling a mixture of equal weights of sulphuric acid and alcohol. When these liquids mutually act on each other, a series of complicated changes ensue, which terminate in the conversion of alcohol into ether.

Euphorbium (Ger. *Euphorbiengummi;* Lat. *Euphorbium;* Fr. *Euphorbe;* Arab. *Akal-nafzah*), the produce of a perennial plant, a native of Africa, and of many parts of India, etc. It is a concrete gum resin; is inodorous; when first chewed has little taste, but it soon gives a very acrid, burning impression to the tongue, palate, and throat, which is very permanent, and almost insupportable. It is imported in serons, containing from 100 to 150 lbs. It is in small, hollow, forked pieces, often mixed with seeds and other impurities.—Thomson's *Dispensatory.*

Euphrates, the most considerable river of western Asia, is formed by the junction of two great streams rising in the mountains of Armenia, pashalic of Erzeroum, and uniting in about N. lat. 39°, E. long. 39°. The Frat or northern branch has its principal sources about 20 miles north-east of the town of Erzeroum; and the Murad, on the north declivity of the Arghi-dagh mountains, 45 miles north-east from the nearest point of Lake Van. The Euphrates flows first to the south, but, being driven westward by the Anti-Taurus and Taurus mountains, it works its circuitous way through narrow passes and over cataracts, until, breaking through a defile formed by the eastern extremity of Mons Amanus (Alma-dagh) and the north-western extremity of Mons Taurus, it reaches the plain country not far from Samosata (Sumeisat). It then winds south and south-east, passing the north of Syria, and the north-east of Arabia Deserta, and at length, after many windings, unites with the Tigris, and thus united, finds its termination in the Persian Gulf. In conjunction with the Tigris, it forms the rich, alluvial lands of Mesopotamia, over which it flows or is carried by canals, and thus diffuses abroad fertility and beauty. At Baghdad and Hillah (Babylon) the Euphrates and Tigris approach comparatively near to each other, but separate again, forming a kind of ample basin, till they finally become one at Kurnah. Although occasionally much more, the breadth of the Euphrates varies between 200 and 400 yards, but for a distance of 60 miles through the Lemlun marshes, the main stream narrows to about 80 yards. The general depth of the Upper Euphrates exceeds 8 feet. In point of current it is for the most part a sluggish stream; for, except in the height of the flooded season, when its flow approaches 5 miles an hour, it varies from 2½ to 3½, with a much larger portion of its course under 3 than above. Its general description for some distance below Erzingan, is that of a river of the first order, struggling through high hills, or rather low mountains, making an exceedingly tortuous course, as it forces its way over a pebbly bed, from one natural barrier to another. As it winds round its numerous barriers, it carries occasionally toward each of the cardinal points a considerable body of water; and is shallow enough in some places for loaded camels to pass in autumn, the water rising to about 4½ feet. The upper portion of the river is inclosed between two parallel ranges of hills, covered for the most part with high brushwood and timber of moderate size, having a succession of long, narrow islands. The principal towns on its banks are Samsat, Haoroum, Romkala, Bir, Giaber, Deir, Rava, Anah, Hadisa, El Oos, Jibba, Hit, Hillah, Lemlun, Kurnah, and Basrah. The scenery above Hit, in itself very picturesque, is greatly heightened by the frequent recurrence of ancient irrigating aqueducts, beautiful specimens of art, which are attributed by the Arabs to the Persians when fire-worshipers; they literally cover both banks, and prove that the borders of the Euphrates were once thickly inhabited by a highly civilized people. From Hit to Babylon the black tent of the Bedouin is almost the only kind of habitation to be seen. This distance is cultivated only in part; the rest is desert, occasionally interspersed with clusters of date-trees. In descending, the irrigating cuts and canals become more frequent. Babylon is encircled by two streams, one above, the other below the principal ruins; beyond which they unite and produce abundance. For about 30 miles below Hillah both banks have numerous mud villages, shaded by date-trees: to these succeed huts formed of bundles of reeds. The country lower down toward Lemlun, is level and little elevated above the river; irrigation is therefore easy; in consequence, both banks are covered with productive cultivation, and fringed with a double and nearly continuous belt of luxuriant date-trees, extending down to the Persian Gulf. At one mile and a half above the town of Dewania is the first considerable offshoot from this hitherto majestic river; another takes place 22 miles lower; and 9 miles further, at Lemlun, it again separates into two branches, forming a delta not unlike that of Damietta, and when the river is swollen, inundating the country for a space of about 60 miles in width, with a shallow sheet of water, forming the Lemlun marshes, nearly the whole of which is covered with rice and other grain, when the river recedes in June. Below Lemlun the Tigris sends a branch to the Euphrates, which is thus increased in its volume; and turning to the east, receives the chief branch of the Tigris, thence running in a single stream, under the name of the Shat-el-Arab, as far as the Persian Gulf. In this last part the river has a depth of from 3 to 5 fathoms; varies in breadth from 500 to 900 yards, and presents banks covered with villages and cultivation, having an appearance at once imposing and majestic. The length of the entire stream is 1,400 miles. It is very abundant in fish. The water is somewhat turbid, but when purified, is pleasant and salubrious. The Arabians set a high value on it, and name it Morad Sou; that is, Water of Desire or Longing. The river begins to rise in March, and continues rising till the latter end of May. The consequent increase of its volume and rapidity is attributable to the early rains, which, falling in the Armenian mountains, swell its mountain tributaries; and also to the melting of the winter snows in these lofty regions. About the middle of October the Euphrates has reached its lower ebb, and ceasing to decrease, becomes tranquil and sluggish.

The expedition sent out by the British government under the direction of Colonel Chesney, navigated the Euphrates in 1836 from Bireh-jik to its estuary, a distance of 1,117 miles; and besides throwing much light on a country then very imperfectly known to Europeans, proved that there exist no serious obstacles to the navigation of that river by moderate-sized steamers thus far; and even for 88 miles above Bireh-jik to Beles, an important station in a commercial point of view.—E. B.

Europe, one of the great divisions of the globe. On a first view Europe appears to be less favored by nature than the other quarters of the globe over which it has obtained so great an ascendency. It is much smaller in extent; its rocky and mountainous surface does not admit of those noble rivers, like inland seas, which lay open the remotest regions of Asia and of America to the commerce of the world. Its vegetable productions are neither so various nor so exuberant; and it is poorly supplied with the precious metals, and with many of those commodities on which mankind set the greatest value. On the other hand, the climate of Europe, if it nourishes a less luxuriant vegetation, is of an equal and temperate kind, well adapted to preserve the human frame in that state of health and vigor which fits it for labor, and promotes the development of the intellectual and moral powers. The mountains that intersect its surface are barriers which enabled infant communities to protect themselves from violence, and to lay the foundation of arts, knowledge, and civilization. If it has few large navigable rivers, its inland seas and bays are, from their position and extent, the finest in the world, and have been the means of creating and nourishing that commercial spirit which has been one great source of its improvement. Though comparatively deficient in gold and silver, it is abundantly supplied with those useful metals and minerals which minister still more essentially to the wants of civilized life. Its apparent defects have become the source of real benefits, and the foundation of its grandeur. The disadvantages of its soil and climate have excited the industry of its inhabitants, given them clearer ideas of property, kindled a resolute spirit to defend their rights, and called into existence that skill and enterprise, and those innumerable arts and inventions, which have enabled the inhabitants of this apparently barren and rocky promontory to command the riches and luxuries of all the most favored regions of the globe. It is only in Europe that knowledge and the arts seem to be indigenous. Though they have appeared at times among some of the nations of Asia, they have either stopped short after advancing a few steps, or they have speedily retrograded and perished, like something foreign to the genius of the people. In Europe, on the contrary, they have sprung up at distant periods, and in a variety of situations; they have risen spontaneously and rapidly, and declined slowly; and when they disappeared, it was evident they were but crushed for the time by external violence, to rise again when the pressure had subsided. It is only in Europe, and among colonies of Europeans, that the powers of the human mind, breaking through the slavish attachment to ancient usages and institutions, have developed that principle of progressive improvement of which it is impossible to calculate the final results. The rudest tribe in Europe, in which this principle has taken root, has a certain source of superiority over the most improved nations of Asia and Africa, where society remains perfectly stationary. If these nations are ever destined to advance in civilization, they must borrow from Europe those arts which she has invented, and which belong to civilized life in every climate. But the tenacious adherence of rude nations to the customs and superstitions of their ancestors, will not allow us to hope that the benefits of civilization will be rapidly diffused in this way. It is more probable that colonies from the older states of Europe will multiply as the population becomes more and more redundant; and that these colonies will carry the arts and knowledge, the language and manners, of Europe with them, to the other quarters of the world. From prejudices on both sides, it is found that two races, in very different stages of civilization, do not readily amalgamate; and it is therefore probable that the feebler inhabitants of these countries, like the American Indians, will be gradually displaced by the continual encroachments of the more energetic races of Europe.

Europe is bounded on the N. and W. by the Arctic and Atlantic Oceans; on the S. by the Mediterranean, the Black Sea, and Mount Caucasus; on the E. by the Caspian Sea, the river Ural, and the Uralian Mountains. The greatest length of the continent is from Cape St. Vincent to the Sea of Kara, in the direction of N. E. and S.W., and is 3490 English miles. Its greatest extent from N. to S. is from Cape Matapan to Cape North, 2420 miles. The superficies of Europe, including the Azores, Iceland, Nova Zembla, and all its other islands, is 3,700,000 English, or 2,800,000 geographical square miles; and the length of its coast line is about 16,000 miles.

Climate.—The climate of Europe is distinguished by two peculiarities. It enjoys a higher mean temperature than any of the other great divisions of the world in the corresponding latitudes; and it is not subject to such violent extremes of heat and cold. These advantages it owes chiefly to its numerous seas, inland bays, and lakes, which render its temperature similar to that of islands; and partly also, according to Humboldt, to its situation at the western extremity of the greatest range of dry land on the surface of the globe; the western sides of all continents being warmer than the eastern. Europe lies almost entirely within the temperate zone, not more than one fourteenth part of its surface being within the arctic circle. Only a very small part of it is uninhabitable from cold, and it nowhere suffers from excessive heat. The mean temperature at its southern extremity, in the latitude of 36°, is about 66° of Fahrenheit; and at Cape North, in the latitude of 71°, where the mean temperature is 32°, the cold is not greater than in the latitudes of 55° or 56° on the east coasts of Asia and America. Hence Europe is habitable at a higher latitude by 12° or 14° than either of these continents.

Temperature.—There is a difference of the same kind between the temperature of the sea-coasts of Europe and the interior. In islands, and on the sea-coast, the mean temperature of the year is higher, and the heat is more equally distributed through the different seasons. As we advance from the coast eastward the mean annual temperature diminishes, but the heat of summer and the cold of winter increase. Thus London has the same mean annual temperature as Vienna, but it has the summer of St. Petersburg, and the winter is warmer than at Milan. The Mediterranean, the Baltic, and inland lakes, produce the same effect as the ocean, in an inferior degree. The following table shows, I. The temperature of the year, and the various seasons, in places having the same latitude; II. The different distribution of heat through the various seasons in places having the same mean annual temperature.

PLACES.	MEAN TEMPERATURE						
	Of the Year.	Winter.	Spring.	Summer.	Autumn.	Warmest Month.	Coldest Month.
I. *Lat.* 56.							
Edinburg....	47·8	38·6	46·4	58·2	48·4	59·4	38·3
Copenhagen	45·6	30·8	41·2	62·6	48·4	65·0	27·2
Moscow	40·2	10·8	44·0	67·1	38·3	70·6	6·0
Lat. 48.							
St Malo.....	54·4	44·2	52·2	66·0	55·8	67·0	41·8
Vienna......	50.6	32·8	51·2	69·2	50·6	70·6	26·6
II. *Lat.*							
Dublin 53·21	49·2	39·2	47·3	59·6	50·0	..	..
Prague 50·2	49·4	31·4	47·6	68·9	50·2	..	..

The mountains of Europe are more numerous in proportion to its extent than those of the other great continents, but they are of less elevation than the mountains of America and Asia. The highest and the most extensive chains in Europe run generally in the direction of east and west, and are placed near its southern shores. The central mass of the Alps, with which all the other mountains in the south of Europe are connected, forms the summit of the continent, and determines the position of the surface and the courses of most of the rivers.

Rivers.—Europe is well watered with rivers, but they are mere brooks compared with the mighty streams of Asia and America, and, from the unevenness of the surface, afford in general no great extent of inland navigation. The Danube, the largest river that is entirely in Europe, is about 1500 miles in length, and drains an area of 370,000 square miles. But the Amazon, though only twice the length of the Danube, drains a surface seven times as large, and equal to four fifths of the continent of Europe; and, as the quantity of rain that falls in tropical countries is much greater than in northern latitudes, it is probable, notwitstanding the increased evaporation there, that the Amazon conveys more water than all the rivers of Europe put together. If we divide the length of the Danube into a hundred parts, the length of the principal rivers of Europe, expressed in these parts, will be as follows: Danube 100; Volga, 130; Dnieper, 72; Don, 69; Rhine, 49; Elbe, 42; Vistula, 41; Loire, 37; Tagus, 32; Oder, 31; Rhone, 30; Seine, 23; Po, 21; Tiber, 10; Thames, 9.

The courses of the great rivers show the fall of the country through which they flow, but it would be absurd to take the average of the fall per mile from the measurements of their whole lengths, for, with the exception of the Volga, and other rivers of Russia, the early parts of their respective courses are among mountains, or in elevated valleys, where, and from which, the fall is very rapid; and it is only when taken from the points where they leave their mountain cradles and reach the plains, that such an average will truly indicate the extent and degree of the general slope of the continent. The source of the Volga is only about 560 feet above the level of the Caspian Sea, into which it flows, and the length of its course being at least 2000 miles, without any serious rapids, the average of its fall is consequently very regular, and little more than three inches a mile; but, the direct distance being only 900 miles, the slope of the country exceeds seven inches a mile. The source of the Danube, in Suabia, is about 2176 feet above the level of the Black Sea; but its fall is in several places very rapid, particularly between Passau and Vienna, and at the *Irongate*, through which it passes from the plains of Hungary to the low level of Wallachia. The average fall, therefore, of such a river would be a most fallacious index of the configuration of the whole length of country through which it flows. Its course is indeed through a series of terraces, separated by deep falls. The sources of the Rhine, in the heart of Switzerland, have an elevation of more than 7000 feet, but when it reaches the Lake of Constance it has already fallen to 1300. From that lake to Basle, where it leaves the mountains, it falls more than 500 feet, and even further down it still flows with great impetuosity, falling 400 feet more before it reaches Strasburg, a distance of only 70 miles. The average, however, of its fall from the latter city to the sea is only about one foot a mile. The elevation of the *Elbbrunnen*, or sources of the Elbe, in Bohemia, is 4260 feet, but the river falls so rapidly, within a short distance, that, after passing the northern mountain border of Bohemia, its elevation is found to be, at Dresden, only 280 feet. The average fall from that point to the sea is less than a foot a mile, The elevation of the source of the Oder is 1705 feet, but at Breslau it has already fallen to 370, and the average fall of the remainder of its course is likewise about a foot a mile. The elevation of the source of the Vistula we have not been able to learn, but as it is navigable from Podgorze, near Cracow, to the sea, its average fall is probably much the same as that of the Elbe or the Oder.

Few of the rivers of Europe are of much importance as means of communication and transit. The Volga becomes navigable at Rief, about 70 miles from its source, and so continues to the Caspian Sea, a distance of more than 2000 miles, following the course of the river. It is the great highway of Central Russia, so many as 5000 loaded boats annually descending its stream; but as it ends unfortunately in an inland lake, it is of no use for the transport of other foreign wares than the produce of the sandy and barren regions that surround the Caspian.

The Volga is so connected with the other great rivers and lakes of Russia by canals, that there is uninterrupted navigation from the Baltic to the White Sea, the Black Sea, and the Caspian. The Don has a course of 900 miles, but has so many shallows as to be nowhere navigable for large or sharp-bottomed vessels. The Dnieper, the next largest river of Russia, has a course of 1000 miles, and is navigable from Smolensk to Kief; but, further down, its channel is so obstructed with rocks and falls, for a space of 150 miles, that navigable communication between the sea and the inland provinces through which it flows is completely cut off. The Danube becomes navigable at Ulm, 1500 miles from its mouth; but between Passau and Vienna, it flows among mountains, and navigation is rendered difficult by the rapidity of the stream, and the frequent occurrence of rocks, shoals, eddies, and whirlpools; and, in leaving Hungary, through a narrow gorge of 60 miles in length, which it has cut for itself across the mountains that inclose that country, it falls in a series of rapids, the lowest of which is the famous Irongate, through which the stream rushes with great rapidity in a narrow channel, between stupendous rocks, ending in a series of whirlpools, eddies, and smaller falls. Here navigation was considered to be effectually stopped; but we have just learned (January, 1855) that steamboats have at last been constructed so as to be considered capable of passing these rapids in safety, and that they will be immediately put upon the river. It is also proposed to cut a channel through the rocks 1200 yards long, 40 feet wide, and 6 feet deep, which will give plenty of additional depth for the steamers and other loaded vessels. The number of workmen to be employed in this gigantic undertaking is 2000, and the work will extend over a period of 6 years, at a cost of 2,000,000 of florins. So numerous, besides, are the windings of the Danube through the comparatively level plains of Hungary, that between Presburg and the Black Sea, a direct distance of 650 miles, the course of the river actually measures 1200. The Rhine is navigable above the lake of Constance, but the navigation is stopped by the Rheinfall near Schaffhausen. From that point to Basle it is not very easy or always practicable; to Strasburg it is not free from danger; but further down the river becomes a fine navigable stream, not quite free indeed from difficulty and risk, particularly in the deep and narrow gorge which it passes through between Bingen and Coblentz; but below Coblentz the channel is uninterrupted and free from danger. Between the Rhine and the Danube there is a navigable communication by means of the rivers Meyn and Altmuhl, which are connected by the Ludwig's canal in Bavaria. The Elbe, and its tributary, the Moldau, are both navigable even in Bohemia, and from their confluence to the sea there is no serious interruption. The Oder is navigable downward from Silesia, and is of the utmost importance as the channel of conveyance for the productions of that country to the sea. Breslau, Frankfurt, and Stettin, three of the principal commercial towns of Prussia, stand on its banks, and it is connected by canals with the Vistula, the Havel, and the Spree. The Vistula is, like the Oder, the principal channel of transit between the Baltic Sea and the Polish provinces of Austria, Russia, and Prussia, and begins to be navigable at Podgorze, near Cracow.

These are the only rivers that seem to require notice as navigable streams in a general survey of Europe, although there are many others of great importance to the several countries in which they are found, as the Thames, the Tyne, the Clyde, the Rhone, the Po, etc.

The islands of Europe, including Nova Zembla and Iceland, occupy a space equal to 280,000 square miles, or 1-11th part of the surface of the continent; and of this space the area of the British isles amounts to rather less than ½. The Black Sea is the only large sea connected with Europe in which there are no islands worthy of notice.

Seas.—The Mediterranean, the noblest inland sea in the world, forms the southern boundary of Europe, separating it from Africa, and partly also from Asia. It may be considered as the bottom of a vast basin formed by the Pyrenees, Alps, Balkans, Taurus, Libanus, and Atlas. These mountains are everywhere near its shores, which are consequently narrow and much inclined. Hence there are no such extensive plains as Hungary or Poland near the coast of this sea, and hence, also, no very large rivers fall into it except the Nile; and altogether it receives a smaller quantity of water from rivers than the Black Sea or the Baltic, though six times larger than either. Its length is about 2350 miles, its breadth is extremely various, and its surface (exclusive of the Black Sea) is nearly equal to 1,000,000 of square English miles, or something less than ⅓ part of the continent of Europe. It is generally of great depth; and its numerous islands, which have uniformly a rocky surface, appear to be the summits of marine mountains.

Baltic.—The Baltic, the greatest inland sea that is entirely in Europe, is about 1200 miles long, of very unequal breadth, and presents a surface of 175,000 square miles, exclusive of islands. It occupies the bottom of another large basin, 850 miles in breadth, and 1400 in length, extending from the Norwegian mountains on the north and west, to the Carpathians on the south, and to the high lands on which the Dnieper, the Don, and the Volga rise, on the east. This basin, equal to ¼ of the surface of Europe, has a very different character from that of the Mediterranean. The mountains are not very elevated, and are so placed as to leave a large tract of land, very little inclined, between them and the Baltic, over which, especially on the south side, many considerable rivers flow with a gentle current. Hence the country round the Baltic is much more level than round the Mediterranean; lakes are numerous in the low grounds, from the want of declivity; the sea itself is comparatively shallow, and receiving a much greater quantity of river water, it is much less salt. The commerce of the Baltic is annually interrupted by the ice, which endures 4 months in the gulfs of Bothnia and Finland

The whole of this inland sea has sometimes been frozen over for a short time, but this is of rare occurrence. See BALTIC.

Black Sea.—The Black Sea, which belongs only partly to Europe, is 700 miles long and 380 miles broad, and, including the Sea of Azof, presents a surface of 170,000 square miles, being almost of the same magnitude as the Baltic. It derives 4-5ths of its water from Europe, and is curiously distinguished from the other seas of this quarter of the globe, by its being almost totally destitute of islands.

White Sea.—The White Sea is 450 miles in length, of a very irregular figure, and occupies a space equal to 35,000 square miles. It receives some considerable rivers, but is frozen during six months of the year.

Lakes.—The lakes of Europe are numerous, and are of two kinds: those which lie in cavities at the foot of high mountains, and which are generally deep, such as the lakes in the Alps, on the east side of the Norwegian mountains, and among the mountains of England and Scotland; and those which are formed in level countries from the want of a sufficient declivity to carry off the water, such as the lakes in Finland, Poland, and Brandenburg. 4-5ths of the lakes of Europe are in the country round the Baltic.

Vegetable Productions.—The soil of Europe has not the extremes of luxuriance or sterility which belong to the soil of the other great continents. If it does not yield the rich fruits of tropical climates, it is not deformed by burning sands like Africa, or by pestilent swamps like America. It does not pour forth its riches spontaneously, but, soliciting the care and the labor of man, it requites his industry with what is necessary to supply his wants; and, by exercising and sharpening his powers of mind, has given birth to those arts which place the productions of the most favored climates at his disposal. Many of the plants which have been domesticated in Europe are natives of distant countries. The vine, the olive, and the mulberry are said to have been brought from Syria by the Greeks; the Arabians introduced cotton; maize was received from the Indian tribes of America; the walnut and the peach come from Persia; the apricot from Armenia, and the sugar-cane and orange from China. There are not very many plants belonging to the tropical regions that absolutely refuse to grow in Europe, but an enlightened economy finds other productions more profitable. Besides sugar and cotton, the banana, the orange, citron, fig, pomegranate, and date, grow in the south of Europe. But the more delicate fruits are confined to southern latitudes, and disappear one by one as we advance northward. And it is worthy of remark, that the zones in which they grow generally follow the lines of equal summer heat, and run obliquely across the continent in the direction of south-west and north-east. If a line be drawn on the map from Brest to Konigsberg, skirting the southern shores of the English Channel and the Baltic, the zones that limit the growth of different plants will run nearly parallel with this line. This holds generally in the south and middle of Europe; but in the extreme northern parts, and especially with regard to plants that require a moderate heat continued for a considerable time, the lines that limit the growth of certain vegetables seem to follow a different course, and decline toward the south as we advance eastward, in consequence of the increasing severity and length of the winter. It is scarcely necessary to say that the zones traced as proper for different plants, only mark the limits within which their cultivation is found advantageous. Most of them will grow beyond these limits; but they either require some peculiar advantages of soil and situation, or they are less profitable than other kinds of produce.

The sugar cane, one of the most desirable tropical plants, grows in Sicily and the south of Spain, in the latitude of 37° and 38°. The culture of it, which was once extensive in the latter country, has not yet been enirely abandoned, even since sugar was procured from the West Indies. Cotton is cultivated in the south of Spain on a small scale; to a greater extent in Sicily, the south-east angle of Italy, and in Greece and its isles, as high as the latitude of 41½°; we find it again at Astracan, in the latitude of 46°. The orange and the lemon come to perfection in the west of Europe, only in the countries to the south of the Pyrenees and Apennines, within the latitude 43° in Spain, and 44° in Italy. The olive does not succeed on the west coast of France in the latitude of 43°, but grows as far north as 44° or 45° on the east of France, and in Italy. Attempts to raise it at Astracan, in latitude 46°, have not succeeded, on account of the rigor of the winter. The fig and the pomegranate, which accompany the olive in the west of Europe, are found in the Crimea in the east, at the latitude of 46°, where the olive will not grow, a proof that these trees bear the winter cold better. The climate proper for maize is found to terminate on the west coast of France at 45½°; on the Rhine at 49°; on the Elbe at 50° or 51°. Rice has nearly the same geographical range, but requires a peculiar soil and situation. The culture of the vine extends as far north as the latitude of 47½° on the Atlantic coast; on the Rhine to 50½°; and on the Oder to 52°. In Russia it grows as far north nearly as 52°, but is not cultivated beyond 50°. The mulberry generally accompanies the vine. The limits of the culture of the common cerealia are not so well defined, as the necessities of man oblige him to raise corn under the most unfavorable circumstances. In a general point of view, however, the parallel of 57° or 58° may be regarded as the northern limit of the cultivation of wheat in Europe. It is raised as far north as 60° or 61° in Finland, but only in some favored spots. In Russia, generally, it is chiefly confined to the provinces under the latitude of 57°. The hardier cerealia, rye, oats, and barley, are cultivated in some sheltered situations on the coast of Norway, as high as the latitude 69° 55′. But on the east side of the Norwegian mountains these grains scarcely ripen in the latitude of 67° or 68°; and farther east, in Russia, it has been found impossible to carry cultivation of any kind beyond the latitude of 60° or 62°. Barley, which accommodates itself better than any other grain to these high latitudes, by shortening the period of its growth, is sown and reaped within the space of seven or eight weeks. But the introduction of potatoes promises to be of vast advantage in these cold regions, as this plant thrives and yields a produce of 30 or 50 fold in places where grain often will not ripen. Peaches and apricots succeed with much care as far north only as the latitude of 50° in Russia: melons as far as 52°. The plum and the cherry grow wild as far north as 55°, but are carried farther by cultivation. Fruit trees and the oak terminate in Sweden, at Gefle, in the latitude of 61°; but the pine and the birch advance within the arctic circle; and the former grows to the height of 60 feet in the latitude of 70°. The blackberry and the whortleberry grow in Lapland, and the gooseberry even in Greenland. Tobacco is extensively cultivated over the greater part of the continent of Europe, from Sicily to Sweden. Flax and hemp have as extensive a range as corn, but they are raised in the greatest perfection between the latitudes of 45° and 60°.

We have stated that the superficial extent of Europe is about 3,700,000 square miles. If we draw a curved line from a point in the Uralian mountains, about the latitude of 60° or 61°, to the west coast of Norway, in the latitude of 69°, passing through the Lake Onega, and a little to the northward of the Gulf of Bothnia, this line will mark the extreme limits of cultivation, and will cut off a space equal to 550,000 square miles, or nearly 1-7th of Europe. The space cut off, however, is not entirely useless, as a part of it produces pasturage and wood. The cultivation of rye, oats, and barley, is confined to the regions south of this line, and includes more than 5-6ths of Europe; but in the northern parts of this zone only a very small proportion of the land will bear corn. The region adapted to the cultivation of wheat comprehends about 4-7ths of Europe, and includes all the densely-peopled parts. The region of the vine extends over 3-7ths of Europe.

Minerals.—Europe, in propartion to its extent, is probably richer in mineral wealth than the other quarters of the globe. It contains all the metals except platina; and though it affords gold and silver only in limited quantities, iron, copper, lead, with coal and salt, commodities of greater value to society, are abundantly and widely distributed. The mountains, consisting of primary and transition rocks, are the great depositaries of these mineral treasures. Iron is found in all the chains of mountains in Europe. The richest mines are in the Dovrefield, or Scandinavian Alps. But rich mines are also found in the Alps of Styria, Carinthia, and Bavaria; in the Pyrenees, the Vosges, the Cevennes, the coal districts of Britain, the Urals, the Carpathians, the Hartz, and many other places. Copper is also widely distributed, though less abundant than iron. The richest mines are in Hungary, in the Carpathian mountains. It abounds also in the Saxon and Bohemian mountains, in the Dovrefield, the Urals, the north of England, and the Alps; and it is found in the Vosges, the Pyrenees, and other mountains of Spain, in the north of Germany, and in Tuscany.

Lead exists in the Alps, Carpathians, Pyrenees, Cevennes, Vosges, the British mountains, and the Uralian chain. Tin is found only in a few places in Europe. The richest mines are in Cornwall; next to these are the mines in the Erzgebirge. It is also found in Hungary and Spanish Galicia. Mercury, like tin, is confined to a few places. The mines of Idria, in Austria, which yield 8000 or 10,000 quintals per annum, are the most productive in Europe. There are also considerable mines at Deux Ponts, in the Palatinate, in the Spanish province of La Mancha, and in Transylvania. Gold is widely diffused through Europe, but generally in such quantities as not to repay the expense of working. It is wrought, however, in the Carpathians, the Urals, the Dovrefield, and the Alps. Anciently there were rich mines of gold in Spain and Greece. Silver is more abundant than gold, though less widely distributed. There are productive mines of this metal in the Erzgebirge, the Carpathians, the Urals, the Norwegian Dovrefield, and in Sardinia. It is found also in the Alps, the Vosges, and the Sierra Morena.

Of coal, the richest mines are found in the north and west of England. It abounds also on both sides of the middle region of Scotland; in Ireland; in the Netherlands; in one fourth part of the French territory; and occurs more sparingly in Saxony, Hanover, Denmark, Sweden, Russia, Hungary, Bohemia, Moravia, Silesia, Bavaria, Austria, Franconia, Westphalia, Swabia, Catalonia, and some other parts of Spain, in Portugal, and in Sardinia. After Britain, France and Belgium are the countries in Europe best supplied with this mineral.

Salt is procured from the waters of the ocean, and, in the interior of Europe, from numerous salt mines and salt springs. The most productive salt mines in Europe are those in Poland, on the north side of the Carpathians, and those in Salzburg, on the north side of the Alps, both of which belong to Austria. There are also extensive depositories of mineral salt in Transylvania and Hungary; in Valencia, Navarre, and Catalonia, in Spain; in Cheshire, in England; and in Bavaria, in Switzerland. Salt springs are numerous along the sides of primitive mountains in most countries of Europe. The most extensive salt mines of Russia are in Asia; but very large quantities of salt are collected from the *tuzlas*, or salt lakes in the Crimea.

Antimony, cobalt, zinc, manganese, sulphur, alum, and a great variety of other mineral productions, are found in Europe; but it is unnecessary to specify their localities. It is observed that the Alps, Pyrenees, Carpathians, and other mountain chains which run east and west, are richest in metals on the south side; while the Dofrines, Urals, and others which run north and south, are richest on the east side. Of the mountain chains of Europe, the Apennines are the poorest in metals, the Carpathians probably the richest.

The progress of improvement tends to level all distinctions among states, but those founded on the extent of their natural resources. Capital, skill, intelligence, and all acquired advantages, tend to an equilibrium. When Europe was overrun with barbarism, the city of Venice, by its commercial wealth, was a counterpoise to two or three of the great monarchies of the Continent. The discovery of America, and of a passage by sea to the East Indies, gave a new direction to commerce, and undermined the greatness of that city. The Dutch Republic rose by its freedom and industry, and was able, in the time of Charles II., to dispute the empire of the sea with the combined powers of England and France. But England increased her commerce, and improved her constitution; and having a larger and more fertile territory, as well as a greater population, she obtained at length the ascendency over Holland, deprived her of the empire of the sea, and stripped her of most of her colonies. At the beginning of the 17th century, Spain and Turkey were the first powers in the west and east of Europe, and inspired their neighbors with the dread of conquest. Sweden ruled with undisputed sway in the north; and Russia, now so formidable, was scarcely known. Spain, under a better government, might recover a part of her influence; but the Turkish empire seems near its dissolution; and the importance of Sweden and Holland is gone irretrievably, in consequence of the growing strength of the neighboring powers. The extent of territory and the immense natural resources of Russia must, in the end, render her highly dangerous to all the other powers of Europe, if the empire do not fall to pieces from its own weight, or get into discord from the vices of its government, or the barbarism, ignorance, and corruption of its people.—E. B.

By means of steam-vessels, communication between all the maritime regions of Europe has been rendered easy and certain, while the seaboard has been connected with the inland regions by railways running in all directions. During the latter half of the last century, and the earlier part of the present, England was covered with a net-work of canals, forming navigable communication between all her principal towns and rivers. Belgium and Holland have long been famous for their canals. In France, likewise, the great rivers were connected in the same way; and the great canal of Languedoc formed a navigable communication between the Bay of Biscay and the Mediterrenean Sea. In Prussia, likewise, and in Russia, the great rivers have been connected by canals; and in Sweden, the Gotha Canal extends from the Cattegat, at Gottenburg, to the Baltic, near Stockholm, through the lakes Wener and Wetter. These very useful means of transport have now, however, been very much, if not entirely superseded by railways. Of these, England is covered with a net-work, as she was with canals; and uninterrupted lines of communication extend from near the Land's End, through Scotland, to the Moray Firth. In Scotland, Ireland, France, and Germany, the principal cities and towns are connected by railways; and in Russia, we understand that one is forming to connect St. Petersburg with Moscow and the Black Sea. In Italy, Milan and Venice are connected, and railways are projected at least in other parts of the country. The later invention of the electric telegraph is likewise extending everywhere across seas and continents; but the whole system of telegraphs and railways will be understood more readily at once by a glance at a map.

Area and Population of European States.

Names.	Area in English Sq. Miles.	Population.	Date.
I. Empires:			
French	204,000	35,781,628	1851
Austrian	257,760	36,514,466	..
Russian	2,000,000	54,092,300	1846
Ottoman	123,743	10,500,000	1844
II. Kingdoms:			
Great Britain and Ireland	121,779	27,621,862	1851
Prussia	106,302	16,935,420	1852
Belgium	12,569	4 359,090	1849
Netherlands	13,890	3,397,851	1853
Spain	176,480	14,216,219	1849
Portugal	34,500	3,487,025	1851
Denmark	22,680	2,296,597	1850
Sweden	170,240	3,482,541	..
Norway	122,460	1,328,471	1845
*Bavaria	29,000	4,559,452	1852
*Hanover	14,600	1,819,253	..
*Saxony	5,705	1,987,832	..
*Wirtemberg	7,568	1,733,263	..
Sardinia	28,830	4,916,084	1848
Two Sicilies	41,521	8,704,472	1851
Hellas or Greece	10,206	1,002,112	1852
III.			
*Electoral Hesse	4,439	755,228	1852
States of the Church	17,048	3,006,771	1850
IV. Grand Duchies:			
*Baden	5,850	1,356,943	1852
*Hesse-Darmstadt	3,761	854,314	..
*Mecklenburg-Schwerin	4,845	541,449	1853
* " Strelitz	767	99,628	1851
*Oldenburg	2,400	282,114	1852
*Saxe-Weimar	1,419	262 524	1853
Tuscany	8,302	1,815,686	1854
V. Duchies and Princedoms:			
*Nassau, D	1,757	429,341	1852
*Brunswick, D	1,507	271,943	1853
*Saxe-Coburg-Gotha, D	799	150,412	1852
* " Meiningen, D	888	166,364	1853
* " Altenburg, D	510	132,738	1850
*Anhalt-Dessau-Coethen, D	665	171,759	1852
* " Bernburg, D	340	52,641	..
*Reuss-Griez, P	145	35,159	1853
* " Schleiz, P	448	79,824	..
*Waldeck, P	461	59,697	1852
*Hesse-Homburg, P	168	24,921	..
*Lichtenstein, P	53	6,351	1842
*Kniphausen	17	3,035	1852
Parma, D	2,184	507,881	1853
Modena, D	2,073	586,458	1850
Monaco, P	50	6,500	..
Moldavia, P	16,000	1,400,000?	1844
Wallachia, P	30,000	2,000,000?	..
Servia, P	12,000	1,000,000?	..
Montenegro	1,400	100,000?	..
VI. Republics:			
*Frankfort	91	77,971	1852
*Lubec	142	54,166	1851
*Bremen	106	79,047	1849
*Hamburg	151	200,690	1852
Swiss Confederation:			
Zurich	647	250,698	1850
Bern	2,583	458,301	..
Lucerne	600	132,843	..
Schweiz	350	44,168	..
Uri	420	14,505	..
Unterwalden-Upper	260	13,799	..
" Lower		11,339	..
Glarus	281	30,213	..
Zug	185	17,461	..
Friburg	496	99,891	..
Soleure	256	69,674	..
Basel-City	185	29,698	..
" Country		47,885	..
Schaffhausen	116	35,300	..
Appenzell-Outer	160	43,621	..
" Inner		11,272	..
St. Gall	760	169,625	..
Grisons	2,540	89,895	..
Aargau	499	199,852	..
Thurgau	267	88,908	..
Tessin	1,041	117,759	..
Vaud	1,190	199,575	..
Valais	1,675	81,559	..
Neufchatel	281	70,753	..
Geneva	91	64,146	..
Ionian Islands	1,200	239,297	1852
Saint Marino	27	7,600	1851

Considered in respect to political constitution and civil government, the states of Europe may be arranged in six classes. The first class comprises 4 empires, the sovereigns of which are absolute monarchs; the second, 16 kingdoms, partly absolute and partly constitutional; the fourth, 7 grand-duchies, all monarchies; the fifth, 24 duchies and principalities, likewise all monarchies, partly constitutional and partly absolute; and the sixth, 32 republics. The third class comprises 2 nondescripts, both monarchies indeed; but in the one case the sovereign retains the subject title of Elector of the head of an empire that no longer exists, and the sovereign of the other is at once the spiritual sovereign of the Roman Catholic world and the temporal sovereign of that portion of Italy called the States of the Church. The preceding table contains the names, territorial extent or area, and the population of these several states at the dates attached to them respectively. The grand total of the population, as it is not all of the same year, can only be considered as an approximation to the truth.

In financial importance, Britain stands at the head of all these states; for not only is her annual revenue the largest, excepting that of France, but she enjoys besides the unenviable pre-eminence of being burdened with the largest debt. The bad practice of anticipating revenue by borrowing money is common to them all; and, as will be seen in the table, only some of the less important have escaped the ever-growing evil. Within the last twenty years the debt of Austria has increased more than threefold, and the French emperor has been borrowing largely to pay the current expenses of the war in which he and the British government were engaged with Russia. The governments of Spain and Greece are virtually bankrupt, being neither able nor willing to pay either principal or interest of their large debts. Norway, on the contrary, the poorest country in Europe, has set the bright example of paying off that portion of the Danish debt with which she was burdened when separated from that monarchy in 1814, while the Danish portion has gone on increasing. The Ottoman sultan has escaped, until lately, only by virtue of his want of credit.

Revenue and Debt of European States.

Countries.	Annual Revenue.	Debt.
Great Britain and Ireland	£56,000,000	£760,000,000
France	62,000,000	275,000,000
Austria	25,000,000	180,000,000
Russia	35,000,000	170,000,000
Prussia	15,000,000	32,000,000
Spain	15,000,000	120,000,000
Turkey	6,500,000	8,000,000
Netherlands	6,000,000	100,000,000
Belgium	5,000,000	29,000,000
Denmark	1,500,000	13,750,000
Bavaria,	3,000,000	16,146,000
The Two Sicilies	4,500,000	16,800,000
Sardinia	5,000,000	24,000,000
Hanover	1,300,000	5,474,000
Baden	1,680,000	5,485,000
States of the Church	2,381,000	20,000,000
Portugal	2,850,000	18,000,000
Kingdom of Saxony	1,650,000	6,500,000
Sweden	1,040,000	....
Norway	650,000	None
Tuscany	1,250,470	....
Greece	860,000	4,176,000
Modena	340,000	....
Parma	76,000	380,000
Wirtemberg	1,000,000	4,842,000
Smaller German States together	5,500,000	17,000,000
The Swiss Cantons all together	650,000	....

Their annual revenues and the amount of their debts as stated in the above table, in the nearest round numbers, and in sterling money, will give a sufficiently near approximation to sums that are constantly varying, and, in many instances, not certainly known. Though there has been a general peace in Europe for the long period of forty years, yet their mutual jealousies have made it seem necessary, to the Continental governments at least, to maintain large standing armies. Russia, safe from foreign invasion, has long been preparing large armaments for purposes of aggression on her weaker neighbors, and of domination over all the rest; and at last her overt acts of aggression on Turkey have provoked a war with Great Britain and France, who [1854] armed in defense of their ancient ally, the Sultan, and with the view of not only maintaining the balance of power in Europe, but of effectually checking the undisguised attempts of the czars of Russia at universal dominion. In these circumstances, with all Europe arming, or beginning to arm, any numerical statements of their military forces, however approximately correct when written, may have become quite erroneous by the time they are published. The following table, therefore, contains only the declared numbers respectively of the peace and war establishments of the Continental armies, with the exception of that of France, which gives the actual number of men on foot, as stated in the emperor's address to his Legislative Council in December, 1854.

Countries.	Peace.	War.
Austria	....	670,000
Russia	....	1,500,000
Prussia	129,000	525,000
France	....	581,000
Britain	128,000	....
Spain	70,000	....
Portugal	29,000	58,326
Two Sicilies	56,043	102,932
Sardinia	47,524	....
Belgium	73,998	100,000
Netherlands	57,959	....
Denmark	37,043	....
Sweden	7,692	144,000
Norway	....	23,484
Tuscany	15,189	....
Parma	2,773	4,033
Modena	3,500	14,656
States of the Church	17,365	....
Smaller States of the Germ. Conf.	142,686	224,000
Swiss Confederation	....	108,000
Turkey	....	450,000
Greece	9,848	....

The maritime powers that maintain efficient navies worth notice are, Britain, France, Russia, Austria, Turkey, Sardinia, Netherlands, Denmark, Sweden, and Norway. In December, 1854, the British fleet in commission and actual service, consisted of 142 steamers, and 104 sailing ships, with 63,000 men; that of France, of nearly the same number of vessels altogether, though not so many steamers, with 62,000 men. The Russian fleet, in the spring of 1854 consisted of 52 line-of-battle ships, 48 frigates, and 84 smaller vessels (besides gun-boats), with 9000 guns, and 62,000 men. Austria possessed 104 vessels carrying 742 guns; Turkey, 70 vessels, with 34,000 seamen and 4000 marines; Sardinia, 19 vessels, with 359 guns; the Netherlands, 88 vessels, with 2000 guns and 6180 men; Denmark, 120 vessels, with 883 guns, and 2000 men; Sweden, 74 vessels besides gun-boats; Norway, 19 ships besides gun-boats, with 500 men.

In Europe there are two great national confederacies, the Germanic and the Swiss; but in neither of them is there so close a union of the sovereignties that compose it as there is in the United States of North America. In Germany, indeed, there is no principle or feeling of unity among either princes or people, and their confederation, as such, enjoys neither influence nor respect at home or abroad. In Switzerland, on the contrary, recent circumstances seem to have produced a closer and more intimate union, and given to the federative assembly the authority indispensable to the efficient working of a central government.—E. B.

Exchange, Principles of, by John Ramsay M'Culloch, Esq.

In commercial economy, the term "Exchange" is commonly employed to designate that description of mercantile transactions by which the debts of individuals residing at a distance from each other are liquidated without the intervention of money. The object of this article is to explain the nature of these transactions, and the principles on which they depend. This will be best effected by treating, *first*, of the exchange between different parts of the same country; and, *secondly*, of that between different and independent countries.

I. Inland Exchange.—Suppose a merchant of London orders his agent in Glasgow to send him a thousand pounds' worth of cottons, and that it does not suit the agent to commission goods of equal value from his London correspondent, the latter may, notwithstanding, be under no necessity of remitting cash to Glasgow in discharge of his debt. Among countries or cities having a considerable intercourse together, the debts mutually due by each other are found, in ordinary cases, to be nearly equal. The Glasgow agent, who has shipped the cottons for London, does not, therefore, transmit the bill drawn by him on his correspondent for their price to London to be cashed, as that would subject him to the expense of conveying the money home to Glasgow; but he gets its value from some other party in Glasgow, who has a payment to make in London on account of tea or some other article bought in that city, and who, unless he could procure such a bill, would be obliged to remit its price in money. The bill on account of the cotton is, therefore, either drawn in favor of the party in London who furnished the tea, or it is drawn in favor of the tea-dealer in Glasgow, and indorsed by him to the former, who, on presenting it to the purchaser of the cottons, receives its value and consequently the price of the cottons, and the price (or part of the price) of his tea, at the same moment. This simple contrivance obviates the expense and risk attending the transmission, first, of money from London to Glasgow, to pay the cottons; and, second, of money from Glasgow to London to pay the tea. The debtor in one is changed for the debtor in the other; and both accounts are settled without the intervention of a single farthing.

The bill drawn and negotiated in such a transaction as this, is termed an *inland* bill of exchange. If the transaction had taken place between London or Glasgow and a *foreign* city, it would have been termed a *foreign* bill of exchange. A bill of exchange may, therefore, be defined to be, "an order addressed to some person residing at a distance, directing him to pay a certain specified sum to the person in whose favor the bill is drawn, or his order."[*]

The price of bills fluctuates according to their abundance or scarcity compared with the demand. If the debts reciprocally due by London and Glasgow be equal, whether they amount to £100,000, £500,000, or any other sum, they may be discharged without the intervention of money, and the price of bills of exchange will be at PAR; that is, a sum of £100 or £1000 in Glasgow will purchase a bill for £100 or £1000 payable in London, and *vice versâ*. But if these cities be not mutually indebted in equal sums, then the price of bills will be increased in the city which has the greatest number of payments to make, and reduced in that which has the fewest. If Glasgow owe London £100,000, while the latter only owes the former £90,000, it is clear, inasmuch as Glasgow has a larger sum to remit to London than London has to remit to Glasgow, that the price of bills on London will rise in Glasgow because of the increased demand, and that the price of bills on Glasgow will fall in London, because of the diminished demand. A larger sum would, consequently, be required to discharge a debt due by Glasgow to London, and a less sum to discharge an equal debt due by the latter to the former; or, which is the same thing, the exchange would be in *favor* of London, and *against* Glasgow. Bills on London would sell in Glasgow at a *premium*, and bills on Glasgow would sell in London at a *discount;* the premium in the one case being equal to the discount in the other.

---

[*] In mercantile phraseology, the person who draws a bill is termed the *drawer*; the person in whose favor it is drawn, the *remitter*; the person on whom it is drawn, the *drawee*, and after he has accepted, the *acceptor*. Those persons into whose hands the bill may pass previously to its being paid, are, from their writing their names on the back, termed *indorsers*; and the person in whose possession the bill is at any given period, is termed the *holder* or *possessor*.

On the supposition that the balance of £10,000, due by Glasgow, depresses the exchange on London *one per cent.*, it appears at first sight that it will cost Glasgow £101,000 to discharge her debt of £100,000 due to London; and that, on the other hand, £89,100 would be sufficient to discharge the debt of London to Glasgow. But a very little consideration will serve to show that this would not be the case. Exchange transactions can not take place between different cities until debtors and creditors of the one reside in the other. And hence, when the exchange became unfavorable to Glasgow, the premium paid by its merchants for bills on London would not go into the pockets of their creditors in the latter, but into those of their neighbors in Glasgow to whom London was indebted, and from whom the bills were purchased. The loss to Glasgow would, therefore, be limited to the *premium* paid on the balance of £10,000. Thus, supposing that A, of Glasgow, owes D, of London £100,000 and that C, of London, owes B, of Glasgow £90,000, A will pay to B £91,000 for a bill or order on C to pay D £90,000. In this way the £90,000 of London debt at Glasgow will be cleared off; the premium, which is lost by the debtor to London in Glasgow, being gained by its creditor in the same place. If the business had been transacted in London, C, with £89,100, would have purchased of D a bill for £90,000, payable by A; so that, in this case, the gain would have fallen to the share of the debtor C, and the loss to that of the creditor D, both of London. The complexity of real transactions does not affect the principles on which they are founded. And whatever may be the amount of the debts reciprocally due by different places, the only disadvantage under which any of them could be placed by a fall of the exchange would be the unavoidable one of paying the expense of remitting the *balance* of debt.

The expense of transmitting money from one place to another limits the fluctuations in the exchange between them. If 20s. sufficed to cover the expense and risk attending the transmission of £100 from Glasgow to London, it would be indifferent to a merchant, in the event of the exchange becoming unfavorable to the former, whether he paid one per cent. *premium* for a bill on London, or remitted money direct to the latter. If the premium were less than one per cent., it would be clearly his interest to make his payments by means of bills rather than by remittances; and that it could not exceed one per cent. is obvious, for every individual would rather directly remit money than incur an unnecessary expense by purchasing bills on London at a greater *premium* than would suffice to cover the expense of a money remittance. If, owing to the badness of roads, disturbances in the country, or any other cause, the expense of remitting money from Glasgow to London were increased, the difference in the rate of exchange between them might also be proportionally increased. But in every case the extent to which this difference could attain would be limited by, and could not for any considerable period exceed, the cost of remitting cash.

Exchange transactions become more complex when one place, as is often the case, discharges its debts to another by means of bills drawn on a third place. Thus, though London should owe nothing to Glasgow, yet if Glasgow be indebted to London, London to Manchester, and Manchester to Glasgow, the latter may wholly or partially discharge her debt to London by remitting bills on Manchester. She may wholly discharge it, provided the debt due to her by Manchester exceed or is equal to the debt due by her to London. If, however, it be not equal to the latter, Glasgow will either have to remit money to London to pay the balance of debt, or bills on some other place indebted to her.

Transactions in inland bills of exchange are almost entirely conducted by bankers, who charge a certain rate per cent. for their trouble, and who, by means of their credit and connections, are able on all occasions to supply the demands of their customers. London, because of its extensive correspondence with other parts of the country, occasioned partly by its immense commerce, partly by its being the seat of government and the place to which the revenue is remitted, and partly by its currency consisting of Bank of England paper, for which the notes of the country banks are rendered exchangeable, has become the grand focus in which the money transactions of the United Kingdom centre, and in which they are all ultimately adjusted. These circumstances, but especially the demand for bills on London to remit revenue, and the far superior value of Bank of England paper, render the exchange between London and other parts of the country invariably in her favor. Bills on London drawn in Edinburg and Glasgow were formerly made payable at 40 days' date, which was equivalent to a *premium* of about ½ per cent.; but, owing to the greater facility of communication, this *premium* is now reduced to 20 days' interest, or to about ¼ per cent. Bills for remitting the revenue from Scotland are now drawn at thirty days; previously to 1819, they were drawn at 60 days.

These statements are sufficient to show that, how well soever bills of exchange may be fitted for facilitating the operations of commerce, and saving the trouble and expense attending the transportation of money, mercantile transactions can not be adjusted by their means except in so far as they mutually balance each other. A *real* bill of exchange is merely an order entitling the holder to receive payment of a debt due by the person on whom it is drawn. It is essential to the existence of such bill that an equivalent amount of debt should be contracted. And hence, as the amount of the real bills of exchange drawn on any number of merchants can not exceed the amount of their debts, if a greater sum be owing to them than they owe to others, the balance must either be paid in money or by the delivery of some sort of commodities. If, as in the case referred to, Glasgow owe London £100,000, while London only owes Glasgow £90,000, a reciprocal transfer of debts may be made to the extent of £90,000. But the Glasgow merchants can not discharge the adtional £10,000 by means of bills on London; for, by the supposition, London only owned them £90,000, and they have drawn for its amount. This balance must therefore be discharged by an actual money payment, or by the delivery of some species of produce, or by bills on some third party indebted to Glasgow.

It is not meant by this to insinuate that *fictitious* bills of exchange, or bills drawn on persons who are not really indebted to the drawer, are either unknown or very rare. In commercial countries bills of this description are always to be met with; but they are a device for obtaining loans, and can not transfer real debts. A of London may form a connection with B of Glasgow, and draw bills upon him payable a certain number of days after date, which the latter may retire by selling bills upon A. The merchants who purchase, or the bankers who discount these bills, advance their value to the drawers, who, by means of this system of *drawing* and *redrawing*, command a borrowed capital equal to the amount of the fictitious paper in circulation. It is clear, however, that the negotiation of such bills can not assist in transferring and settling the *bonâ fide* debts of two or more places. Fictitious bills mutually balance each other. Those drawn by London on Glasgow equal those drawn by Glasgow on

London, for the one set is drawn to pay the other—the second destroys the first, and the result is nothing.

The raising of money by means of fictitious bills has been severely censured by Adam Smith, who says it entails a ruinous expense on those engaged in it, and is resorted to only by projectors, or persons of suspicious credit. When fictitious bills are drawn at two months' date, it is common to charge, in addition to the ordinary interest, a commission of half or quarter per cent., which must be paid every time the bill is discounted, or, at least, *six* times a year. The total expense of money raised in this way could not, therefore, supposing the transaction to be always on account of the same individual, and interest 4 per cent., be estimated at less than 5½ or 7 per cent. per annum, *ex* stamps; and the payment of so high an interest on borrowed capital, in a country where the ordinary rate of mercantile profit is not supposed to average more than from *six* to *eight* per cent., could not fail to be frequently productive of ruin to the borrower. But it seldom happens that, in the negotiation of fictitious bills, the charge for commission falls on one individual only. Loans obtained in this way are usually on account of two or more parties. At one time a fictitious bill is drawn by A of London on B of Glasgow; and, in this case, the latter will, before the bill becomes due, draw upon A for its amount, including interest and commission. At another time, the transaction will be on account of B, who in that case has to pay commission to his friend in London; so that each party may, on the whole, as Mr. Thornton has observed, gain about as much as he pays in the shape of commission.

It is often extremely difficult to distinguish fictitious bills from those which have arisen out of real transactions. Neither does it seem to be of any very material importance. The character and credit of the parties whose names are attached to bills, are the only criteria by which merchants or bankers can judge whether they ought to negotiate them. The circumstances of an individual offering accommodation paper for discount, ought unquestionably, if it be known, to excite suspicions of his credit. But unless in so far as the drawing of fictitious bills may be held to be indicative of overtrading, or of a deficiency of capital to carry on the business in which the party is engaged, there does not appear to be any very good reason for refusing to discount them.

Within the last few years, it has been the practice to grant money orders, payable on presentation at the different post-offices, for sums of £5 and under. These orders cost 3d. for sums of £2 and under, and 6d. for sums between £2 and £5 inclusive; and as they are not paid unless the parties in whose favor they are drawn, or other parties well known to the postmasters by whom they are payable, appear to receive payment, there is no risk of the money getting into improper hands. This system has been found to be a very great accommodation to the public, especially to those having small sums to remit, and has been very extensively resorted to. In 1850 4,439,713 money orders were issued in the United Kingdom; the aggregate sum transferred by their agency being £8,494,498.

These observations will, perhaps, suffice to explain the manner in which transactions between different parts of the same country are settled by means of bills of exchange. They are, in general, extremely simple. The uniform value of the currency of a single country renders unnecessary any comparison between the value of money at the place where the bill is drawn and negotiated, with its value where it is to be paid; while the constant intercourse maintained among different parts of the same kingdom, and the usual absence of those occurrences by which the intercourse between distant and independent countries is always subject to be interrupted, prevent those sudden fluctuations which frequently arise in the prices of foreign bills of exchange. We shall, therefore, leave this part of our subject, and proceed to investigate the circumstances which influence the course of exchange between different and independent countries.

II. Foreign Exchange.—The price of foreign bills of exchange depends on two circumstances: *first*, On the value of the currency of the place where they are made payable, compared with the value of the currency of the place where they are drawn; and, *secondly*, On the relation which the supply of bills in the market bears to the demand.

If the value of the different coins and moneys which circulate in nations having dealings with each other were invariable, the exchange would be exclusively influenced by circumstances affecting the supply and demand for bills. But, in addition to variations in its cost in particular countries, the weight and fineness of the bullion contained in their coins are liable to all sorts of variations. And it is almost needless to say that the price of bills, as of every thing else, necessarily varies with these variations, increasing when the value of the money in which they are estimated falls, and falling when it increases. But these, it is plain, are merely nominal or numerical variations. They grow out of changes in the standard employed to measure values, and not in the values themselves. It is otherwise, however, with variations of price occasioned by changes in the supply of bills, or in the demand for them; that is, by changes in the payments a country has to make compared with those it has to receive. These are real, not nominal variations, for they affect the values in bills, and not the money in which these values are expressed. And hence the distinctions of *nominal*, *real*, and *computed* exchange. The *first* depends on alterations in the value of the currencies compared together; the *second* depends on the supply of bills in the market compared with the demand; and the *third*, or *computed* exchange, depends on the combined effects of the other two. For the sake of perspicuity we shall treat of these separately.[*]

III. Nominal Exchange.—Bullion being everywhere recognized as the standard currency of the commercial world, the comparative value of the currencies of particular countries depends—*first*, On the value of bullion in those countries; and, *secondly*, On the *quantity* of bullion contained in their coins, or on the quantity of bullion for which their paper money, or other circulating media, will exchange.

The value of freely produced commodities being commonly proportioned to the *cost* of their production, including therein the cost of their conveyance from where they have been produced to where they are to be made use of, it follows, were the trade in the precious metals perfectly open, and the commodities produced in different countries about equally well fitted for exportation, that the value of bullion in one, compared with its value in another, would be chiefly determined by their respective distances from the mines. Thus, on the supposition that neither England nor Poland had any article except corn to exchange with the Americans or Australians for bullion, it is evident that the precious metals would be more valuable in Poland than in England, because of the greater expense of sending so bulky a commodity as corn the more distant voyage, and also of the somewhat greater expense of conveying the gold to Poland. Had Poland succeeded in carrying her manufactures to a higher pitch of improvement than England, her merchants might be able, notwithstanding the disadvantage of distance, by exporting commodities possessed of great value in small bulk, the freight of which would be comparatively trifling, to buy bullion on cheaper terms than those of England. But when, as is actually the case, the advantages of skill and machinery are on the side of England, another reason is added to that derived from our less distance from the mines, why gold and silver should be less valuable here than in Poland, and why the money price of commodities should be higher.*

---

[*] Supposing every country to be in possession of its proper supply of bullion, the exchange may be said to be *nominally* affected by the amount of the difference between the market and mint price of bullion, and to be *really* affected by any deviation from par exceeding or falling short of that difference.

Hence, among nations which have attained to different degrees of excellence in manufacturing industry, the value of bullion does not wholly depend on their distance from the mines. But, whatever variations a different progress in the arts may occasion in its value in different countries, it is always less valuable in those into which it is imported than in those in which it is produced. Like every thing else, it is exported to find, not to destroy, its level. And unless its value in Europe exceeded its value in America and Australia by a sum sufficient to cover the expense of its importation, including ordinary profits to the importers, we should not, though the mines in these quarters were infinitely more productive, import from them a single ounce of bullion in the ordinary course of trade. It is obviously incorrect, therefore, to lay it down as a general proposition, "that the par of exchange between two countries is that sum of the currency of either of the two, which, in point of intrinsic worth, is precisely equal to a given sum of the other; *that is, contains precisely an equal weight of gold and silver of the same fineness.*"† For a given quantity of gold and silver is not always, as is here assumed, of the same intrinsic value in different countries. It may differ but little among nations bordering upon or near each other, and which are all destitute of mines. But though, to use a familiar illustration, the value of sugar approaches nearly to a level in the great trading cities of Europe, it can not surely be maintained that its value in the West Indies is as great as in Bordeaux or Liverpool, or that the exchange would be really at par, if a bill, which cost a hundred hogsheads of sugar in London, only brought a hundred in Jamaica. Now, in respect of principle, this is precisely the case with bullion. Though the values of gold and silver, compared with corn, labor, etc., may, and indeed must, vary very considerably among different nations, these variations are only the necessary result of their different progress in industry, and of the different quality of their cultivated lands, etc. Such differences of price are in the natural order of things; and bullion has not found its proper level till a quantity has been introduced into those countries which excel in manufactories, sufficient to raise the price of their corn and labor. These variations have, therefore, no influence over the exchange. Notwithstanding this difference of price, an ounce of bullion in one country, owing to the facility of intercourse, is very nearly equivalent to an ounce of bullion in another; and supposing the trade in the precious metals to be perfectly free, the exchange will be at true par when bills are negotiated on this footing. But when we compare the values of these metals in distant countries, especially in those where they are produced, with those into which they are imported, there are very considerable differences. Gold and silver, like iron, coal, tin, etc., are necessarily cheaper in countries possessed only of extraordinarily productive mines, than in those possessed only of mines of a secondary degree of fertility, or where they have to be entirely brought from abroad. And the exchange between such places is not a true par, unless adequate allowance be made for this difference of value. Thus if, because of the expense of carriage, the value of bullion in Great Britain be 5 per cent. greater than in San Francisco, 100 ounces of pure gold in the latter would not be worth 100 ounces of pure gold in London, but 5 per cent. less; and the exchange would be at true par when bills for 105 ounces standard bullion, payable in San Francisco, sold in London for 100 ounces.

The different values of the precious metals in different countries do not depend alone on their respective distances from the mines, or on their greater or less progress in the arts. The opinion formerly so very prevalent, that gold and silver were the only real wealth, led most nations to fetter and restrain their exportation, and to adopt a variety of measures intended to facilitate their importation. But these, even, when most vigorously enforced, were singularly ineffectual. The great value and small bulk of the precious metals rendered it not only advantageous, but comparatively easy, clandestinely to export them, whenever their relative value declined.

"When," says Adam Smith, "the quantity of gold and silver imported into any country exceeds the effectual demand, no vigilance of government can prevent their exportation. All the sanguinary laws of Spain and Portugal are not able to keep their gold and silver at home. The continual importations from Peru and Brazil exceed the effectual demand of those countries, and sink the price of those metals there below that in the neighboring countries. If, on the contrary, in any particular country, their quantity fell short of the effectual demand, so as to raise their price above that of the neighboring countries the government would have no occasion to take any pains to import them. If it were even to take the pains to prevent their importation, it would not be able to effectuate it. Those metals, when the Spartans had got wherewithal to purchase them, broke through all the barriers which the laws of Lycurgus opposed to their entrance into Lacedæmon. All the sanguinary laws of the customs are not able to prevent the importation of the teas of the Dutch and Gottenburg East India Companies, because somewhat cheaper than those of the British Company. A pound of tea, however, is about a hundred times the bulk of one of the highest prices, 16s., that is commonly paid for it in silver, and more than two thousand times the bulk of the same price in gold, and, consequently, just so many times more difficult to smuggle."—*Wealth of Nations*, p. 190.

But though ineffectual to prevent their egress, the restrictions on the exportation of the precious metals have, nevertheless, contributed to occasion some slight variations in their value on different countries. The risk formerly incurred by the clandestine exporters of bullion from Spain, is supposed to have been equivalent to about two per cent.; or, which is the same thing, it is supposed that the restrictions maintained such an excess of gold and silver in that country as to sink them two per cent. below their value in countries having a free trade in bullion. In calculating the true par of exchange between different countries, circumstances of this kind must be taken into account. For, to whatever extent bullion in one country may be sunk below its value in those with which it maintains an intercourse, the nominal exchange will necessarily be unfavorable to that extent. All restraints on the exportation of the precious metals was abolished in Great Britain in 1819. Their effect for many years previously could not be estimated at above one fourth per cent.

It consequently results, that whatever occasions a rise or fall in the value of the precious metals in one country affects to the same extent its nominal exchange with other countries. If more coin, or convertible paper, circulated in Great Britain, compared with the business it has to perform, than in other countries, its relative value would be proportionally less. Foreign bills would sell for a premium, the amount of which would measure the excess of the value of the precious metals in the foreign market, caused by their redundancy in the home market. And, on the other hand, in the event of our currency becoming relatively deficient, its value would be proportionally increased; bills drawn on foreign countries would sell at a discount, the amount of which would equal the excess of the value of our currency over that of other countries.

---

* Ricardo, *Principles of Political Economy*, etc., first ed., p. 175.

† *Bullion Reports*, London, p. 22, 8vo. ed.

IV. **Par of Exchange.**—In estimating the quantities of bullion contained in the coins of different countries, a particular coin of one is selected for a standard by which to compare the others, and the proportion between it and them, supposing them to be all of their standard weight and fineness, is ascertained by experiment. A par of exchange is thus established, or rather it is ascertained that a certain amount of the standard currency of one country contains as much gold or silver of the same fineness, as is contained in the coin or integer with which it has been compared. This relation, or *par*, as it is technically termed, is considered invariable; and allowance is made for subsequent variations in the coins of countries trading together, by rating the exchange at so much above or below par. In mercantile language, that country, by a comparison with one or other of whose coins the par of exchange has been established, is said to give the *certain* for the *uncertain*, and conversely. Thus in the exchange between London and Paris, London and Hamburg, etc., London gives the *certain*, or the pound sterling, for an *uncertain* or variable number of francs, florins, etc. Hence, the higher the exchange between any two countries, the more is it in favor of that which gives it the *certain*; and the lower, the more is it in favor of that which gives the *uncertain*.

On the supposition that 25 francs contain the same quantity of standard bullion as a pound sterling (25 fr. 57 cent. is about the exact par), and supposing, also, that the value of bullion is the same in both countries, the exchange between London and Paris will be at par when a bill drawn in the one on the other sells at that rate; that is, when a bill of exchange for 2500, or 25,000 francs, payable in Paris, sells in London for £100 or £1000, and *vice versâ*. It is but seldom, however, that the coins of any country correspond exactly with their mint standard. Unless when newly issued, they are either more or less worn; and whenever this defect becomes sensible, an allowance corresponding to the difference between their actual value and their mint value is made in estimating "the sum of the existing currency of either of two countries which contains precisely the same quantity of bullion as is contained in a given sum of the other." Thus, if our pound sterling were so worn, clipped, or rubbed, as not to contain so much bullion as 25 fr., but 10 per cent. less, the exchange between London and Paris would be at real par when it was nominally 10 per cent. against London;[*] and if, on the other hand, the pound sterling were equal to its mint standard, while the franc was 10 per cent. less, it would be at par when it was nominally 10 per cent. against Paris and in favor of London. If the currencies of both countries were equally reduced below the standard of their respective mints, there would obviously be no variation of the par; but whenever the currency of countries trading together is unequally depreciated, the exchange is nominally in favor of that country whose currency is least, and nominally against that whose currency is most depreciated.

It is almost unnecessary to refer to examples to show the practical operation of this principle; and we shall content ourselves with selecting the following, from an infinite number of equally conclusive instances.

Previously to the great recoinage in the reign of William III., silver being at the time legal tender, the exchange between England and Holland, calculated by the standard of their respective mints, was nominally 25 per cent. against England. Inasmuch, however, as English silver coins were then, owing to rubbing and clipping, depreciated more than 25 per cent. below their mint value, the real exchange was probably at the time in our favor. And the circumstance of the nominal exchange having become favorable to us as soon as the new coin was issued, tends to confirm this conjecture.[*]

The guinea was so much worn and degraded, previously to the gold recoinage in 1774, as to be from two to three per cent. under its standard weight. Inasmuch, however, as the coins then circulating in France were nearly of their standard weight and purity, the exchange between London and Paris was nominally from two to three per cent. against the former. We say *nominally*, for as soon as guineas of full weight were issued, the exchange rose to par.

The Turkish government, during the past century, has made successive reductions in the value of its coin. Before the first of these in 1770, the *piastre* contained nearly as much silver as the English *half-crown*; and, in exchange, the par was estimated at *eight* piastres to the pound sterling. But, in the interval, the degradation in the value of the piastre has been such that it is now worth only about 2½d.; and the exchange is said to be at par when Constantinople gives about 109 piastres for £1 sterling. It is needless, almost, to say, that the nominal exchange, estimated by the old *par* of eight piastres to £1, became more and more unfavorable to Turkey with every successive enfeeblement of the coin, though it is doubtful whether the real exchange, or that depending on the balance of payments, was not all the while in her favor.

When one country uses gold as the standard of its currency, and another silver, the par of exchange between them is effected by variations in the relative values of these metals. When gold rises as compared with silver, the exchange becomes nominally favorable to the country which has the gold standard, and *vice versâ*. And hence, in estimating the par of exchange between countries using different standards, it is always necessary to inquire into the comparative values of the metal selected as standards.

"For example," to use the words of Mr. Mushet, "if 34 schillings 11¼ grotes of Hamburg currency be equal in value to a pound sterling, or 20-21 of a guinea, when silver is at 5s. 2d. per oz., they can no longer be so when silver falls to 5s. 1d. or 5s. an oz., or when it rises to 5s. 3d. or 5s. 4d,; because a pound sterling in gold being then worth more or less silver, is also worth more or less Hamburg currency. To find the real par, therefore, we must ascertain what was the relative value of gold and silver when the par was fixed at 34s. 11¼g. Hamburg currency, and what is their relative value at the time we wish to calculate it. For example, if the price of standard gold was £3 17s. 10½d. per oz., and silver 5s. 2d., an ounce of gold would then be worth 15·07 ounces of silver, and 20 of our standard shillings would then contain as much pure silver as 35s. 11¼ grotes of Hamburg currency. But if the ounce of gold were £3 17s. 10½d., and silver 5s. (which it was on 2d January, 1798), the ounce of gold would then be worth 15·57 ounces of silver. If £1 sterling at par, therefore, be worth 15·07 ounces of silver, then at 15·57 it would be at three per cent. premium; and three per cent. premium on 34s. 11¼d. is 1 schilling 1 grote and 9-10, so that the par, when gold is to silver as 15·57 to 1, will be 36 schillings 1 grote and 1-10. The above calculation will be more easily made by stating, as 15·07 : 34–12¼ : : 15·57 : 36–1 1-10."*

---

[*] It is necessary to observe, that it is here supposed that the clipped or degraded money exists in such a degree of abundance as only to pass current at its bullion value. If the quantity of clipped money were *sufficiently limited*, it might, notwithstanding the diminution of weight, pass current at its mint value; and then the par would have to be estimated, not by its relative weight to foreign money, but by the mint price of bullion. This principle must be constantly kept in view.

[*] *Wealth of Nations*, p. 210.

As it is their intrinsic worth in bullion which determines the value of coins in exchange transactions, those of equal weight and purity are reckoned equivalent to each other, though some of them may have been coined at the expense of the state, and others charged with a duty or seigniorage on their coinage. The latter may, if not issued in excess, pass current in the country in which they are coined for their value in bullion *plus* the duty; but they will not pass anywhere else, except at their bullion value.†

But the principal source of fluctuations in the nominal price of bills of exchange, is to be found in the varying value of the *paper* currency of commercial countries. The disorders which arose in remoter ages from diminishing the bullion contained in coins of the same denomination have since been reproduced in another form, and often to a still more ruinous extent, in the depreciation of paper currency.

V. Influence of Depreciated Paper Currency on the Exchange.—The impossibility of retaining a comparatively large quantity of coin or bullion, or of paper convertible into coin, in a particular country, limited the issues of the Bank of England previously to the Restriction Act of 1797; and it has equally limited them since the resumption of specie payments in 1821, and sustained the value of the currency on a level with gold. When the bank starves the circulation, or issues less paper than is necessary, bullion is imported, sent to the mint to be coined, and thrown upon the market. And when, on the other hand, the bank issues too much paper, and thereby depresses its value relatively to gold, it becomes profitable to demand payment of its notes, and to export the specie thus obtained either as coin or as bullion. In this way the vacuum is filled up when bank-notes are deficient, the excess removed when they are redundant, and the value of the currency preserved nearly equal. But, from 1797 down to 1821, this principle was suspended. During that period, the bank was relieved from the obligation to pay her notes in gold; while, owing to their being made legal tender, their circulation was insured. Hence, their value exclusively depended on the extent to which they were issued compared with the demand. There is no difference, in its influence over the exchange, between a degraded metallic and a depreciated paper currency. And when a country with either the one or the other, has any dealings with another whose currency is of its full value, the exchange is nominally against her to the extent of the degradation or depreciation. The nominal exchange between any two or more places is, in fact, always adjusted according to the values of their currencies, being most favorable to that whose currency approaches nearest to its standard, and most unfavorable to that whose currency is most degraded or depreciated. The intercourse between Great Britain and Ireland subsequently to the restriction on cash payment in 1797, furnishes some striking proofs of the effect which inordinate issues of paper have in depressing the exchange. The nominal value of the Irish shilling being raised in 1689 from 12d. to 13d.,‡ £108 6s. 8d. Irish money became equal to only £100 of British money, so that the exchange between Great Britain and Ireland was said to be at par when it was nominally 8⅓ per cent. against the latter. In the *eight* years previous to 1797, when the paper currency of both countries was convertible into gold, the exchange between London and Dublin fluctuated from 7½ to 9 per cent., that is from 5-6 per cent. in favor of Dublin to ⅔ per cent. against it. In September, 1797, it was at 6 per cent., or 2⅓ per cent. in favor of Dublin. The amount of Bank of Ireland notes in circulation in January, 1797, was only £621,917; whereas in April, 1801, they had increased to £2,286,471, and the exchange was then at 14 per cent., or 5⅔ per cent. against Dublin. In 1803, the Bank of Ireland notes in circulation averaged £2,707,956, and in October of that year the exchange was quoted at 17 per cent., that is, 8⅔ per cent. against Dublin!

The fact of the exchange between London and Dublin having fluctuated so little from par for the eight years previously to the restriction, shows that the circulating medium of Great Britain and Ireland had then been adjusted nearly according to the wants of the two countries. But, in these circumstances, it was evidently impracticable, supposing the value of British currency to remain nearly stationary, that the amount of Irish bank-paper could be more than quadrupled in the short space of six years, without rendering the currency of Ireland redundant, and sinking its value below that of England. Had the Bank of England increased its notes in something like the same ratio as the Bank of Ireland, then, as the currency of both countries would have been equally depreciated, the exchange between London and Dublin would have continued at par. While, however, the notes of the Bank of Ireland were increased from £621,917 to £2,707,956, or in the proportion of 1 to 4·3, those of the Bank of England were only increased from £9,181,843 (their number on the 7th January, 1797), to £16,505,272, or in the proportion of 1 to 1·8. But for this addition to its issues by the Bank of England, the exchange, it is plain, would have been still more unfavorable to Dublin.

In the debates on the Bullion Report, it was contended that the increase of Bank of Ireland paper could not have been the cause of the unfavorable exchange upon Dublin, seeing that it had again become favorable after the issues of the Bank of Ireland had been still further increased. But to give this reasoning the least weight, it should have been shown that the currency of Great Britain retained its value in the interum, or that it had not been depreciated to the same extent as that of Ireland. For it is obvious that the depreciation of Irish bank-paper might go on subsequently to 1804, and yet if English bank-paper were depreciated still more rapidly, the exchange would become more in favor of Dublin. This is merely supposing the circumstances which took place in the first six years of the restriction to be reversed in the second six. Let us inquire how the fact stands.

We have seen that, in 1803, when the exchange was nominally 10 per cent. against Dublin, the issues of the Bank of England amounted to £16,505,272, and those of the Bank of Ireland to £2,707,956. And by referring to the accounts of the issues of the latter from 1797 to 1819, published by authority, it is seen that in 1805-1808 they were rather diminished; and that in 1810 they amounted to only £3,251,750, being an increase of not more than £543,794 in the space of seven years, or at the rate of 2 and 6-7 per cent. per annum; but in the same period (from 1803 to 1810) the issues of the Bank of England were increased from £16,505,272 to £22,541,523, or at the rate of 5 per cent. per annum. And this is not all. According to Mr. Wakefield, there were 50 registered bankers in Ireland in 1804, and only 33 in 1810, of which 14 were new houses, 31 of the old establishments having disappeared; and "I believe," says Mr. Wakefield "for the most part failed." This extraordinary diminution of the country paper of Ireland, for the reduction of the issues was at least proportional to the reduction in the number of banks, could not fail greatly to raise its value, and to countervail a corresponding increase in the issues of the national bank. Now, the reverse of all this took place in Britain. In 1800 there were 386 country banks in this country; and in 1810, this number, instead of being diminished as in Ireland, had increased to 721, having at least three times the number of notes in circulation in the latter as in the former period! It appears, therefore, that when, in the period between 1797 and 1804, the amount of paper in circulation in Ireland was increased, and its value depressed, faster than in England, the exchange between London and Dublin became proportionally unfavorable to the latter; and, on the other hand, it appears, that when, in the six years subsequent to 1804, the paper currency of England was increased more rapidly than that of Ireland, its relative value was diminished, and the nominal exchange became more favorable to Dublin.

---

* *An Inquiry into the effects produced on the National Currency by the Bank Restriction Bill*, etc., 2d ed., p. 94.

† Previously to 1817, no seigniorage had for a very long period been deducted from either the gold or silver coins of Great Britain; but in the great recoinage of that year, the value of silver was raised from 5s. 2d. to 5s. 6d. an ounce, or nearly in the proportion of 6½ per cent. The gold coins, however, are still coined free of expense, and no variation has been made in their standard. The proportion of silver to gold in the coins is now as 14 287-1000 to 1; but their proportion to each other, according to their mint valuation, is as 15 209-1000 to 1.

‡ By a proclamation of James II. The arrangement was continued by the revolutionary government, and was confirmed by proclamation, 29th September, 1737. But in 1825 the currencies of Great Britain and Ireland were assimilated.

This is sufficiently conclusive. But there is still better evidence to show that the unfavorable exchange of Dublin upon London, 1802, 1803, 1804, etc., was entirely owing to the comparative redundancy or depreciation of Irish bank-paper. The linen manufacturers and weavers, with the majority of the other inhabitants of a few counties in Ulster, being at the period of the restriction strongly disaffected toward government, very generally refused to receive bank-notes in payment either of commodities or wages. The landlords having also stipulated for the payment of their rents in specie, a gold currency was maintained in the northern long after it had been banished from the southern parts of Ireland. If, therefore, the depression of the exchange between London and Dublin had been occasioned, as many contended, by an unfavorable balance of trade between Ireland and Great Britain, or by remittances from the former on account of absentees, it would have been equally depressed between London and the commercial towns in the northern counties. But so far was this from being the case, that in December, 1803, when the exchange of Dublin on London was at 16¼ per cent., that of Belfast on London was at 5¼; or, in other words, at the very time that the exchange between Dublin, which had a paper currency, and London, was about 8 per. cent. against Ireland, the exchange between Belfast, which had a gold currency, and London, was about 3 per cent. in its favor. And this is not all; for while there was a difference of 11 per cent. in the rate of exchange between Dublin and London, and Belfast and London, the inland exchange between Dublin and Belfast was about 10 per cent. in favor of the latter; that is, bills drawn in Dublin, and payable in the gold currency of Belfast, brought a premium of 10 per cent., while bills drawn in Belfast, and payable in the paper currency of Dublin, sold at 10 per cent. discount!*

It is unnecessary to refer to the history of the French *assignats*, or of the paper currency of the continental powers generally, and of the United States, to corroborate what has been advanced. Such of our readers as wish for further information upon these points may have recourse to the fourth volume of the "Cours d'Enconomie Politique" of M. Storch,† where they will find an instructive account of the influence of inordinate issues of paper on the price of bullion and the exchange, in almost every country of Europe. They are, in every case, similar to those now stated. It only remains to determine the influence of fluctuations in the nominal exchange over exports and imports.

VI. Influence of Fluctuations of Exchange over Imports and Exports.—When the exchange is at par, the operations of the merchant are regulated entirely by the difference between foreign prices and home prices. He imports such commodities as sell at home for so much more than they cost abroad as will indemnify him for freight, insurance, etc., and yields, besides, an adequate remuneration for his trouble, and for the capital employed in the business; and he exports those whose price abroad is sufficient to cover all expenses, and to afford a similar profit. But when the nominal exchange becomes unfavorable to a country, the premium which its merchants receive on foreign bills has been said to enable them to export with profit, in cases where the difference between the price of the exported commodities at home and abroad might not be such as to permit their exportation with the exchange at par. Thus, if the nominal exchange were 10 per cent against this country, a merchant who had consigned goods to his agent abroad, would receive a premium of 10 per cent. on the sale of the bill; and if we suppose freight, insurance, mercantile profit, etc., to amount to 6 or 7 per cent., it would at first sight appear as if we might, in such circumstances, export commodities, although their price at home were 3 or 4 per cent. higher than in other countries. If, on the other hand, the nominal exchange were in our favor, or if bills on this country sold at a premium, it would appear as if foreigners would then be able to consign goods to our merchants, or the latter to order goods from abroad, when the difference of real prices would not of itself lead to an importation.

But a very little consideration will suffice to show that the fluctuations in the nominal exchange have no such effects. That fall in the value of the currency which renders the exchange unfavorable, and causes foreign bills to sell at a premium, equally increases the price of commodities. And hence, however great, the premium which exporters gain by selling bills on their correspondents abroad, merely indemnifies them for the enhanced price of the goods exported. In such cases, mercantile operations are conducted precisely as they would be were the exchange really at par; that is, by a comparison of real prices at home and abroad, meaning by real prices, the prices at which commodities would be sold provided there were no depreciation of the currency. If these admit of exportation or importation with a profit, the circumstance of the nominal exchange being favorable or unfavorable will make no difference whatever on the transaction.

"Suppose," says Mr. Blake, who has very successfully illustrated this part of the theory of exchange, "the currencies of Hamburg and London being in their due proportions, and therefore, the nominal exchange at par, that sugar, which, from its abundance, in London sold at £50 per hogshead, from its scarcity at Hamburg would sell at £100. The merchant in this case would immediately export. Upon the sale of his sugar, he would draw a bill upon his correspondent abroad for £100, which he could at once convert into cash by selling it in the bill market at home, deriving from this transaction a profit of £50, under deduction of the expenses of freight, insurance, commission, etc. Now, suppose no alteration in the scarcity or abundance of sugar in London or Hamburg, and that the same transaction were to take place after the currency in England had been so much increased that the prices were doubled, and, consequently, the nominal exchange 100 per cent. in favor of Hamburg, the hogshead of sugar would then cost £100, leaving apparently no profit whatever to the exporter. He would, however, as before, draw his bill on his correspondent for £100; and, as foreign bills would bear a premium of 100 per cent., he would sell this bill in the English market for £200, and thus derive a profit from the transaction of £100 depreciated, or £50, estimated in undepreciated currency—deducting, as in the former instance, the expense of freight, insurance, commission, etc.

---

* Further information on this subject may be obtained from the Report, 1804, of the Committee of the House of Commons upon the state of the circulating paper in Ireland, its specie, etc., from Sir Henry Parnell's pamphlet on the same subject; and from the pamphlets of Lord King, Huskisson, etc.

† Paris, 1823, 4 vols. 8vo.

"The case would be precisely similar, *mutatis mutandis*, with the importing merchant. The unfavorable nominal exchange would appear to occasion a loss amounting to the premium on the foreign bill which he must give in order to pay his correspondent abroad. But if the difference of real prices in the home and foreign markets were such as to admit of a profit upon the importation of produce, the merchant would continue to import, notwithstanding the premium; for that would be repaid to him in the advanced nominal price at which the imported produce would be sold in the home market.

"Suppose, for instance, the currencies of Hamburg and London, being in their due proportions, and therefore the nominal exchange at par, that linen which can be bought at Hamburg for £50 will sell here at £100. The importer immediately orders his correspondent abroad to send the linen for the payment of which he purchases at £50 a foreign bill in the English market; and on the sale of the consignment for £100, he will derive a profit amounting to the difference between £50 and the expense attending the import.

"Now, suppose the same transaction to take place without any alteration in the scarcity or abundance of linen at Hamburg and London, but that the currency of England has been so augmented as to be depreciated to half its value, the nominal exchange will then be 100 per cent. against England, and the importer will not be able to purchase a £50 foreign bill for less than £100. But as the prices of commodities here will have risen in the same proportion as the money has been depreciated, he will sell linen to the English customer for £200, and will, as before, derive a profit amounting to the difference between £100 depreciated, and £50 estimated in undepreciated money, and the expenses attending the import.

"The same instances might be put in the case of a favorable exchange; and it would be seen, in the same manner, that nominal prices and the nominal exchange being alike dependent on the depreciation of currency, whatever apparent advantage might be derived from the former, would be counterbalanced by a loss on the latter, and *vice versâ*."*

It appears, therefore, that fluctuations in the *nominal* exchange have no effect on trade. A fall in the exchange obliges the country to which it is unfavorable to expend a greater *nominal* sum in discharging a foreign debt than would otherwise be necessary; but it does not oblige it to expend a greater real value. The depression of the *nominal* exchange can neither exceed nor fall short of the comparative depreciation of the currency. If British currency were depreciated 10 or 15 per cent., the *nominal* exchange would be 10 or 15 per cent. against us; and we should be compelled, in all transactions with foreigners, to give them 22s. or 23s. for what might otherwise have been procured for 20s. But as neither 22s. nor 23s. of such depreciated paper is more valuable than 20s. of paper undepreciated, payment of a foreign debt would, it is evident, be as easily made in the one currency as in the other; and mercantile transactions would, in such circumstances, be conducted exactly as they would have been had there been no depreciation, and the *nominal* exchange at par.

VII. Real Exchange.—Having thus endeavored to trace the influence which variations in the value of currencies have over the exchange, we proceed to consider how far it is influenced *by fluctuations in the supply and demand for bills.* To facilitate this inquiry, we shall exclude all consideration of changes in the value of money, and suppose the currencies of the different countries having an intercourse together to be equal in weight and purity to their mint standards, and that each has its proper supply of bullion. When two nations trade together, and each purchases of the other commodities of the same value, their debts and credits are equal, and the real exchange is, of course, at par. But it rarely happens that the debts reciprocally due by any two countries are equal. There is almost always a balance owing on one side or other, which affects the exchange. If, for example, the debts due by London to Paris exceed those due by the former to the latter, the demand in London for bills on Paris will be greater than the demand in Paris for bills on London; and the *real* exchange will, consequently, be in favor of Paris, and against London.

The expense of transferring bullion from one country to another, limits the range within which the rise and fall of the real exchange between them is confined. In this respect, as in most others, transactions between foreign countries depend on the same principles which govern those between different parts of the same country. We have already seen that the fluctuations in the real exchange between London and Glasgow can not exceed the expense of transmitting money between those cities. And this principle holds universally. Whatever may be the expense of transmitting bullion, which is the money of the commercial world, between London and Paris, London and Hamburg, New York, etc., the real exchange of the one on the other, can not for any considerable period, be depressed to a greater extent. No merchant will pay a higher premium for a bill to discharge a debt abroad, than will suffice to cover the expense of transmitting bullion to his creditor.

Hence it appears that whatever obstructs or fetters the intercourse among different countries, proportionally widens the limits within which fluctuations in the *real* exchange may extend. And hence the reason why it varies so much more in war than in peace. The amount of the bills drawn on a country engaged in hostilities is liable, from various causes, to be suddenly increased; though, whatever may be the amounts thus thrown upon the market, the depression of the exchange can not, for any length of time, exceed the expense of conveying bullion from the debtor to the creditor country. But during war this expense, which consists of freight, insurance, etc., is sometimes much augmented. The evidence annexed to the *Report of the Bullion Committee* shows that the cost of conveying gold from London to Hamburg, which, prior to the Revolutionary war, amounted to 2 or 2½, had increased, in the latter part of 1809, to about 7 per cent.; so that the limits within which fluctuations in the real exchange might range in 1809 were about three times as great as those within which they were confined in 1793. Owing to our having the complete command of the sea, and our commerce not being subjected even to the depredations of privateers, the cost of freight and the conveyance of bullion between this country and others, has not been affected by the war in which we are now (1855) unluckily engaged. The real exchange between neighboring countries is generally, on the principle now explained, less likely to fluctuate than that between distant countries. It costs considerably less to transmit bullion from London to Dublin or Paris, than to New York or Canton. And, as fluctuations in the *real* exchange are limited by its cost, they may evidently extend proportionally further between distant places than between such as are contiguous. We have next to investigate the circumstances which give rise to a favorable or an unfavorable balance of payments, and to appreciate their effects on the real exchange, and on trade in general.

---

* Paris, 1823, 4 vols. 8vo.

VIII. BALANCE OF PAYMENTS.—A very great, if not the principal, source of the errors into which merchants, and the majority of writers on exchange, have been betrayed in regard to the balance of payments, appears to have originated in their confounding the sum which imported commodities fetch in the home market, with their cost abroad. It is obviously, however, by the amount of the latter only, that the balance of payments, and consequently the *real* exchange, is influenced. A cargo of corn, for example, which cost £3000 free on board at Odessa, may be worth £4500 when imported into England; but the foreign merchant would not, unless he sent hither the corn, be entitled to draw on London for more than its original cost, or £3000. It is clear, therefore, on the slighest consideration, that the fact of the imports being more valuable than the exports, does not authorize the conclusion that the balance of payments is against us. A favorable or an unfavorable balance depends entirely on the sum due *to* foreigners for commodities bought from them being less or more than the sum due *by* them for commodities bought from us. It has nothing to do with the prices eventually obtained for the imported or exported commodities.

The *mercantile* system of commercial policy, which continues to preserve a powerful influence in most countries, had for its grand object the creation of a favorable balance of payments, by facilitating exportation and restricting importation. It is foreign to our purpose to make any inquiry in regard to the principles of this system, except in so far as they are connected with exchanges. But it may be easily shown, in opposition to the commonly received opinions, that under ordinary circumstances the value of the imports into commercial countries always exceeds the value of their exports; and that this excess or balance has not, speaking generally, any tendency to render the real exchange unfavorable.

It is the business of the merchant to carry the products of different countries from those places where their value is least, to those places where it is greatest ; or, which is the same thing, to distribute them according to the effective demand. There could, however, be no motive to export any article, unless that which was to be imported in its stead were more valuable. When an English merchant orders a quantity of Polish wheat, he supposes it will sell for so much more than its price in Poland as will suffice to pay the cost of freight, insurance, etc., and to yield, besides, the ordinary rate of profit on the capital employed in the transfer. If the wheat did not sell for this much, its importation would be productive of loss. Merchants never export but in the view of importing articles of greater value. Instead of an excess of exports over imports being any criterion of an advantageous commerce, it is quite the reverse. And the truth is, notwithstanding all that has been said and written to the contrary, that unless the value of the imports exceeded that of the exports, foreign trade could not be carried on. Were this not the case—were the value of the exports always greater than that of the imports, there would be a loss on every transaction with foreigners, and the trade with them would either not be undertaken, or, if begun, would be speedily relinquished.

In England, the rates at which exports and imports are officially valued were fixed so far back as 1696. The very great alteration which has since taken place in the value of money, and in the cost of the greater number of the commodities of this and other countries, has rendered this official valuation, though valuable as a means of determining their quantity, of no use whatever as a criterion of the true value of the imports and exports. To obviate this defect, accounts of the *real* or *declared* value of the exports, prepared from the declarations of the merchants, are annually laid before parliament. There is, however, no such account of the imports; and it is, perhaps, impossible to frame one with any thing like accuracy. It has also been alleged, and apparently with some foundation, that merchants have frequently exaggerated the value of articles entitled to drawbacks. But the extension and improvement of the warehousing system, and the decrease in the number of drawbacks, has very materially lessened whatever fraud or inaccuracy may have arisen from that score. The declared value of the exports may now be considered as pretty near the truth, at least sufficiently so for all practical purposes.

If perfectly accurate accounts could be obtained of the value of the exports and imports, there can be no manner of doubt that in all ordinary years the latter would considerably exceed the former. The value of an exported commodity is estimated when it is shipped, before its value is increased by the expense incurred in transporting it to the place of destination; whereas the value of the commodity imported in its stead is estimated after it has arrived at its destination. and been enhanced by the charges on account of freight, insurance, importer's profits, etc.

It is of little importance, in so far at least as the interests of commerce are concerned, whether a nation carries its own imports and exports, or employs other. A carrying nation appears to derive a comparatively large profit from its commercial transactions. But this excess of profit is seldom more than a fair remuneration for the capital it employs, and the risk it incurs, in transporting commodities. Were the trade between this country and France wholly carried on in British bottoms, our merchants, in addition to the value of the exports, would also receive the cost of their carriage to France. This, however, would be no loss to the French. They must pay the freight of the commodities they import. And if English ships sail on cheaper terms than those of their own country, there is no good commercial reason, though there may be others of a different kind, why they should not employ them in preference.

In the United States, the value of the imports, deduced from the custom-house returns, almost always exceeds the value of the exports. And though we have been accustomed to consider the excess of exports over imports as the only sure criterion of an advantageous commerce, the practical politicians of America early discovered "that the real gain of the United States has been nearly in proportion as their imports have exceeded their exports."[*] The great excess of imports in the Union is in part occasioned by the Americans generally exporting their own surplus produce, and receiving from foreigners not only an equivalent for the exports, but also for the cost of their conveyance to their markets. "In 1811," says the author just quoted, "flour sold in America for $9 50 per barrel, and in Spain for $15. The value of the cargo of a vessel carrying 5000 barrels of flour would, therefore, be estimated, at the period of its exportation, at $47,500; but as this flour would, because of freight, insurance, exporter's profits, etc., sell in Spain for $75,000, the American merchant would be entitled to draw on his agent in Spain for $27,500 more than the flour cost in America, or than the sum for which he could have drawn had the flour been exported on account of a Spanish merchant. But the transaction would not end here; the $75,000 would be vested in some species of Spanish or other European goods fit for the American market; and the freight, insurance, etc., on account of the return cargo would, perhaps, increase its value to $100,000; so that, in all, the American merchant might have imported commodities worth $52,500 more than the flour originally sent to Spain." It is as impossible to doubt that this transaction is advantageous, as it is to doubt that its advantage consists in the value of the imports exceeding that of the exports. And it is clear that America might have the balance of the payments in her favor, though such transactions as the above were multiplied to any conceivable extent.

---

[*] Pitkin on the *Commerce of the United States*, 2d ed., p. 280.

Instead, therefore, of endeavoring to limit the trade with countries from which the imports exceed the exports, we should give it every possible facility. Every man considers that market as the best in which he obtains the highest price for his goods. Why then exclude him from it? Why compel a merchant to sell a cargo of muslins, iron, etc., for $10,500, rather than $11,000 or $12,000? The wealth of a state is made up of the wealth of individuals. And what more effectual method of increasing individual wealth can be devised than to permit buying in the cheapest and selling in the dearest markets?

It would be difficult to estimate the mischief which absurd notions relative to the balance of trade have occasioned in most commercial countries. They have been particularly injurious to Great Britain. The restrictions imposed on the trade in France originated in the prevalence of prejudices to which they gave rise. The great, or rather the only, argument insisted on by those who prevailed on the legislature to declare the French trade a *nuisance*,* was founded on the alleged fact, that the value of the imports from France considerably exceed the value of the exports to her. The balance was termed a tribute paid by England; and it was sagaciously asked, what had we done that we should be obliged to pay so much money to our natural enemy? Those considerate and patriotic persons seem to have supposed that our merchants brought commodities from France for no better reason than that they were French, or to oblige that ingenious people. But they were not quite so disinterested. They imported French wines, silks, and so forth, for the same reasons that they imported the sugar of the West Indies, the teas and spices of the East, and the timber of the Baltic; that is, because there was a demand for them, and because they were worth more in our markets than the native products exported in their stead. The reason assigned for prohibiting the trade affords a conclusive proof of its having been advantageous. There can not, indeed, be a doubt, that an unlimited freedom of intercourse between the two countries would be of great service to both. Supposing it to be so arranged, does any one imagine that we should export or import any commodity to or from France, provided we could either sell or buy it on better terms anywhere else? If restrictions on the trade with any particular country be not injurious, that is, if it be either a losing or a less advantageous trade than that with other countries, we may be assured that the throwing it completely open would not make a single individual engage in it.

Every body knows that these conclusions are not only theoretically true, but have been practically verified. The abolition of the discriminating duty on French wines, the reduction of the exorbitant duty on brandy, the repeal of the prohibition against importing silks, and the opening of our ports to French corn and flour, have all been advantageous. And though it be true that the prejudices of the French, and the high duties which they continue to impose on most articles of British produce, confine the trade within comparatively narrow limits, they have not made it unprofitable, and are more injurious to themselves than to us. It is a curious fact, that notwithstanding the great amount of our imports from France, and our expenditure in that country on account of absentees, the state of the exchanges shows that the balance of payments is usually in our favor. But the partisans of the exclusive or mercantile system may perhaps say, that they do not mean to contend that it is profitable to export more than is imported; but that, by exporting an access of raw and manufactured produce, the balance of payment is rendered favorable, and this balance (which they regard as representing the entire net profit made by the country on its transactions with foreigners) is alway paid in bullion. It may, however, be easily shown that this statement is altogether erroneous; that a balance, whether on the one side or the other, is seldom or never cancelled by means of bullion: and that it is not a measure, and has, indeed, nothing to do with the profit or loss attending foreign commercial transactions.

If the premium on foreign bills, in a country with an unfavorable real exchange, be less than the cost of sending bullion abroad, it would be contradictory to suppose that it should be exported. And though the premium on such bills were to increase, till it became equal to, for it can not exceed, the cost of exporting the precious metals, it does not follow that they will then be exported. That would depend on whether bullion were, at the time, the cheapest exportable commodity; or, in other words, whether a remittance of bullion was the most advantageous way in which a debt might be discharged. If a London merchant owe £1000, or other sum, in Paris, he endeavors to find out the cheapest method of paying it. On the supposition that the real exchange is 2 per cent. below par, and that the expense of remitting bullion is also 2 per cent., it will be indifferent to him whether he pays £20 of premium for a bill of £1000, payable in Paris, or incur an expense of £20 in remitting a £1000 worth of bullion direct to that city. If the price of cloth in Paris and London be such that it would require £1030 to purchase and send as much cloth to Paris as would sell for £1000, he would no doubt prefer buying a bill or exporting bullion. But if, by incurring an expense of £1010 the debtor may send as much hardware or cotton to Paris as would sell for £1000, he would as certainly prefer paying his debt by exporting the one or the other. It would save him 1 per cent. more than if he had bought a foreign bill or remitted bullion, and 2 per cent more than if he exported cloth. Had there been any other commodity which might have been exported with more advantage, he would have used it in preference.

It is obvious, therefore, that the trade in bullion is governed by the same principles which govern the trade in other things. It is exported when its exportation is advantageous; that is, when it is less valuable at home, and more valuable abroad, than any thing else; and it will not otherwise be exported. The balance of payments might be twenty or thirty millions against a country, without depriving it of a single ounce of bullion. No merchant would remit a £1000 worth of gold or silver from England to discharge a debt in Paris, if he could invest £970, £980, £990, or any sum under £1000, in any other species of merchandise which, exclusive of expense, would sell in France for that amount. Those who deal in the precious metals are as much alive to their interests as those who deal in coffee, or sugar, or indigo. But who would attempt to discharge a foreign debt by exporting coffee which cost £100, if he could effect the same object by exporting indigo which cost only £95? No bullion will ever be exported unless its value be less in the exporting country than in that to which it is sent; and unless it be, at the same time, the most advantageous article of export.

2. It is in vain to contend that an unrestricted freedom of trade might render some unfortunate country indebted to another so happily situated that it had no demand for any sort of ordinary merchandise, and would only accept of cash or bullion in exchange for its exports. A case of this sort never did, and never will, occur. It is not even possible. A nation which is in want of money must be in want of other things; for men desire money only because it is the readiest means of increasing their command over necessaries and enjoyments. The extreme variety, too, in the

---

* Prohibition Act, 1st William and Mary.

soils and climates—in the machinery, skill, and industry of the people of different countries—occasion extraordinary differences in their products and prices. Some articles of the highest utility are peculiar to certain districts. And there will ever be a demand, not only for such articles, but also for those which, though they may be produced at home, may be imported of a better quality, or at a lower price. Nor, till the passion of accumulation be banished from the human breast, will there cease to be a desire to send commodities from places where their exchangeable value is least, to those where it is greatest.

3. In treating of the nominal exchange, we endeavored to show that no single country can continue for any length of time to import or export a greater amount of bullion than may be necessary to preserve the precious metals in it in their proper relation to those of other countries; or, which is the same thing, to have the real exchange either permanently favorable or unfavorable. But though this principle be strictly true in reference to its aggregate exchange, it may be incorrect if its exchange with one country only be considered. Great Britain, for example, may generally have the exchange in her favor with America, provided she have it generally, and to a nearly equal extent, against her with the East Indies, or some other country. "She may," to use the words of Mr. Ricardo, "be importing from the north the bullion which she is exporting to the south. She may be collecting it from countries where it is relatively abundant, for others where it is relatively scarce, or where, from some particular causes, it is in great demand. Spain, who is the great importer of bullion from America, can never have an unfavorable exchange with her colonies; and as she must distribute the bullion she receives among the different nations of the world, she can seldom have a favorable exchange with the countries with which she trades." See Reply to Mr. Bosquet's Observations on the Report of the Bullion Committee, p. 17.

On this principle, Lord King successfully accounted for the favorable exchange between this country and Hamburg from 1770 to 1799. He showed that the importation of bullion from Hamburg and other parts was not more than equivalent to the exports to the East Indies and the home consumption; that the demand corresponded to the supply; and that its value remained pretty stationary. The extraordinary influx of bullion into this country from the Continent at the era of the bank restriction in 1797, and the favorable state of the exchange, were undoubtedly owing to the reduction in the issues of bank paper, and to the diminution of the gold currency, caused by the hoarding of guineas. In 1797 and 1798, above 5,000,000 of guineas were coined at the mint; and this extraordinary demand for gold is of itself abundantly sufficient to account for the very favorable exchange of that period, and for the length of time during which it continued. But, at the same time that the demand for gold bullion for the mint was thus increased, the demand for silver bullion, for exports to India, was proportionally augmented.

	Ounces.
In 1795, the quantity exported by the East India Company and private parties amounted to	151,795
In 1796 to	290,777
1797	962,880
1798	3,565,691
1799	7,287,327

From this period the exportation rapidly declined; and in the years in which the exchange was most unfavorable, little or no silver was sent to India.

Instead, therefore, of the extraordinary importation of bullion from Hamburg in 1797 and 1798 affording, as Mr. Bosanquet and others supposed, a practical proof of the fallacy of the opinion of those who contend that it is impossible, for any length of time, to subvert the natural equality in the value of bullion in different countries, it is a striking example of its truth. Without this influx, bullion in this country could not have maintained its proper comparative value. We imported it, because the reduction of the paper currency, and the increased exports of the East India Company, rendered its value higher here than on the Continent, and made it advantageous for the Continental merchants to send it to us, in the same manner as they would have sent corn, or any thing else for which we had an unusual demand. For, however favorable the real exchange between Hamburg and London might have been to the latter, we should not have imported an ounce of bullion, had it not been, at the time, the article with which Hamburg could most advantageously discharge her debt to London.

4. In the absence of other arguments, it would be sufficient to state, that it is physically impossible that the excess of exports over imports, as indicated by the custom-house returns, should be paid in bullion. Every country, with the exception of the United States, has its apparently favorable balance; and, of course, if they really existed, they would have to be paid by an influx of bullion from the mines correspondent to their aggregate amount. It is certain, however, that, previously to the discoveries in California and Australia, the entire produce of the mines, though it had been increased in a ten fold proportion, would have been insufficient for this purpose! This fact is decisive of the degree of credit which ought to be attached to the commonly-received opinions on this subject.

5. In the last place, the profit on transactions with foreigners does not consist in the quantity of bullion imported from abroad, but in "the excess of the value of the imports over the value of the exports." If, in return for exported commodities worth 10 or 20 millions, we import such as are worth 15 or 30, we shall gain 50 per cent. by the transaction, though the exports should consist entirely of bullion, and the imports of corn, sugar, coffee, etc. It is a ridiculous prejudice that would make bullion be imported rather than any other article. But whatever the partisans of the exclusive system may say about its being a preferable product, a *merchandise par excellence*, we may be assured that it will seldom appear in the list of exports or imports, while there is any other thing with which to carry on trade that will yield a larger profit. Thus it appears that the excess of exports over imports, instead of being any proof of an advantageous commerce, is distinctly and completely the reverse; that the value of the imports into commercial countries may, and almost always does, exceed the value of their exports, without rendering them indebted to foreigners; and that when a balance of debt has been contracted, that is, when the sum *payable to* foreigners for imports is greater than the sum *receivable from* them for exports, bullion will not be sent from the debtor to the creditor country, unless it be at the time the most profitable article of export.

IX. Effects of Real Exchange upon Imports and Exports.—We have shown that fluctuations in the nominal exchange do not influence foreign trade. When the currency is depreciated, the premium which an exporter derives from the sale of bills on his correspondent abroad, is barely equivalent to the increase in the price of the exports, occasioned by the depreciation. But when the premium on foreign bills is not caused by a fall in the value of money, but by a deficient supply of bills, there is no rise of prices, and then the unfavorable exchange undoubtedly operates as a stimulus to exportation. As soon as the *real* exchange diverges from par, the mere inspection of price currents is no longer enough to guide the operations of the merchant. If it be unfavorable, the premium which the exporters receive on the sale of bills must be included in the estimate of the profit they are likely to derive from the transaction. The greater that premium, the less will be the difference of prices necessary to make them export. An unfavorable *real* exchange has, in truth, exactly the same effect on exportation as a bounty equal to the premium on foreign bills.

But for the same reason that an unfavorable *real* exchange increases exportation, it diminishes importation. When it is unfavorable, the prices of foreign products brought to our markets must be so much under their prices here, as not merely to afford, exclusive of expenses, the ordinary profit on their sale, but also to pay the premium which the importer must give for a foreign bill, if he remit one to his correspondent, or for the discount added to the invoice price, if the latter draw upon him. A less quantity of foreign goods will therefore suit our markets when the exchange is really unfavorable; and fewer payments having to be made abroad, the competition for foreign bills is diminished, and the exchange rendered proportionally favorable. A favorable *real* exchange, consequently, operates as a duty on exportation and a bounty on importation.

Hence it is obvious that fluctuations in the *real* exchange have a necessary tendency to correct themselves. They can never, for any considerable period, exceed the expense of transmitting bullion from the debtor to the creditor country. And the exchange can not continue permanently favorable or unfavorable even to this extent. When favorable, it corrects itself by restricting exportation and facilitating importation; and when unfavorable, it produces the same effect by stimulating exportation and obstructing importation. The true PAR forms the centre of these oscillations. And though the thousand circumstances which daily and hourly affect the state of debt and credit, prevent the ordinary course of exchange from being almost ever precisely at par, its fluctuations, whether on the one side or the other, are confined within certain limits, and have a constant tendency to disappear. The natural tendency which the exchange has to correct itself is powerfully assisted by the operations of the bill merchants.

England, for example, may owe an excess of debt to Amsterdam, yet, as the aggregate amount of the debts due by a commercial country, is generally balanced by the amount of those which it has to receive, the deficiency of bills on Amsterdam in London will most probably be countervailed by their redundancy in some other quarter. And, it is the business of the merchants who deal in bills, as of those who deal in bullion or any thing else, to buy them where they are cheap, that they may sell them where they are dear. They, therefore, buy up the bills drawn by other countries on Amsterdam, and dispose of them in London; and, by so doing, prevent any great fall in the price of bills on the former in the countries in which their supply exceeds the demand, and any great rise in Great Britain and the country in which their supply happens to be deficient. In our trade with Italy, the bills drawn on England generally amount to a greater sum than those drawn on Italy. The bill merchants, however, by buying up the excess of Italian bills on London, and selling them in France, Holland, and other countries indebted to England, prevent the *real* exchange from being much depressed.

An unusual deficiency in the supply of corn, or of any article of prime necessity, by causing a sudden augmentation of imports, materially affects foreign debts and credits, and depresses the exchange. In time of war, the balance of payments is liable to be still further disturbed; the amount of the bills drawn on a country carrying on foreign hostilities, being increased by the whole expense of its armaments abroad, and of subsidies to foreign powers. But neither the conjoined nor separate influence of both or either of these causes has any permanent influence over the exchange. A sudden increase in the accustomed supply of bills must, in the first instance, by glutting the market, occasion their selling at a discount; but this effect will only be temporary. The unusual facilities which are then afforded for exportation, and the difficulties which are thrown in the way of importation, never fail speedily to bring the *real* exchange to par.

During a period of peace we may, in the too great ardor of speculative enterprise, export an excess of produce, overload the foreign market, and occasion such a decline in the price of our goods abroad, as to make the imports less valuable than the exports with which they have been purchased. But such a state of things can only be of limited duration. The distress of which it is productive, assisted by the fall of the exchange, occasions a diminution of exports. The supply of our commodities in the foreign markets is rendered more nearly commensurate with the demand; till in no long time the value of the imports again exceeds, as it always ought to do, the value of the exports. But when a country has a large foreign expenditure to sustain, its exports are proportionally augmented. Whatever may have been the foreign expenditure of Great Britain during the late war, it is evident that it could not be defrayed otherwise than by our annually exporting an equal amount of the produce of our land, capital, and labor, for which payment was not received, as in ordinary cases, by a corresponding importation of foreign commodities, but from the treasury at home. This is strictly true, even though the expenditure should have happened to be, in the first instance, discharged by remittances of bullion; for the increased supply of bullion which was thus required, could be obtained only by an equally increased exportation of other products to the countries possessed of mines, or from which it was imported. Foreign expenditure, by increasing exports in proportion to its own amount, has no permanent influence over the exchange.

Thus it appears that an excess of exports, instead of being any criterion of increasing wealth at home, is only a certain indication of commercial losses, or of expenditure abroad. "When," says Mr. Wheatley, "the exports exceed the imports, as they must do when there is a large foreign expenditure, the equivalents for the excess are received abroad in as full and ample a manner as if the produce which they purchased were actually imported and entered in the custom-house books, and afterward sent to the seat of war for consumption. But from the circumstance of its not being inserted in the custom-house entries as value received against the produce exported for its payment, the latter is deemed to constitute a favorable balance, when it is in reality exported to liquidate a balance against us." *

But how conclusive soever this reasoning may appear, it has been said to be at variance with the fact; and the rise of the exchange at the end of the late war, during the suspension of cash payments, has been appealed to as showing that its previous low rate had not been occasioned by any depreciation of the paper currency, but by the excessive amount of the bills drawn upon this country to defray war expenditure. The question, however, is not whether the exchange recovered from its depression during the suspension of cash payments, for the influence of that measure depended entirely on the use made of it, but whether its recovery took place without the amount of bank paper of all sorts, or of the currency, being diminished? The statements made in the article MONEY are decisive upon this point. They show that the currency was very greatly diminished in 1814, 1815, and 1816; and that this diminution occasioned the rise in its value, and in the nominal exchange.

Mr. Francis Horner, the well-informed chairman of the Committee on the High Price of Bullion, made the following statement in regard to this very question in his place in the House of Commons: "From inquiries he had made, and from the accounts on the table, he was convinced that a greater and more sudden reduction of the circulating medium had never taken place in any country than had occurred since the peace of this country, with the exception of those reductions that had taken place in France after the Mississippi scheme, and after the destruction of the assignats. The reduction of the currency had originated in the previous fall of the prices of agricultural produce. That fall had produced a destruction of country-bank paper to an extent which would not have been thought possible, without more ruin than had actually ensued. The Bank of England had also restricted its issues. As appears by the accounts recently presented, the average amount of its currency was not, during the last year, more than between £25,000,000 and £26,000,000; while two years ago it had been nearer £29,000,000, and at one time even amounted to £31,000,000. But, without looking to the diminution of Bank of England paper, the reduction of the country paper was enough to account for the rise which had taken place in the exchange." Hence it appears that the rise of the exchange in 1815 and 1816 had nothing, or but little, to do with the cessation of hostilities, and was entirely, or mainly, a consequence of the increased value of the currency, caused by the reduction of its quantity. Instead of being at variance with the principles we have been endeavoring to elucidate, this fact affords a strong confirmation of their correctness. And having been sanctioned by the fullest experience, may be considered as beyond the reach of cavil and dispute. An objection of a different sort has been made, to another part of the theory maintained in this section, which it may be proper to notice.

---

* WHEATLEY, *on the Theory of Money*, p. 219.

When the exchange becomes unfavorable, the premium, procured by the sale of the bill drawn on a foreign merchant to whom bullion has been consigned, is no greater than would be obtained by consigning to him an equivalent amount of coffee, tea, sugar, indigo, etc. An unfavorable real exchange permits a merchant to export commodities which could not be exported were it at par, or favorable. But the advantage still remains of exporting those commodities in preference, whose price in the country from which they are sent, compared with their price in that to which they are exported, is lowest. Suppose, for example, that the expense of transmitting bullion from this country to France is 3 per cent., that the real exchange is 4 per cent. against us, that the price of bullion is the same in both countries, and that coffee exclusive of the expenses of carriage, is really worth 4 per cent. more in France than in England. In such a case, it is obvious that the exporters of bullion would realize a profit of only 1 per cent., while the exporters of coffee would realize, inclusive of the premium on the sale of the foreign bill, a profit of 7 per cent. And hence the opinion maintained by Colonel Torrens,* that when the exchange becomes unfavorable, those commodities which contain the greatest value in the smallest bulk, or on which the expense of carriage is least, are exported in preference, appears to have no good foundation. The prices of the commodities which nations trading together are in the habit of exporting and importing, are regulated not merely by the cost of their production, but also by the expense of their carriage from where they are produced to where they are consumed. If Great Britain were in the habit of supplying France with cottons and bullion, the average price of cottons in France, because of the expense required to convey them there, would probably be from 5 to 6 per cent. higher than in Britain; while, because of the comparative facility with which bullion may be transported from the one to the other, its value in Paris would not, perhaps, exceed its value here more than 1 per cent. Now, suppose that when the prices of cottons and bullion in England and France are adjusted according to their natural proportions, the real exchange, becomes unfavorable to us, it is clear that its fall gives no greater advantage to the exporters of bullion than to those of cottons. This rise in the price of foreign bills does not increase the expense of exporting the one or the other. It leaves the cost of their reduction and transportation exactly where it found it. During the depression of the exchange, the exporters of both articles get the premium on the bills drawn on their correspondents. But there is no inducement to export bullion in preference to cottons, unless the price of bullion increase more rapidly in France, or decline more rapidly in Great Britain, than that of cottons.

Whatever, therefore, may be the depression of the exchange, the merchant selects those commodities for exportation which, exclusive of the premium, yield the greatest profit on their sale. If bullion be one of these, it will of course be exported; if not, not. But of all commodities, bullion is that of which the value approaches nearest to an equality in different countries, so that it is the least likely to be exported during an unfavorable exchange. The demand for it is comparatively steady, and no great surplus quantity could be imported into one country without reducing, or exported from another, without raising its value so as to unfit it either for exportation or importation. In most cases a small part only of an unfavorable balance is paid in bullion. The operations of the bullion merchants are confined chiefly to the distribution of the fresh supplies obtained from the mines, in proportion to the wants of different countries.

X. Computed Exchange.—Having thus endeavored to point out the manner in which variations in the values of the currencies of nations trading together, and in the supply and demand for bills, separately affect the exchange, it now only remains to ascertain their combined effect, or the computed or actual course of exchange. From what has been already stated, it is obvious, that when the nominal and real exchange are both favorable or both unfavorable, the *computed* exchange will express their *sum*; and that when one is favorable and the other unfavorable, it will express their *difference*. When, for example, the currency of Great Britain is of the mint standard and purity, while that of France is 5 per cent. degraded, the *nominal* exchange will be 5 per cent. in our favor. But the *real* exchange may, at the same time, be either favorable or unfavorable. If it be, also, favorable to the extent of 1, 2, 3, etc., per cent., the computed exchange will be 6, 7, 8, etc., per cent. in our favor. And, on the other hand, if it be unfavorable to the extent of 1, 2, 3, etc., per cent., the *computed* exchange will be only 4, 3, 2, etc., per cent. in our favor. When the *real* exchange is in favor of one country, and the *nominal* exchange equally against it, the *computed* exchange is at par, and *vice versâ*.

A comparison of the market with the mint price of bullion affords the best and readiest means by which to ascertain the state of the exchange. When there are no restrictions on the trade in the precious metals, the excess of the market over the mint price of bullion affords an accurate measure of the depreciation of the currency. If the market and mint price of bullion at Paris and London exactly corresponded, then, inasmuch as the real value of bullion must be very nearly the same in both countries, the *nominal* exchange would be at par; and whatever fluctuations the computed exchange might exhibit, must, in such cases, be traced to fluctuations in the *real* exchange, or in the supply and demand for bills. If, when the market price of bullion in Paris is equal to its mint price, it exceeds it 2 per cent. in London, it is a proof that our currency is 2 per cent. depreciated, and consequently the *nominal* exchange between Paris and London *must* be 2 per cent. against the latter. Instead, however, of the *computed* or actual course of exchange being 2 per cent. against London, it may be against it to a greater or less extent, or in its favor. It will be more against it provided the *real* exchange be also unfavorable; it will be less against it provided the *real* exchange be in favor of London, though to a less extent than the adverse *nominal* exchange; and it will be in favor of London, should the favorable *real* exceed the unfavorable *nominal* exchange. Thus, if, while British currency is 5 per cent. depreciated, and French currency at par, the computed or actual course of exchange between Paris and London were 10 or 12 per cent. against the latter, it would show that the *real* exchange was also against this country to the extent of 5 or 7 per cent. And if, on the other hand, the computed exchange were only 2 or 3 per cent. against London, it would show that the *real* exchange was 3 or 4 per cent. in its favor, and so on.

---

* *Comparative Estimate*, etc.

It has been already shown, that in so far at least as the question of exchange is involved, the differences in the value of bullion in different countries are limited by the expense of its transit from one to another. And hence, by ascertaining whether a particular country exports or imports bullion to or from other countries, we may determine its comparative value in these countries. Suppose, for example, that the expense of conveying bullion from this country to France, including the profits of the bullion dealer, is 1 per cent.; it is clear, inasmuch as bullion is exported only to find its level, that whenever our merchants begin to export it to France, its value there must be at least 1 per cent. greater than in England; and, on the contrary, when they import bullion from France, its value here must be, at least 1 per cent. greater than in France. In judging of the exchange between any two countries, this circumstance should always be attended to. If no bullion be passing from the one to the other, we may conclude that its value is nearly the same in both; or, at all events, that the difference of its value is not more than the expense of transit. On the supposition that the entire expense, including profit, of conveying bullion from San Francisco to London is 5 per cent., and that London is importing bullion, it is clear, provided the real exchange be at par, and the currency of both cities at their mint standards, that the *nominal*, or, which in this case is the same thing, the *computed* exchange, will be 5 per cent. in favor of London, but if the currency of London be 5 per cent. depreciated, or, in other words, if the market price of bullion at London be 5 per cent. above its mint price, the *computed* exchange between it and San Francisco, supposing the *real* exchange to continue at par, will obviously be at par. It may therefore be laid down as a general rule, that when bullion begins to pass from one country to another, the expense of transit, provided the mint and market price of bullion in the exporting country correspond, will indicate how much the value of bullion in it is below its value in the country into which it is imported, and will be identical with its unfavorable *nominal* exchange; and that when the market exceeds the mint price of bullion in the exporting country, the expense of transit added to this excess will give the total comparative reduction of the value of the precious metals in that country. The converse of this takes place in the country importing bullion. When its currency is of the mint standard, the expense of transit is the measure of its favorable nominal exchange; but when its currency is relatively redundant or degraded, the difference between the expense of transit and the excess of the market above the mint price of bullion, will measure the extent of the favorable or unfavorable nominal exchange. It will be favorable when the depreciation is less than the expense of transit, and unfavorable when it is greater.

From 1809 to 1815 inclusive, Great Britain continued to export gold and silver to the Continent. During this period, therefore, we must add the expense of its export to the excess of the market over the mint price of bullion, to get at the true relative value of British currency, and the state of the *real* exchange. Mr. Goldsmid stated to the bullion committee that, during the last five or six months of 1809, the expense of transporting gold to Holland and Hamburg, including freight, insurance, exporter's profits, etc., varied from 4 to 7 per cent. But at the time that the relative value of bullion in Britain was at 5½ (medium of 4 and 7) per cent. below its value in Hamburg, the market price of gold bullion exceeded its mint price 16 or 20 per cent., or 18 per cent. at an average; so that the currency of this country, as compared with that of Hamburg, which differed very little from its mint standard, was depreciated to the extent of about 23½ per cent. Now, as the *computed* or actual course of exchange varied, during the same period, from 19 to 21 per cent. against London, it is plain the *real* exchange could not be far from par. Had the *computed* exchange been less unfavorable, it would have shown that the *real* exchange was in favor of London; had it been more unfavorable, it would, on the contrary, have shown that the *real* exchange was against London.

Provided an accurate account could be obtained of the expense attending the transit of bullion from this country to the Continent during the subsequent years of the war, it would most likely be found, notwithstanding the extraordinary depression of the *nominal*, that the *real* exchange varied but little from par; and that the exportation of gold and silver was not a consequence of the balance of payments being against us, but of its being advantageous to export bullion, because of its being more valuable on the Continent. None will contend that, in 1809, 1810, etc., gold and silver were so redundant in this country as to sink their relative value. Any such supposition is out of the question. During the period referred to, they were sent abroad, because the depreciation of paper exceeded the cost of the transit of bullion; and it was every body's interest to pay their debts in the depreciated currency, and to export that which was undepreciated to countries where it passed at its full value as coin, or in which bullion was in greater demand. Had our paper currency been sufficiently reduced, the supply of gold in the kingdom in 1809, 1810, etc., compared with the demand which must, under such circumstances, have been experienced, was so very small, that instead of exporting, we should have imported the precious metals from all parts of the world.

The extraordinary exportation of British goods to the Continent during the latter years of the war, has been very generally supposed to have been in great measure owing to the depression of the exchange. But, in so far as this depression was occasioned by the redundancy or depreciation of the currency, it could have no such effect. It is impossible, indeed, to form any opinion as to the influence of fluctuations in the *computed* exchange on export and import trade, without previously ascertaining whether they are a consequence of fluctuations in the *real* or *nominal* exchange. It is only by an unfavorable *real* exchange that exportation is facilitated; and it may be favorable when the *computed* exchange is unfavorable. "Suppose," to use an example given by Mr. Blake, "the computed exchange between Hamburg and London to be 1 per cent. against this country, and that this arises from the *real* exchange which is favorable to the amount of 4 per cent., and a nominal exchange unfavorable to the extent of 5 per cent.; let the real price of bullion at Hamburg and London be precisely the same, and, consequently, the *nominal* prices different by the amount of the *nominal* exchange, or 5 per cent.; now, if the expenses of freight, insurance, etc., on the transit of bullion from Hamburg are 3 per cent., it is evident that a profit would be derived from the import of that article, notwithstanding the *computed* exchange was 1 per cent. against us. In this case, the merchant must give a premium of 1 per cent. for the foreign bill, to pay for the bullion; £100 worth of bullion at Hamburg would therefore cost him £101, and the charges of importation would increase the sum to £104. Upon the subsequent sale, then, for £105 of depreciated currency in the home market, he would derive from the transaction a profit of £1. This sum is precisely the difference between the *real* exchange and the expenses of transit, that part of the *computed* exchange which depends on the *nominal* producing no effect; since whatever is lost by its unfavorable state is counterbalanced by a corresponding inequality of *nominal* prices."* In the same manner it may be shown that, though the *computed* be favorable, the *real* exchange may be unfavorable; and that, consequently, it may be really advantageous to export when it is apparently advantageous to import. But it would be tedious to multiply instances, which, as the intelligent reader will readily conceive, may be infinitely varied, and which have been sufficiently explained in the foregoing sections.

The real cause of the extraordinary importation of British produce into the Continent, in 1809, 1810, 1811, etc., notwithstanding the anti-commercial system of Napoleon, is to be found in the annihilation of the neutral trade, and our monopoly of the commerce of the world. The entire produce of the East and West was at our disposal. The Continental nations could neither procure colonial products, nor raw cotton for the purpose of manufacturing, except from England. British merchandise was thus almost indispensable; and to this our immense exportation, in spite of all prohibitions to the contrary, is to be ascribed.

XI. History and Influence of Bills of Exchange.—It is not easy to discover the era when bills of exchange were first employed to transfer and adjust the mutual claims and obligations of merchants. Their invention has been ascribed to the Arabians and Jews of the Middle Ages. But it seems certain that they were in use in remote antiquity. Isocrates states that a stranger who brought some cargoes of corn to Athens, furnished a merchant of the name of Stratocles with an order or bill of exchange on a town on the Euxine, where money was owing to him; and, because the person who had drawn the bill had no fixed domicile, Stratocles was to have recourse on a merchant in Athens, in the event of its being protested. The merchant, says Isocrates, who procured this order found it extremely advantageous, inasmuch as it enabled him to avoid risking his fortune on seas covered with pirates, and the hostile squadrons of the Lacedemonians.—*De Pauw Recherches sur les Grècs*, i., 258.

There is also good evidence to show that the method of transferring and canceling the debts of parties residing at a distance by means of letters of credit, which are in effect the same as bills of exchange, was not unknown to the Romans. Cicero, in one of his epistles to Atticus,† inquires whether his son must carry cash to defray the expense of his studies with him to Athens, or whether he might not save this trouble and risk by obtaining an assignment for an equivalent sum from a creditor in Rome on his debtor in Athens. It is evident, from a subsequent epistle of Cicero, that the latter method had been preferred, and that the transference of the money had, in consequence, been rendered unnecessary.‡

Macpherson states§ that the first mention of bills of exchange in modern history occurs in 1255. The pope, having quarreled with Manfred, King of Sicily, engaged, on Henry III. of England agreeing to indemnify him for the expense, to depose Manfred, and raise Henry's second son, Edmund, to the Sicilian throne. The enterprise misgave. But the merchants of Sienna and Florence, who originally advanced the money to carry it into effect, or rather to gratify the pope's rapacity, were paid by bills drawn on the prelates of England, who, although they protested that they knew nothing at all about the transaction, were nevertheless compelled, under pain of excommunication, to pay the bills and interest!*

Capmany, in his "Memoirs" respecting the commerce, etc., of Barcelona, gives a copy of an ordonnance of the magistracy, dated in 1394, enacting that bills should be accepted within twenty-four hours after their presentation; a sufficient proof that they were in general use in the end of the fourteenth century.

But whatever be the era of the introduction of bills of exchange, few inventions have redounded more to the public advantage. Without this simple and ingenious contrivance, commerce could have made no great progress. Had there been no means of adjusting the mutual claims of debtors and creditors otherwise than by the intervention of metallic money (for bank paper is only another species of bills of exchange), a very large portion of that capital which is setting productive labor in motion in every quarter of the globe, and ministering to the wants and enjoyments of mankind, must have been employed in effecting those exchanges which are much better effected by the agency of a few quires of paper. Instead of a perpetual importation and exportation of gold and silver, necessarily attended with an immensity of trouble and expense, bills, possessing little or no intrinsic worth, and which are transferred with the utmost facility, suffice to adjust the most extensive and complicated transactions. But the mere setting free of an immense productive power, engaged in a comparatively unprofitable employment, is only one of the many benefits we owe to the use of bills. By cheapening the instruments by which commerce is carried on, they have materially reduced the prices of most articles; and have, in consequence, increased the command of all classes over necessaries and luxuries, and accelerated the progress of civilization, by occasioning a more extensive intercourse and intimate connection between different and independent countries than would otherwise have taken place.

In a political point of view their effects have been equally salutary. They enable individuals imperceptibly to transfer their fortune to other countries, and to preserve it safe alike from the rapacity of their own governments and the hostile attacks of others. The security of property has, in consequence, been vastly augmented. And though we should concede to the satirist that paper credit has "lent corruption lighter wings," it has, at the same time, powerfully contributed to render subjects less dependent on the policy, and less liable to be injuriously affected by the injudicious measures of their rulers. In countries in a low stage of civilization the inhabitants endeavor, by burying all the gold and silver they can collect, to preserve a part of their property from the despots by whom they are alternately plundered and oppressed. This was universally the case in the Middle Ages; and in Turkey, India, Persia, and other eastern, and also in some European countries, the practice is still carried on to a greater or less extent. Some economists have endeavored to account for the long-continued importation and high value of the precious metals in India, by the loss which necessarily attends the practice of hoarding; and undoubtedly this locking-up of capital, while it evinces an extreme degree of insecurity, is a main cause of the poverty of these countries. But the security afforded by bills of exchange is infinitely greater than any which can be derived from the barbarous expedient of trusting property to the bosom of the earth. "Pregnant with thousands flits the *scrap* unseen," and in a moment places the largest fortune beyond the reach of danger. Mr. Harris was therefore right in saying, "that the introduction of bills of exchange was the greatest security to merchants, both as to their persons and effects, and consequently the greatest encouragement to commerce, and the greatest blow to despotism, of any thing that ever was invented."

---

* Observations, etc., p. 91.

† *Epist. ad Atticum*, xii. 2.

‡ *Epist. ad Atticum*, xii. 27. "De Cicerone, ut scribis, ita faciam: ipsi permittam de tempore; nummorum quantum opus erit ut *permutetur* tu videbis." In his notes on a parallel passage, Grævius remarks, "*Permutatio* est quod nunc barbare *cambium* dicitur."—*Epist. ad Atticum*, xi. 24.

§ *Annals of Commerce*, i. 405.

* Hume's *England*, cap. 12.

Its extensive commerce, the wealth and punctuality of its merchants, and their intimate connection with all the other great trading cities of the world, made Amsterdam, previously to the peace of 1763, the chief place where the accounts of commercial countries were balanced and adjusted. But the loss of foreign trade, and the other vexations to which Holland was subjected during the ascendency of the French, nearly divested Amsterdam of all share in this business; and it has not since recovered its former superiority. London is now the trading metropolis of Europe and the world, *universi orbis terrarum emporium.* The vast extent of its commercial dealings necessarily renders it the great mart for bills of exchange. Its bill-merchants, a class of men remarkable for their shrewdness and generally possessed of large capitals, assist in trimming and adjusting the balance of debt and credit between the most remote countries. They buy up bills where they are cheap, and sell them where they are dear, and, by the extent of their correspondence and the magnitude of their transactions, give a steadiness to the exchange to which it could not otherwise attain.

The following is a statement of the usance and days of grace for bills drawn at London upon some of the principal commercial cities:

London on	Usance.	Days of grace.
Amsterdam	1 m. d.*	0
Rotterdam	1 m. d.	0
Antwerp	1 m. d.	0
Hamburg	1 m. d.	12
Altona	1 m. d.	12
Dantzic	14 d. a.	10
Paris	30 d. d.	0
Frankfort	14 d. s.	4
Bremen	1 m. d.	8
Barcelona	60 d. d.	14
Geneva	30 d. d.	6
Madrid	2 m. s.	14
Cadiz	60 d. d.	5
Bilboa	2 m. d.	14
Gibraltar	2 m. s.	14
Leghorn	3 m. d.	0
Leipzig	14 d. a.	0
Genoa	3 m. d.	30
Venice	3 m. d.	6
Vienna	14 d. a.	3
Malta	30 d. d.	13
Naples	3 m. d.	3
Palermo	3 m. d.	0
Lisbon	30 d. s.	6
Oporto	30 d. s.	6
Rio Janeiro	30 d. d.	6
Dublin	21 d. s.	3
New York	60 d. s.	3

* m. d., m. s., d. d., d. s., d. a., respectively denote *months after date, months after sight, days after date, days after sight, days after acceptance.*

In France, days of grace were suppressed by the *Code de Commerce*, article 135. In Austria, bills payable at sight, or on demand, or at less than 7 days after sight or date, are not allowed any days of grace. In Petersburg, bills after date are allowed 10 days' grace, but after sight only 3 days' do.

In the dating of bills, the new style is used in every country of Europe, with the exception of Russia. A proposition is now before the Russian government for the adoption of the Gregorian calendar.

In London, bills of exchange are bought and sold by brokers, who go round to the principal merchants and discover whether they are buyers or sellers of bills. A few of the brokers, of most influence, after ascertaining the state of the relative supply and demand for bills, suggest a price at which the greater part of the transactions of the day are settled, with such deviations as particular bills, from their being in a very high or low credit, may be subject to. The price fixed by the brokers is that which is published in Wittenhall's List; but the first houses generally negotiate their bills on ½, 1, 1½, and 2 per cent. better terms than those quoted. In London and other great commercial cities, a class of middlemen speculate largely on the rise and fall of the exchange; buying bills when they expect a rise, and selling them when a fall is anticipated.

It is usual, in drawing foreign bills of exchange, to draw them in sets, or duplicates, lest the first should be lost or miscarry. When bills are drawn in sets, each must contain a condition that it shall be payable only while the others remain unpaid; thus, the first is payable only, "second and third unpaid;" the second, "first and third unpaid;" and the third, "first and second unpaid."

Bills of exchange purporting to be drawn at any place out of the United Kingdom are to be deemed to be liable to the stamp-duty on such bills, though they may, in fact, have been drawn in the United Kingdom. (§ 4.) The holders of foreign bills, or bills drawn out of the United Kingdom, are to affix proper adhesive stamps to the same before negotiating them, under a penalty of £50. (§ 5.)

No one acquainted with the fundamental rules of arithmetic can have any difficulty whatever in estimating how much a sum of money in one country is worth in another, according to the state of exchange at the time. The common arithmetical books abound in examples of such computations. But, in conducting the business of exchange, a direct remittance is not always preferred. When a merchant in London, for example, means to discharge a debt due by him in Paris, it is his business to ascertain not only the state of the direct exchange between London and Paris, and, consequently, the sum which he must pay in London for a bill on Paris equivalent to his debt, but also the state of the exchange between London and Hamburg, Hamburg and Paris, etc.; for it frequently happens that it may be more advantageous for him to buy a bill on Hamburg, Amsterdam, or Lisbon, and to direct his agent to invest the proceeds in a bill on Paris, rather than remit directly to the latter. This is termed the Arbitration of exchange. An example or two will suffice to show the principle on which it is conducted.

Thus, if the exchange between London and Amsterdam be 35s. Flemish (old coinage) per pound sterling, and between Paris and Amsterdam 1s. 6d. Flemish per franc, then, in order to ascertain whether a direct or indirect remittance to Paris would be most advantageous, we must calculate what would be the value of the franc in English money if the remittance were made through Holland; for it be less than that resulting from the direct exchange, it will obviously be the preferable mode of remitting. This is determined by stating, as 35s. Flemish (the Amsterdam currency in a pound sterling): 1s. 6d. Flemish (Amsterdam currency in a franc):: £1: 10d. the proportion or *arbitrated* value of the franc. Hence, if the English money, or bill of exchange, to pay a debt in Paris, were remitted by Amsterdam, it would require 10d. to discharge a debt of a franc, or £1 to discharge a debt of 24 francs; and, therefore, if the exchange between London and Paris were at 24, it would be indifferent to the English merchant whether he remitted directly to Paris, or indirectly *viâ* Amsterdam; but if the exchange between London and Paris were *above* 24, then a direct remittance would be preferable; while, if on the other hand, the direct exchange were less than 24, the indirect remittance ought as plainly to be preferred.

"Suppose," to borrow an example from Kelly (*Universal Cambist*, vol. ii., p. 137), "the exchange of London and Lisbon to be at 68d. per milree, and that of Lisbon on Madrid 500 rees per dollar, the arbitrated price between London and Madrid is 34d. sterling per dollar; for, as 1000 rees : 68d. : : 500 rees : 34d. But, if the direct exchange of London on Madrid be 35d. sterling per dollar, then London, by remitting directly to Madrid, must pay 35d. for every dollar; whereas, by remitting through Lisbon, he will pay only 34d.; it is, therefore, the interest of London to remit indirectly to Madrid through Lisbon. On the other hand, if London draws directly on Madrid, he will receive 35d. sterling per dollar; whereas, by drawing indirectly through Lisbon, he would receive only 34d.; it is, therefore, the interest of London to draw directly on Madrid. Hence, the following rules:

"1. Where the certain price is given, draw through the place which produces the lowest arbitrated price, and remit through that which produces the highest.

"2. Where the uncertain price is given, draw through that place which produces the highest arbitrated price, and remit through that which produces the lowest." In compound arbitration, or when more than three places are concerned, then, in order to find how much a remittance passing through them all will amount to in the last place, or, which is the same thing, to find the arbitrated price between the first and the last, we have only to repeat the different statements in the same manner as in the foregoing examples. Thus, if the exchange between London and Amsterdam be 35s. Flemish for £1 sterling; between Amsterdam and Lisbon 42d. Flemish for 1 old crusade; and between Lisbon and Paris 480 rees for 3 francs; what is the arbitrated price between London and Paris? In the first place, as 35s. Flemish : £1 : : 42d. Flemish : 2s. sterling = 1 old crusade.

Second, as 1 old crusade, or 400 rees : 2s. sterling : : 480 rees : 2s. 4·8d. sterling = 3 francs.

Third, as 2s. 4·8d. sterling : 3 francs : : £1 sterling : 25 francs, the arbitrated price of the pound sterling between London and Paris.

This operation may be abridged as follows:

£1 sterling.
£ 1 sterling = 35s. Flemish.
3½s. Flem. = 1 old crusade.
1 old crusade = 400 rees.
480 rees = 3 francs.

$$\text{Hence}\ \frac{35\times400\times3}{480\times3\frac{1}{2}}=\frac{4200}{168}=25\ \text{francs.}$$

This abridged operation evidently consists in arranging the terms, so that those which would form the divisors in continued statements in the Rule of Three, are multiplied together for a common divisor, and the other terms for a common dividend. The ordinary arithmetical books abound with examples of such operations.

The following account of the manner in which a very large transaction was actually conducted by indirect remittances, will sufficiently illustrate the principles we have been endeavoring to explain. In 1804, Spain was bound to pay to France a large subsidy; and, in order to do this, three distinct methods presented themselves: 1. To send dollars to Paris by land. 2. To remit bills of exchange directly to Paris. 3. To authorize Paris to draw directly on Spain. The first of these methods was tried, but it was found too slow and expensive; and the second and third plans were considered likely to turn the exchange against Spain. The following method by the indirect or circular exchange was therefore adopted.

A merchant or *banquier* at Paris was appointed to manage the operation, which he thus conducted: He chose London, Amsterdam, Hamburg, Cadiz, Madrid, and Paris, as the principal hinges on which the operation was to turn; and he engaged correspondents in each of these cities to support the circulation. Madrid and Cadiz were the places in Spain from whence remittances were to be made; and dollars were, of course, to be sent to where they bore the highest price, for which bills were to be procured on Paris, or on any other places that might be deemed more advantageous. The principle being thus established, it only remained to regulate the extent of the operation, so as not to issue too much paper on Spain, and to give the circulation as much support as possible from real business. With this view, London was chosen as a place to which the operation might be chiefly directed, as the price of dollars was then high in England; a circumstance which rendered the proportional exchange advantageous to Spain.

This business was commenced at Paris, where the negotiation of drafts issued on Hamburg and Amsterdam served to answer the immediate demands of the state; and orders were transmitted to these places to draw for the reimbursements on London, Madrid, or Cadiz, according as the course of exchange was most favorable. The proceedings were all conducted with judgment, and attended with complete success. At the commencement of the operation, the course of exchange of Cadiz on London was 36d.; but by the plan adopted, Spain got 39¼d., or above 8 *per cent.* by the remittance of dollars to London, and considerable advantages were also gained by the circulation of bills through the several places on the continent.—KELLY'S *Cambist*, vol. ii., p. 168; DUBOST'S *Elements of Commerce*, 2d ed., p. 228. See *Bills of Exchange*.

TABLE SPECIFYING THE VALUE OF THE MONEYS OF ACCOUNT OF THE PRINCIPAL PLACES WITH WHICH ENGLAND HAS EXCHANGE TRANSACTIONS, TAKING SILVER AT 5s. AN OUNCE, AND SPECIFYING ALSO THE PAR OF EXCHANGE WITH SUCH PLACES ON THIS HYPOTHESIS.*

						s.	d.		Par of Exchange.		
Petersburg	100	copecks	=	1 rouble	=	3	1 1-2	giving	6 roub. 40 cop.	=	£1
Berlin	30	sil. groschen	=	1 Pruss. dollar	=	2	10 3-4	"	6 doll. 27 s. g.	=	1
Copenhagen	96	skillings	=	1 Rig. dollar	=	2	2 1-3	"	9 doll. 10 sk.	=	1
Hamburg	16	schillings	=	1 mark	=	1	5 1-2	"	13 mks. 10 1-2 sch.	=	1
Amsterdam	100	centimes	=	1 florin	=	1	8	"	11 fl. 97 cents	=	1
Antwerp	100	centimes	=	1 florin	=	1	8	"	11 fl. 97 cents	=	1
Paris	100	centimes	=	1 franc	=		9 1-2	"	25 fr. 57 cents	=	1
Frankfort	24 1-2	guld. or flor.	=	1 mark	=	1	7 7-8	"	12 3-40 guldens	=	1
Vienna	60	kreusers	=	1 florin	=	2	0 4-10	"	9 fl. 50 kr.	=	1
Venice	100	centisimi	=	1 lira Austriaca	=		8·13	"	29 li. 52 cent.		1
Genoa	100	centisimi	=	1 lira Nuova	=		9 1-2	"	25 li. 57 cent.	=	1
Leghorn	100	centisimi	=	1 lira Toscana	=		7·82	"	30 li. 69 cent.	=	1
Madrid	8	reals	=	1 dollar of Plate	=	3	1 3-4	"	6 doll. 2 3-4 reals	=	1
Lisbon	1000	reis	=	1 milreis	=	4	8	"	4 mil. 285 reis	=	1
New York	100	cents	=	1 dollar	=	4	2	"	4 doll. 80 cents	=	1
Rio Janeiro	1000	reis	=	1 milreis	=	2	7	"	7 mil. 777 reis	=	1
Havana	100	cents	=	1 dollar	=	4	6 13-222	"	4 doll. 44 cents	=	1

* Abstracted from *Tate's Modern Cambist*, to which the reader is referred for further explanations.

It is easy from this table to calculate the value of any of the above coins, taking silver at 5s. 2d., 5s. 6d. an oz., or any other price, and thence to deduce the par of exchange at such rates. The preceding article on Principles of Exchange, is from the pen of J. R. McCULLOCH, in the last edition Ency. Brit. See *Bills of Exchange*.

Exchange signifies a place in most considerable trading cities where merchants, agents, bankers, brokers, interpreters, and other persons concerned in commerce, assemble on certain days, at a fixed hour, to confer together in regard to matters relating to exchanges, remittances, payments, assurances, freights, etc. In Flanders, Holland, and France, these places are called *Bourses*, or *Places de Change;* and in the Hanse towns, *Borsenhalle.* The most considerable exchanges in Europe are those of London, Paris, and Amsterdam. The ancient Romans had places for merchants to meet in most of the considerable cities of their empire. That which is said to have been built at Rome in the year B.C. 493, was called *Collegium Mercatorum,* of which it is alleged there are still some remains, called by the modern Romans *Loggia,* the Lodge or place of St. George.

Exchequer Bills are bills of credit issued by authority of Parliament. They are for various sums, and bear interest (generally from 1½d. to 2½d. per diem, per £100) according to the usual rate at the time. The advances of the bank to government are made upon exchequer bills; and the daily transactions between the bank and government are principally carried on through their intervention. Notice of the time at which outstanding exchequer bills are to be paid off is given by public advertisement. Bankers prefer vesting in exchequer bills to any other species of stock, even though the interest be for the most part comparatively low; because the capital may be received at the treasury at the rate originally paid for it, the holders being exempted from any risk of fluctuation, except in the amount of the premium or discount at which they may have bought the bills. Exchequer bills were first issued in 1696, and have been annually issued ever since. The subjoined is an account of the unfunded debt in exchequer bills, and of the annual charge thereon, on the 5th of January, 1817, and the 5th of January every subsequent year down to 1855.

In 1853, *exchequer bonds* were issued bearing interest at 2¾ per cent. for ten years, and thereafter 2½ per cent. for thirty years, or till 1894, to such holders of South Sea, and three per cent. stock as chose to accept the same, a bond for £100 being given for every £100 stock subscribed (16th and 17th Vict., cap. 23). But only a very small sum (£5000) has been invested in such bonds.

This description of temporary loan is unknown in this country, but is a favorite investment by British capitalists. The treasury has the power, by act of Parliament, to issue ways and means bills, or in other words, exchequer bills, to the aid of the ways and means of the year, by issuing them in any one quarter, payable out of the revenues of the following quarter. Independent of these bills of supply, issues are made in exchequer bills to the paymaster-general for the ordinary service, to be sold in the market to meet the public demand. The bills are signed either by the comptroller or by the assistant-comptroller, and every means have been suggested to prevent forgery. Sometimes the bills are issued to the paymaster-general, and sometimes to the bank; and the bank either carries the amount of money for which it has contracted with the government, to the paymaster's account, or to the exchequer account. Then the credit is issued from the exchequer account for the public accountant. About 1500 bills are prepared in one day, and they are signed in even quantities. There are constitutional reasons against the treasury having the issue of exchequer bills. The Constitution of England is founded on a jealousy of the executive government, and therefore checks are required in dealing with the action of the government, which a commercial company like the Bank of England may not in any respect require.

From the 1st of January, 1842, to 15th June, 1847, there were signed by the comptrollar-general, and by the assistant-comptroller, 186,707 exchequer bills, for the amount of £197,983,423. From the 1st January, 1845, to 15th June, 1847, there were examined and controlled by the comptroller-general and assistant-comptroller, 288 royal orders of the amount of £92,865,730, and 900 treasury warrants of the value of £283,681,258. From the first of January, 1845, to 10th June, 1847, there were issued and supplied to the paymaster, 90,109 bills of the amount of £54,604,300. The preparation of exchequer bills costs the public for paper-making, £4000; superintendence of ditto, £30; engraving and printing, £180; superintendent, £30; and counterfeits, £10—total, £650. During 1855, there were signed 1455 credits, 1228 acquittances, 427 Irish transfers, 3842 Irish acquittances, 32,444 exchequer bills of £31,827,117; and controlled 214 royal orders of £91,811,111, and 369 treasury warrants of £178,981,985. In 1854, there were signed 22,654 exchequer bonds of £6,009,400.

Years ending Jan. 5.	Amount of Exchequer Bills.	Rate of Interest per Diem.	Charge of Interest per Annum.
1817	£44,650,300	3d. Nov. 22, 1816	£2,173,927
1818	56,729,400	2½d. Feb. 24, 1817	1,891,315
1819	43,208,400	2d. Oct. 11, 1817	2,026,450
1820	36,303,200	....	847,091
1821	30,965,900	....	1,529,181
1822	31,566,550	....	2,009,311
1823	36,281,150	....	1,309,409
1824	34,741,750	1½d. June, 24, 1824	1,111,220
1825	32,398,450	....	1,086,015
1826	27,994,200	2d. Dec. 19, 1825	820,000
1827	24,565,350	....	770,000
1828	27,546,850	....	802,186
1829	27,657,000	1¾d. Sept. 30, 1829	860,475
1830	25,490,550	1½d. Dec. 18, 1829	806,076
1831	27,271,650	....	726,465
1832	27,133,350	....	604,365
1833	27,278,000	....	577,320
1834	27,906.900	....	723,596
1835	28,521,550	....	636,417
1836	28,976,600	2d. Sept. 29, 1836	688,701
1837	26,976,000	2½d. Nov. 21, 1836	692,095
1838	24,044,550	2d. Dec. 14, 1837	871,309
1839	24,026,050	1¾d. March 18, 1839	641,370
1840	19,965,050	2¼d. March 16, 1840	788,707
1841	21,076,350	....	559,130
1842	18,343,850	2d. June 15, 1842	797,046
1843	18,182,100	1¾d. March 17, 1843 1½d. June 16, 1843	631,601
1844	18,407,300	....	594,051
1845	18,404,500	....	462,363
1846	18,380,200	....	422,654
1847	18,310,700	2d. March 16, 3d. June 16, 1847	419,393
1848	17,946,500	2½d. March 16, 2d. June 15, 1848	433,348
1849	17,786,700	1½d. March 15, 1849	787,381
1850	17,758.700	....	605,124
1851	17,756,600	....	402,790
1852	17,742,800	1¼d. June 10, 1852	403,476
1853	17,742,500	1d. March 10, 1853 2d. Oct. 11, 1853	402,852
1854	16,029,600	2¼d. June 12, 1854	368,414
1855	17,183,000	....	348,513

The interest paid within each year is given in the column of charge, which interest has accrued upon the capital stated in the preceding year.

The interest paid upon the £16,029,600, and upon £1,750,000 of bills issued in April 1854, will be paid in 1855.

The interest upon the £17,183,00, will not be payable till 1856, *i. e*, year ending January 5, 1857.

Excise, the name given to the duties or taxes laid on certain articles produced and consumed at home; but, exclusive of these, the duties on licenses and post-horses are also placed under the management of the excise, and are consequently included in the excise duties. The excise system was established in England by the Long Parliament; was continued under Cromwell and Charles II.; and was organized as at present in the Walpole administration. It was first collected and an office opened in 1643, and was arbitrarily levied upon liquors and provisions to support the parliamentary forces against Charles I. The excise-office was built on the site of Gresham College, in 1774. The officers of excise and customs were deprived of their votes for members of Parliament in 1782.—*Haydn.*

Excise duties had been from an early period established in Holland, and the large revenue which they afforded pointed them out to the leaders of the popular party in the great civil war, as the most likely means by which they could raise funds to carry on the great contest in which they had embarked. They were consequently introduced by a parliamentary ordinance in 1643; being then laid on the makers and venders of ale, beer, cider, and perry. The royalists soon after followed the example of the republicans; both sides declaring that the excise should be continued no longer than the termination of the war. But it was found too productive a source of revenue to be again relinquished; and when the nation had been accustomed to it for a few years, the Parliament declared, in 1649, that the "impost of excise was the most easy and indifferent levy that could be laid upon the people." It was placed on a new footing at the Restoration; and, notwithstanding Mr. Justice Blackstone says that "from its first original to the present time its very name has been odious to the people of England" (*Com.* book i. c. 3), it has continued progressively to gain ground; and is at this moment imposed on various important articles, and furnishes a large share of the public revenue of the kingdom.

AMOUNT OF THE EXCISE REVENUE OF GREAT BRITAIN IN THE FOLLOWING YEARS:

1744	Great Britain		£3,754,072
1786	"	"	5,540,114
1808	"	"	19,867,914
1820	"	"	26,364,702
1827	United Kingdom		20,995,324
1830	"	"	18,644,395
1834	"	"	16,877,292
1837	"	"	14,518,142
1840	"	"	12,607,766
1845	"	"	13,585,583

Exhibition (*exhibere*, to exhibit, furnish, maintain, etc.), a showing or presenting to view; a display. In law, delivery of writings in proof of facts; a bill of discovery. In our old writers it is also used for an allowance of meat and drink, a pension or salary; and it is now applied to a benefaction settled for the maintenance of scholars in English universities, not depending on the foundation. In this sense the term is analogous to the Scottish *bursary*. Among physicians, exhibition is a standard and convenient term to express the administering a medicine.

Exhibitions of Works of Fine Art.—A collection of works of fine art, arranged in some suitable place for public inspection, is styled an exhibition. It is organized on a different principle from that of a national gallery or museum; for the works are not permanently conserved, but contributed for a limited period annually, new examples being provided for every successive exhibition.

Exhibitions are comparatively of modern institution. In former times artists were chiefly patronized by the church or the government; and the edifices in which their productions were placed were patent to the public; but now artists rely mainly on private patronage, and generally obtain the sanction of those for whom they execute works to exhibit them publicly for a limited period as specimens of their skill; or if executed for sale, these exhibitions afford an opportunity of disposing of their works, while they themselves are improved in their art by the opportunity of comparing their own efforts with those of other artists.

The members of the Academy of the Fine Arts, founded at Rome in 1593, probably on particular occasions exhibited their works collectively to the public; but it was in France, in 1737, that the members of the Royal Academy of Painting and Sculpture (founded in 1648) first regularly instituted annual exhibitions. These were made biennial in 1745, and were from their commencement confined to works executed by members of the academy; but during the Revolution (by a decree in 1791) all artists, French or foreign, were allowed to participate in the exhibition, which in 1796 was again made annual.

The earliest attempt at an exhibition in England was in 1760; and the efforts of the artists were at length united in the Royal Academy's exhibitions, the first of which was opened in 1769. Since then they have been continued with increasing energy. In 1760, the number of works exhibited was 130, contributed by 69 artists; in 1855 there were 1558 works, contributed by 918 exhibitors. The annual revenue of the academy arises from a fee of one shilling from each visitor, and now exceeds £8000.

The Royal Scottish Academy's exhibition is the second in importance in the United Kingdom. Though, according to its present constitution, it only dates from 1826, those who instituted it had previously organized exhibitions in Edinburg, which had been annually continued, with some few interruptions, since 1808. At the first exhibition, 178 works were sent in by 27 contributors; at the exhibition in 1855, 789 works were contributed by 287 exhibitors. The annual revenue exceeds £2000. Exhibitions are annually opened in Dublin by the Royal Hibernian Academy. These are the only fine-art corporations in Great Britain aided by government, the two first mentioned being accommodated in public galleries, and the last receiving an annual money grant. Besides the above mentioned, the following societies in London have also exhibitions, namely, the British Institution, founded in 1806; the Society of British Artists, in 1824; the National Institution, in 1850; the Society of Painters in Water Colors, in 1805; and the New Society of Painters in Water Colors, in 1835. There are also annual exhibitions in Manchester, Liverpool, Glasgow, Birmingham, Cork, Newcastle, etc. But with the exception of those in London and the Royal Scottish and Hibernian Academies, they are mainly composed of works collected all over the kingdom, but principally in London.

Exhibition of 1851.—The great Exhibition of Works of Industry of all Nations, held in the British metropolis, was publicly announced in October, 1849. Prince Albert, as president of the Society of Arts, offered himself to the public as their leader in the undertaking; and her Majesty's proclamation appointing a commission to promote the project was issued January 3, 1850. The amount of public subscriptions to the Crystal Palace was £67,399 3s. 10d. After much discussion relative to the site proposed, a vast structure was erected on the south side of Hyde Park, from a design of Mr. (afterward Sir Joseph) Paxton. This building (usually called the Crystal Palace from the material of which it was chiefly composed) resembled, upon a great scale, the Victoria Regia plant-house, erected at Chatsworth, after Mr. Paxton's own design. The contract with Messrs. Fox and Henderson was for £79,800—a sum afterward somewhat increased by additions to the plan; or for £150,000, if the building was permanently retained. The exhibition was opened by her Majesty in state, May 1, 1851; and it remained open to the public till 11th October, shortly after which time the Crystal Palace was taken down.

This gigantic structure occupied an area of 21 acres, and was composed entirely of large sheets of glass set in frame-work of iron, except near the ground, where it was boarded. Its length was 1851 feet (a number corresponding to the year of the exhibition); and its width, in the broadest part, 456 feet; the transept intersecting the building at right angles in the middle, was 408 feet long, 108 high, and 72 wide. The entire structure consisted of three tiers of elevation, the central portion being 64 feet high, the adjacent side portions 44 feet, and the outer sides 24 feet high. The materials employed were as follows: 896,000 superficial feet of glass, weighing 400 tons; wrought-iron, 550 tons; cast-iron, 3500 tons; wood, including flooring, 600,000 cubic feet; nearly 2300 cast-iron girders, and 358 wrought-iron trusses for supporting the roof and the galleries (which extended nearly a mile in length); 30 miles of gutters; 202 miles of sash-bars, and 3330 cast-iron columns. The number of exhibitors was about 17,000; of prize medals awarded, 2918; of council medals, 170. The greatest number of visitors in one week was in that ending 11th October, when the number of persons paying at the doors was 478,773. The total amount of entrance fees during the season was £424,418 15s.

The Great Exhibition of 1851 was altogether novel in principle, and unparalleled in magnitude and magnificence; comprehending under one roof, in almost endless variety, specimens of the industrial productions, not only of Great Britain, but of the European states generally, together with those of nearly every part of the habitable globe. An account of these, as well as of the peculiar mode of construction of the Crystal Palace, may be found in the official descriptive and illustrated catalogues and reports of the juries.

Our limits preclude our entering into the history of national industrial exhibitions, or to make more than a passing reference to the various local exhibitions of works of industry which have taken place from time to time in the United Kingdom; such as those at Cork, Sheffield, Plymouth, and Salisbury in 1852, Dublin in 1853, and in Birmingham in 1849. Similar exhibitions were organized in Belgium in 1830, in the United States in 1853, at Munich in 1854, and especially in France in 1798, 1801, 1802, 1806, 1819, 1844, and on a large scale in 1855. This last is constituted on an entirely different basis from the English Exhibition of 1851; being set on foot by the capital of a commercial company formed for the purpose, and on the prospect of remunerative profits; but the State also takes a distinct and positive share in the risks of the enterprise, as it does with railways and other works of public utility. A certain percentage to the holders of stock is guarantied by the government; and in right thereof an imperial commission is appointed which exercises supreme control. By this arrangement the proprietors are to receive whatever surplus may remain after all expenses are paid; whereas the £170,000 derived from the prices of admission to the London Exhibition stands over as a public trust fund, under royal charter, to be applied to objects in harmony with those for which the exhibition was held.

The French Exhibition is not contained under one roof, nor of the several buildings are all intended to be of a temporary character. The buildings, in the aggregate, will probably include a greater area than the Crystal Palace at Hyde Park. The main building is the Palais de l'Industrie, a permanent edifice of rectangular form, and with considerable pretensions to architectural effect. In this will be exhibited all the higher productions of manufacturing industry. There is also the "Annexe," a shed 4000 feet long, parallel to the Seine, for the exhibition of machinery and raw produce. According to the plan, these two structures are connected by a gallery running across the Champs Elysées, and having in its centre a fine circular space, which is appropriated to the productions of Sèvres, and the other national establishments; and, in addition, there is an extra shed for the exhibition of carriages and other articles of great bulk.—E. B.

The British government, in order to secure an adequate representation of British art and industry in Paris, corresponding to the efforts which the French government had made in 1851, granted £50,000 by a parliamentary vote. The assistance of public associations and local committees was also obtained for the purpose, and special reports were by them published. The number of exhibitors from the United Kingdom was 1555, and from the British colonies 1070. The total number of exhibitors was 20,339, viz.: 10,691 from the French empire, and 10,148 from foreign States, viz.: France, 9790; Algeria, 724; French colonies, 177; the Duchy of Anhalt, 15; the Argentine Confederation, 6; Austria, 1296; Grand Duchy of Baden, 88; Bavaria, 172; Belgium, 686; Brazil, 4; Duchy of Brunswick, 16; Republic of Costa Rica, 4; Denmark, 90; St. Domingo, 1; Egypt, 6; Frankfort-on-the-Maine, 24; Great Britain and Ireland, 1589; British colonies, 985; Greece, 131; Republic of Guatemala, 7; Kingdom of Hanover, 18; Hanse Towns, 89; Grand Duchy of Hesse, 74; Electorate of Hesse, 14; Principality of Lippe-Detmold, 2; Grand Duchy of Luxemburg, 23; Mexico, 107; Duchy of Nassau, 59; Netherlands, 411; New Granada, 13; Grand Duchy of Oldenburg, 13; Ottoman Empire, 2; Sandwich Islands, 5; Papal States, 71; Portugal (including colonies), 443; Prussia, 1313; Principalities of Reuss (Elder and Younger Branches), 2; Sardinia, 198; Saxony, 96; Duchy of Saxe-Altenburg, 2; Duchy of Saxe-Coburg, 6; Duchy of Saxe-Coburg-Gotha, 11; Duchy of Saxe-Meiningen, 3; Grand Duchy of Saxe-Weimar, 1; Principality of Schaumburg-Lippe, 2; Principality of Schwarzburg-Rudolstadt, 1; Spain, 568; Sweden and Norway, 538; Switzerland, 408; Grand Duchy of Tuscany, 197; Tunis, 1; United States, 130; Wurtemburg, 207. Total, 10,148.

New York Exhibition of the Industry of all Nations.—Although America achieved some of the most signal and permanently valuable results which were brought to the knowledge of mankind by the Exhibition in Hyde Park; still there was probably no American who saw our contributions in London that did not feel some regret that they were not a more just and equally sustained exponent of our resources, industry, and arts. But stronger and more controlling than this sentiment was the desire excited to afford the masses in America an opportunity to see the grand total of the world's industry, and the manifold productions and applications of the arts of design brought in one comparative view. It was seen, that while no motive but a proper regard for our own position in the great family of nations could have induced us, as a people, to send our industrial products to Europe, where we find a market only for our great staple raw materials, that the fact of our becoming more and more every day the great purchasers of the products of European skill and labor, expended, perhaps, upon our own products, would induce all the manufacturing states of the old world to embrace, eagerly, an opportunity to expose their products in the New York Crystal Palace. This conviction, strengthened by the sentiments before alluded to, led a few public-spirited citizens of the United States, early in 1852, to contemplate the organization of the effort whose results we see. It was not designed or desired to reproduce the London Exhibition, which, from the very nature of the case, must ever remain unexampled; but to draw forth such a representation of the world's industry and resources as would enable us to measure the strength and value of our own, while it indicated new aims for our enterprise and skill.

There is no humiliation in the acknowledgment, that America has more to gain from such a comparison than any other nation in Christendom—and we believe she is also more willing to avail herself of the suggestions it offers. It was obvious in the outset, that numerous difficulties would embarrass the successful organization of an exhibition of industry in the United States, which should at once be universal in its scope, and devoid of the imputation of local or sectional influence. These difficulties were inherent in the nature of our political institutions. In England, the suggestion of Prince Albert to the Society of Arts was received with enthusiasm, and enlisted not only the cordial support of the queen, but every member of a numerous and wealthy aristocracy joined his hand in setting forward the royal project. The government, however backward and lukewarm they might have been at first, could not resist an influence with which, as men, they were identified. Then the almost supreme power of the London journals came in to swell and direct the popular sentiment, and to make every Englishman feel that he had an immediate personal stake in the success—the triumphant and overwhelming success—of an enterprise to which the honor of his sovereign, and of the nation, stood pledged before all mankind.

Under the stimulus of such powerful motives, the universal intellect of the United Kingdom organized itself in councils, committees, and juries. Men whose names are identified with the halls of science, of literature, and of art, left their tripods, and were found heading the various corps of hard-working volunteers in considering or perfecting the several details of the colossal scheme. The rooms of the Royal, the Geological, the Geographical, the Ethnological, and the Statistical Societies, of the Institutions of Civil Engineers and Architects, of the Museum of Economic Geology—and even of the staid and conservative Universities, were for a time deserted to furnish men and mind for the emergency. In looking over the long catalogue of councilmen and chairmen, of commissioners, associates, and jurymen, whose names are connected with the administration of the London Exhibition, it is astonishing to see what an array of talent and learning was gathered to secure its success. Nor was this peculiar to Great Britain; but from all parts of the world, we find in its published lists men whose names are the guaranty of eminent success, not only in their own departments, but in whatever they may undertake. Such was the animus of the London Exhibition. Compared with this royal espousal, and enormous personal influence brought to sustain and carry forward the exhibition of 1851, the simple machinery and resources of an association of private gentlemen, however enterprising, might seem utterly inadequate. Let the results decide. Such an association was formed, and stands committed to the successful prosecution of the plan. All the world has been invited to co-operate in sustaining the effort, and the appeal has met a response as cordial as the design is liberal and catholic.

New York was selected as the locality of the exhibition, because of its great advantages as a commercial centre, and as the chief entrepôt of European goods. Had it been proposed to limit the exhibition to the products of American industry, some place more central, as Washington, Philadelphia, or Cincinnati, might have been justly preferred, but in view of the foreign department of the scheme, New York seemed the only place at all suited for the purpose. The municipal authorities of the city of New York, on the 3d of January, 1852, moved by an enlightened regard for the prosperity of the city, and the interests of its inhabitants, granted a lease for five years of Reservoir-square for this purpose upon two conditions: one, that the building should be constructed of glass and iron, and the other, that no single entrance fee should exceed 50 cents. The Legislature of the State of New York, upon application, granted, on the 11th of March, 1852, the charter under which the Association for the Exhibition of the Industry of all Nations has been organized and carried forward. The act clothed the directors with all the powers needed to carry out its plans, and the Legislature have since that time extended its privileges, so that it can issue stock to the amount of $500,000, in place of the original limitation to $300,000. The Board of Directors first met on the 17th of March, 1852, and organized by the election of Theodore Sedgwick, Esq., President, and William Whetten, Esq., as Secretary. No time was lost in publishing and circulating a general statement of the objects of the enterprise. A call for subscriptions to the stock was met in due time by about 150 persons and firms coming forward to take up the first $200,000. This wide distribution of the interest in a large number of hands completely avoided the obnoxious charge, that the undertaking was a speculation designed for the benefit of a few.

The countenance and co-operation of the general government was sought with a view to the introduction of foreign goods into the Exhibition duty free. And official assurances were given by Mr. Maxwell, the collector of the port of New York, that the building of the association would be made a bonded warehouse, thus entitling the association to receive the goods free of duty while on exhibition. The influence of the general government was also most cheerfully extended on behalf of the association through the kind offices of Mr. Webster, then Secretary of State, who wrote to the representatives of the United States at the principal courts of Europe, stating to them his sense of the importance of the enterprise, and the numerous reasons why in his view they should give to the association all the aid and support in their power. The ministers of foreign powers resident in the United States had previously responded, in terms of entire cordiality, to the general circular of the association which had been addressed to them, stating its plans, and soliciting the co-operation of European nations. They all expressed their convictions that their respective governments would look with favor upon the proposed exposition, and unite in sending to New York their most valued and characteristic objects of industry. The leading foreign newspapers also manifested a most friendly desire to sustain the success of the undertaking, and the records of the office contain the most abundant evidence of their zealous support; while the daily journals in foreign languages in the United States were prominent in lending their services to the cause.

The organization of the foreign relations of the association was effected by the appointment of Mr. Charles Buschek, of London, as its general agent, through whom details were arranged. This delicate and important trust, involving the greatest responsibility, required talents, knowledge, and experience. The association was truly fortunate in finding these qualities combined in one person. Mr. Buschek was the Austrian commissioner at the London Exhibition of 1851, and through him the co-operation of the European manufacturers has been secured to an unexpected extent. At a later period in the history of the enterprise, it was thought to be expedient to send out to Europe Colonel G. W. Hughes, of Maryland, to cooperate with Mr. Buschek in carrying out the plans of the association. This gentleman added to the weight of his official commission the influence of personal qualities, fitting him, in a remarkable manner, for his delicate task of soliciting or directing the countenance and support of European governments in favor of the objects of the New York Exhibition. The result of his labors was the securing from various governments important contributions, which would otherwise have remained unknown in the United States.

Although the "New York Exhibition of the Industry of all Nations" was, as a financial scheme, unsuccessful, yet its effects upon the industry and inventive powers of the country were unquestionably important. These effects will be felt for a century to come, and should confer honor upon those enterprising citizens of the metropolis and State who conceived and carried into effect the plan now described. The exhibition was closed in the year 1855.

Exotic. (Gr. εξωτικὸς, *foreign*.) Any thing introduced to one country from some other country. In gardening it is sometimes applied to plants which require protection in winter, or to plants in general which are not natives.

Expectation of life. See INSURANCE.

Exploring Expedition (U. S.) consisting of the *Vincennes*, sloop of war: *Peacock*, do.: *Porpoise*, *Relief*, *Flying Fish*, and *Sea Gull*, smaller vessels, under Lieutenant Wilkes, U. S. N., sailed from Hampton Roads, Va., August 19th, 1838. Antarctic continent discovered, July 19, 1839. Attack on the Fejees for murdering two of the officers, July 25, 1840. The *Peacock* lost on the bar of Columbia River, July 1841

The *Vincennes* (flag-ship) returned to New York, after an absence of nearly four years, June 11, 1842. Captain Wilkes's Narrative of the Expedition, in 6 vols. imp. 8vo. and quarto, was published in 1845. The scientific reports of the expedition form about 20 quarto or folio volumes.

Exportation, in *Commerce*, the act of sending or carrying commodities from one country to another.—*See* IMPORTATION and EXPORTATION.

Express. There is no branch of business in this country more extensive and important than the express service. The ever-busy handmaid of trade, agriculture, and the useful arts, there is no community so small as not to be susceptible to its usefulness. Yet, while agriculture, art, and trade are world-old, the express is comparatively only a thing of to-day. England had no part in creating it. Europe has done nothing to establish it; and twenty years ago it was not dreamed of even in America, where it is now so indispensable. Peculiarly American in its origin and characteristics, it has become so thoroughly interwoven with the daily business of the country, that it seems to constitute an inseparable portion of its muscle and sinew.

The inquiry naturally arises, "If the express service is so indispensable an institution now, how did the American people do without it prior to its creation?" The fact is, that the "expressman" is only an improvement (a great improvement, it is true) upon the "common carrier" of olden times. It was not a very rare thing, at an earlier period, to hear of a special express run for a temporary purpose, such as the transit of news of intense public interest, or intelligence of great private moment. In those cases the enterprise employed one or more riders, with the necessary relays of fleet horses at intervals upon the road. Browning's fine poem, "How they brought the good news from Ghent to Aix," vividly describes an express of this kind, bearing news of peace and safety to that beleaguered city.

But the express service, properly so called, does not date back beyond the origin of American railroads. Prior to that epoch, stage-drivers had performed duties similar to those now discharged by expressmen; and "*baggage-wagons*" (so called, though they carried merchandise as well) served instead of freight-trains. With the innovation of railways, the stage-drivers and wagoners found, like Othello, their "occupation gone." The loss of their services seriously incommoded the public; but the railroad offered no remedy. Years passed; trade and intercommunication between town and country suffering, in the mean while, from this cause. At length, hardly realizing what an improvement he was about to effect, William F. Harnden, then a conductor upon the Boston and Worcester Railroad, started the express business. It was in the spring of 1839. The idea was not original with him; but to him is due the honor of having been the first to put it into execution.

The only through route from Boston to New York at that time (March, 1839) was by railroad to Providence, and thence to this city, by the steamboat *J. W. Richmond.* The Old Line of steamboats ran from Stonington to New York. Harnden had no paid agent in this city at the outset. The messengers (called, during the first year or two, *conductors*) attended to all the business. Harnden himself acted in that capacity, usually making the trip in the *J. W. Richmond*, and carrying his entire express in an ordinary valise. Upon his arrival in New York or Boston he would hasten to deliver the parcels intrusted to him by his customers, who were mostly booksellers and brokers.

The express was run by Harnden some time before he made a contract with the Old Line of boats from Stonington to New York. His messenger paid regular fare, and carried all the packages in a carpet-bag and trunk. After the lapse of six months or a year, he made a contract with the Old Company and the Stonington and Providence Railroad Company to run a car through. Each messenger then carried a season ticket—obtained by holding a few shares of the company's stock. According to the terms of that contract, the Boston and Providence Railroad Company were entitled to one third of the gross receipts of the express for freight; and the Providence and Stonington Railroad Company (including, we presume, the boats) were to receive one third; the residue to be Harnden's. His first contract with the owners of the *J. W. Richmond* was to convey a car or crate for him between Providence and New York. He took five or six shares of the stock, which entitled him or his messenger to a free passage.

The first opposition express was run on the 4th of May, 1840. Alvin Adams made an effort to contract, in its behalf, for privileges on the Norwich and Worcester route from Boston to New York; but Harnden being at that time better known, the directors gave his "well-established express" the preference; so that he was like to have the monopoly of the facilities on both routes. As Adams was not to be defeated in that way, he went to Major Handy, agent for the Stonington line, and purchased two season tickets for himself and partner, to run as often as they pleased between Boton and New York, until January, 1841; with no other privilege, however, than to carry a trunk and valise.

In the spring of 1841, the only express routes in the world were those between New York and Boston; but, with a successful rival competing for the business of those cities, Harnden & Co. thought it due to their own credit, as pioneers, to take another stride or two, and extend their line south to Philadelphia, and west to Albany, in this State.

An express was established 23d April, 1841, between Boston and Albany, and another between Albany and New York, by Harnden & Co.

About that time, Adams & Co. experienced not a little annoyance from their want of regular express facilities from New York to Philadelphia, and they used an infinity of "shifts" to put their parcels through. In the mean time, the Camden and Amboy Railroad directors had quarreled with Harnden & Co. for nonpayment of compensation alleged to be due them, and had stopped their express over that road. Nor were they more favorably disposed to make a similar contract with any one else. Still, at his partner's solicitation, Adams went to Philadelphia to apply for a contract. Stevens, who represented the Board upon that occasion, gave him a very decided refusal at once. Adams then made another proposition; viz., to do the express business over that railroad in connection with the company; the latter to allow Adams & Co. a portion of the avails. This impressed Stevens more favorably, and the immediate result was a contract that Adams & Co. should fill a certain number of crates daily, and deliver the goods, receiving for their trouble a certain portion of the freight money; the railroad company to have the rest.

In 1842 Harnden & Co.'s Boston and Albany Express was bought out by its Springfield agent, the enterprising Colonel Thompson, and called Thompson & Co.'s Express. Messrs. Melcher and Johnson are his partners. Gay & Co. (Gay and Littlefield) started an express between Boston and New York, *via* Stonington, in 1842. They carried only a trunk of parcels, and had no contract. Gay would run one way, and Littlefield the other; and each had the profits which he happened to make upon each day's work, and pocketed the same, without being expected to render an account to his nominal partner. This arrangement, apparently so primitive and simple, did not work well in the long run, and Littlefield retired from it. Kinsley next joined Gay, and the firm was styled Gay & Kinsley. The latter, for some years past president of a bank at Newport, Rhode Island, has become eminent as an expressman.

In 1844 there were expresses between Boston and Lowell, Boston and Salem, and on one or two other short routes in Massachusetts, and they were increasing. The first express west of Buffalo was established April 1, 1845, under the name of Wells & Co. The members of that firm were Henry Wells, W. G. Fargo, and D. Dunning. For the want of railroad facilities (and when the steamers were laid up), it was a wagon express between Buffalo and Detroit. In February, 1847, W. G. Fargo and William A. Livingston became sole proprietors of the express west of Buffalo, under the style of "Livingston & Fargo." The latter is deserving of honorable mention for his industry, perseverance, and sound sense. Wells & Co.'s line extended from New York to Buffalo, *via* Albany.

W. F. Harnden & Co.'s *Foreign Express* elicited the applause of the community, and gave an *éclat*, at home and abroad, to their already well-known name. Still, it by no means contributed to the advantage of their express in the United States. It only served to divide and weaken their energies. The result was, that the more concentrated efforts of their rivals here met with a larger share of success, and in 1846 Adams & Co.'s business between Boston, New York, and Philadelphia was more valuable than Harnden & Co.'s.

Canada was without an express until Virgil & Rice started one from Troy to Montreal, *via* Lake Champlain, in the summer, and by wagons and stages in the winter. This, we think, was in 1847 or 1848. Subsequently Rice retired, and Messrs. Virgil & Co. contracted with the Saratoga Railroad for a car. The express from New York to Troy was owned by Pullen & Co., who in the year 1849 united with Virgil & Co., under the style of Pullen, Virgil, & Co. Under the management of these experienced and able men, the business was nursed and tended with most praiseworthy perseverance, until it grew to considerable importance.

In 1849 a new order of express service was destined to spring up. The "California gold fever" had broken out, and thousands of young men were thronging to the newly-acquired Golconda, when Daniel Hale Haskell, a highly-esteemed clerk in Adams & Co.'s Boston office, suggested to his employers the expediency of establishing a California express. With characteristic prudence, Adams & Dinsmore at first opposed the proposition; foreseeing that the most important point of operations must necessarily be in San Francisco, many thousands of miles beyond their supervision, and they preferred to have all their business where they could give it their frequent personal inspection. However, they at length yielded to Haskell's solicitations, and he went out to San Francisco in the steamer of September, 1849, to act as their partner in the proposed business. The building which he took for an express-office was a little shanty, of which I. C. Woods was either the owner or the owner's agent. As the business increased rapidly, this building had to be pieced out, or extended in depth every few weeks, to hold the multitudes which thronged to it to hear the news, obtain or send letters, and remit their gold dust. The enterprise compensated beyond the most sanguine dreams of its sanguine projector. Let us give some idea of the prices.

The charge made by Adams & Co. for freight, from New York to San Francisco, was seventy-five cents per pound for packages not exceeding fifteen pounds each; and for parcels of less weight, not bulky, such price was made as could be agreed upon. Three dollars was their price for conveying an ordinary-sized daguerreotype; twelve dollars for a parcel not larger than a common size novel; and this was always exacted in advance. It was paid cheerfully and without any haggling. Since then the prices have fallen about 60 per cent.

Upon the arrival of the steamer at Chagres with the express, the freight would be sent ashore in boats—a tedious and perilous job, for the sea usually ran high, and the boats were frequently swamped. At Chagres it was transferred to river-canoes, and propelled by natives to Cruces, where it was again transferred and placed upon the backs of mules, which bore it (by a road that would have defied the locomotion of any other kind of beast) to Panama, where the Pacific steamship awaited to convey it to San Francisco. Being liable to be saturated with water in being carried ashore at Chagres, and in crossing the Isthmus, by reason of rains and streams, it was required of shippers to put up their merchandise in water-proof packages. The load of a mule rarely exceeded 300 lbs. Usually he bore two oblong boxes or trunks weighing not over 125 lbs. each.

Another class of messengers to which Adams & Co.'s express in California gave rise were wont to perform their service on horseback between San Francisco (and other towns) and the numerous "diggins." Sometimes they made use of mules; but in either case the beasts must be sure and swift of foot and easy under the saddle, or they were discarded and better procured in their stead. To be able and willing to run fleetly at a word from its rider, was a *sine qua non* in the steed of an express messenger; and there are heard wonderful stories of the *time* made, under the saddle, in this service.

The express companies may be said to influence the domestic exchanges of the country, inasmuch as they transport nearly all the specie and bullion, as well as considerable portions of the bank-notes, bills of exchange, drafts, bonds, and other securities; and the price of exchange between one city and another depends in some measure upon the express charges for conveyance. The rates paid for the transportation of bank-notes is usually fixed by contract in writing, and are low. For instance, between New York and Cincinnati, 900 miles, one dollar per thousand. The total value of the capital employed in the express business was valued in 1856 at ten millions of dollars. Four years ago, the entire number of miles of express routes in America was estimated at 25,000. As facilities have been increased, and express routes extended, the whole distance traveled by express daily is probably not less than 28,000. The multifarious lines stretch in every direction, crossing each other like the threads of the spider's web. And now we find the principal expressmen undertaking the enterprise of conveying the United States mail overland to California. September 15, 1857, Messrs. Butterfield, Dinsmore, Fargo, and others, executed an agreement to that effect. The contract, which is to run six years, is to go into effect twelve months from that date. Six hundred thousand dollars per annum is the price to be paid the contractors. The extraordinary character of the labor thus confidently assumed can hardly be appreciated until the work shall have been accomplished. Certainly the establishment of such a route is an appropriate reward for express enterprise.—For a full history of the express business, see *Bankers' Magazine*, New York, September, 1857.

Extract, or **Extractive Matter**. The term extract is applied in pharmacy to the brown substance which remains after the evaporation of certain decoctions or infusions of vegetables; thus we have *extract of bark*, *extract of rhubarb*, and so on. These extracts are usually mixtures of gum, starch, sugar, or other soluble matters, along with a certain portion of a peculiar vegetable principle of a brown color, or which becomes so by exposure to air, and which is soluble in water and in alcohol, but scarcely soluble in ether. It combines with alumina, and is often the basis of brown dyes; it is this principle which chemists call *extractive*, and which is frequently closely allied to various forms of coloring matter.

F.

Fac-simile (Lat. *facere*, to make, and *simile*, like), expressed in French by *fais-semblable*, signifies an exact and faithful copy of any writing, engraving, or other work of art.

Factor, an agent employed by some one individual or individuals, to transact business on his or their account. He is not generally resident in the same place as his principal, but usually in a foreign country. He is authorized, either by letter of attorney or otherwise, to receive, buy, and sell goods and merchandise; and, generally, to transact all sorts of business on account of his employers, under such limitations and conditions as the latter may choose to impose. A very large proportion of the foreign trade of this and most other countries, is now carried on by means of factors or agents. Factors and brokers are, in some respects, nearly identical, but in others they are radically different. "A factor," said Mr. Justice Holroyd, "differs materially from a broker. The former is a person to whom goods are sent or consigned; and he has not only the possession, but, in consequence of its being usual to advance money upon them, has also a special property in them, and a general lien upon them. When, therefore, he sells in his own name, it is within the scope of his authority; and it may be right, therefore, that the principal should be bound by the consequences of such sale. But the case of a broker is different; he has not the possession of the goods, and so the vendor can not be deceived by the circumstance; and, besides, the employing a person to sell goods as a broker does not authorize him to sell in his own name. If, therefore, he sells in his own name, he acts beyond the scope of his authority; and his principal is not bound."

A factor is usually paid by a percentage or commission on the goods he sells or buys. If he act under what is called a *del credere* commission, that is, *if he guaranty the price of the goods sold on account of his principal*, he receives an additional percentage to indemnify him for this additional responsibility. In cases of this sort the factor stands in the vendee's place, and must answer to the principal for the value of the goods sold. But where the factor undertakes no responsibility, and intimates that he acts only on account of another, it is clearly established that he is not liable in the event of the vendee's failing. The sound maxim, that the principal is responsible for the acts of his agent, prevails universally in courts of law and equity. In order to bind the principal, it is necessary only that third parties should deal *boná fide* with the agent, and that the conduct of the latter should *be conformable to the common usage and mode of dealing*. Thus, a factor may sell goods upon credit, that being in the ordinary course of conducting mercantile affairs; but a stock broker, though acting *boná fide*, and with a view to the benefit of his principal, can not sell stock upon credit, *unless he have special instructions to that effect;* that being contrary to the usual course of business.

A sale by a factor creates a contract between the owner and buyer; and this rule holds even in cases where the factor acts upon a *del credere* commission. Hence, if a factor sell goods, and the owner *give notice to the buyer to pay the price to him*, and not to the factor, the buyer will not be justified in afterward paying the factor, and the owner may bring his action against the buyer for the price, unless the factor has a lien thereon. But if no such notice be given, a payment to the individual selling is quite sufficient. If a factor buy goods on account of his principal, where he is accustomed so to do, the contract of the factor binds the principal to a performance of the bargain; and the principal is the person to be sued for non-performance. But it is ruled, that if a factor enter into a charter-party of affreightment with the master of a ship, the contract obliges *him* only, unless he lade the vessel with his principal's goods, in which case the principal and lading become liable, and not the factor. Where a factor, who is authorized to sell goods in his own name, makes the buyer debtor to himself; then, though he be not answerable to the principal for the debt, if the money be not paid, yet he has a right to receive it, if it be paid, and his receipt is a sufficient discharge; the factor may, in such a case, enforce the payment by action, and the buyer can not defend himself by alleging that the principal was indebted to him in more than the amount.

"Where a factor," said Lord Mansfield, "dealing for a principal, but concealing that principal, delivers goods in his own name, the person contracting with him has a right to consider him, to all intents and purposes, as the principal; and though the real principal may appear, and bring an action on that contract against the purchaser of the goods, yet that purchaser may set off any claim he may have against the factor, in answer to the demand of the principal."

Merchants employing the same factor run the joint risk of his actions, although they are strangers to each other; thus, if different merchants remit to a factor different bales of goods, and the factor sell them as a single lot to an individual who is to pay one moiety of the price down and the other at six months' end; if the buyer fail before the second payment, each merchant must bear a proportional share of the loss, and be content to accept his dividend of the money advanced.—BEAWES, *Lex. Merc.*

A factor employed, without his knowledge, in negotiating an illegal or fraudulent transaction, has an action against his principal. On this ground it was decided, that a merchant who had consigned counterfeit jewels to his factor, representing them to be genuine, should make full compensation to the factor for the injury done to him by being concerned in such a transaction, as well as to the persons to whom the jewels had been sold.

The office of a factor or agent being one of very great trust and responsibility, those who undertake it are bound, both legally and morally, to conduct themselves with the utmost fidelity and circumspection. A factor should take the greatest care of his principal's goods in his hands; he should be punctual in advising him as to his transactions on his behalf, in sales purchases, freights, and, more particularly, bills of exchange; he should deviate as seldom as possible from the terms, and never from the *spirit and tenor*, of the orders he receives as to the sale of commodities; in the execution of a commission for purchasing goods, he should endeavor to conform as closely as practicable to his instructions as to the quality or kind of goods; if he give more for them than he is authorized, they may be thrown on his hands; but he is bound to buy them for as much less as he possibly can. After the goods are bought, he must dispose of them according to order. If he send them to a different place from that to which he was directed, they will be at his risk, unless the principal, on getting advice of the transaction, consent to acknowledge it.

A factor who sells a commodity under the price he is ordered, may be obliged to make good the difference, unless the *commodity be of a perishable nature and not in a condition longer to be kept.* And if he purchase goods for another at a fixed rate, and, their price having afterward risen, he fraudulently takes them to himself, and sends them somewhere else, in order to secure an advantage, he will be found, by the custom of merchants, liable in damages to his principal. If a factor, in conformity with a merchant's orders, buy with his money, or on his credit, a commodity he is directed to purchase, and, without giving advice of the transaction, sells it again at a profit, appropriating that profit to himself, the merchant may recover it from him, and have him amerced for fraud. If a factor buy, conformably to his instructions, goods of which he is *robbed*, or which suffer some unavoidable injury, he is discharged, and the loss falls on the principal. But if the goods be *stolen* from the factor, he will not be so easily discharged; for the fact of their having been abstracted by *stealth*, and not by *violence*, raises a strong presumption that he had not taken that reasonable care of them which was incumbent upon him. If, however, he can prove that the goods were lodged in a place of security, and that he had not been guilty of positive negligence, nor exercised less care toward them than toward his own property, he will not be held responsible even for a theft committed by his servants.—Jones *on Bailments*, 2d ed., p. 76; Chitty *on Commercial Law*, vol. iii., p. 368.

If a factor, having money in his hands belonging to his principal, neglect to insure a ship and goods, according to order, he must, in the event of the ship miscarrying, make good the damage; and if he make any composition with the insurers after insurance, without orders to that effect, he is answerable for the whole insurance. A principal at the end of a very long letter, directed his agent thus: "Observe, the premium on this value is also to be insured." But the agent, not noticing this sentence, neglected to insure the premium; and being sued, was held liable for the omission. If goods are remitted to a factor, and he make a false entry of them at the custom-house, or land them without entry, and they are, in consequence, seized or forfeited, he is bound to make good the damage to his principal; but if the factor make his entry according to invoice or letters of advice, and these proving erroneous, the goods are seized, he is discharged. It is now a settled point, that a factor has a lien on goods consigned to him, not only for incidental charges, but as an item of mutual account for the balance due to him so long as he remains in possession. If he be surety in a bond for his principal, he has a lien on the goods sold by him on account of such principal, to the amount of the sum he is bound for.

It being the general rule of law "that property does not change while *in transitu*," or in the hands of a carrier, a consignment made *before* the bankruptcy of a consignor, but not arriving till *after*, remains the property of the consignor, except, indeed, where the *delivery* is made *by the order* and upon the account of the consignee, and is a complete *alienation from* the consignor. In the case, therefore, of a consignment to a factor, the property remains the consignor's, and passes into the hands of *his* assignees. When a factor has a lien on goods, he has a right to the price, though received after the bankruptcy. Where general or unlimited orders are given to a factor, he is left to buy and sell on the best conditions he can. And if detriment arise to a principal from the proceedings of a factor acting under such authority, he has no redress, unless he can show that he acted fraudulently or with *gross negligence*. A factor or broker acting against the interest of his principal, can not even receive his commission. If he pay money on account of his principal, without being authorized, he can not recover it back. An agent can not delegate his rights to another so as to bind the principal, unless expressly authorized to nominate a sub-agent.

For further information as to the general powers and liabilities of factors and agents, see Kent's *Commentaries*; Parsons *on Mercantile Contracts*; Story *on Contracts*; Beawe's *Lex Mercatoria*, arts. *Factors*, *Supercargoes*, etc.; Chitty's *Commercial Law*, vol. iii., c. 3.; Woolrych *on Commercial Law*; see also the article Broker.

Under the law with respect to the transactions of factors or agents on third parties that prevailed down to the act 6 Geo. 4, c. 94, it was held, that a factor, as such, had no authority to *pledge*, but only to *sell* the goods of his principal; and it was repeatedly decided that a principal might recover back goods on which a *bonâ fide* advance of money had been made by a third party, without his being bound to repay such advance; and notwithstanding this third party was wholly ignorant that the individual pledging the goods held them as a mere factor or agent. It used also to be held, that *bonâ fide* purchasers of goods from factors or agents not vested with the power of sale, might be made liable to pay the price of the goods a second time to the real owner. The extreme hardship and injurious influence of such regulations is obvious. It is the business of a principal to satisfy himself as to the conduct and character of the factor or agent he employs; and if he make a false estimate of them, it is more equitable, surely, that he should be the sufferer, than those who have no means of knowing any thing of the matter.

"All agents who sell goods for their principals, and guaranty the price, are said abroad to act under a *del credere commission*. In this country, this phrase is seldom used, nor is such guaranty usual. See Del Credere Commission.

"Generally, neither factor nor broker can claim their commissions until their whole service be performed, and in good faith, and with proper skill, care, and industry. But if the service begins, and is interrupted wholly without their fault, they may claim a proportionate compensation. If either bargains to give his whole time to his employer, he will not be permitted to derive any compensation for services rendered to other persons. Nor can either have any valid claim against any one for illegal services, or those which violate morality or public policy.

"A principal can not revoke an authority given to a factor, after advances made by the factor, without repaying or securing the factor.

"The distinction between a *foreign* and a *domestic* factor is quite important. A domestic factor is one who is employed and acts in the same country with his principal. A foreign factor is one employed by a principal who lives in a different country. And a foreign factor is as to third parties, for most purposes, and under most circumstances, a principal. Thus they can not sue the principal, because they are supposed to contract with the factor alone, and on his credit, although the principal may sue them; and a foreign factor is personally liable, although he fully disclose his agency, and his principal is known. But this doctrine is not extended to cases where a contract for personal services is made in the country where the factor is doing business, by a person resident there; but the contract is to be performed or executed in the country where the principal resides. For, if such a contract be made in the name of the principal, he alone is responsible. One who deals with a domestic factor may sue the principal, unless it is shown that credit was given exclusively to the factor. And for the purpose of this distinction, and the rules founded upon it, we hold, on the weight of authority, that our states are foreign to each other.

"Every factor is bound to reasonable care; and he is liable for a loss by fire, or robbery, or other accident occurring without his default, if he had previously done some wrongful act, without which the property might have been safe. And this rule would apply even to a gratuitous agent."—Parsons' *Mercantile Law*, pp. 158-162.

Factorage, or **Commission**, the allowance given to factors by the merchants, manufacturers, etc., who employ them: it is a percentage on the goods they purchase or sell on account of their principals, and varies in different countries, and as it refers to different articles. It is customary for factors, as observed in the previous article, to insure the debts due to those for whom they sell for an additional, or *del credere* commission, generally averaging from 1½ to 2 per cent. Factorage or commission is also frequently charged at a certain rate per cask, or other package, measure, or weight, especially when the factor is only employed to receive or deliver: this commission is usually fixed by special agreement between the merchant and factor.

Factory, in commerce, a place where merchants and factors reside, to negotiate business for themselves and their correspondents on commission.

Fairs and **Markets**. These institutions are very closely allied. A fair, as the term is now generally understood, is only a greater species of market recurring at more distant intervals. Both are appropriated to the sale of one or more species of goods, the hiring of servants or laborers, etc.: but fairs are, in most cases, attended by a great concourse of people, for whose amusement various exhibitions are got up. Fairs and wakes are of Saxon origin, and were first instituted in England by Alfred, A. D. 886.—*Spelman.* They were established by order of Gregory VII. in 1708, and termed *Feriæ*, at which the monks celebrated the festival of their patron saint; the vast resort of people occasioned a great demand for goods, wares, etc. They were called wakes from the people making merry during the vigil or eve. Fairs were established in France and England by Charlemagne and William the Conqueror, about A. D. 800 in the first, and 1071 in the latter kingdom. The fairs of Baucaire, Falaise, and Leipsic, are the most famous in Europe. See E. B. —*Haydn.*

1. *Origin of Fairs.*—Institutions of this sort are peculiarly servicable in the earlier stages of society, and in rude and inland countries. The number of shops, and the commodities in them, are then either comparatively limited, or they are but little frequented by dealers; so that it is for the advantage of all, that fairs should be established, and merchants induced to attend them. For this purpose various privileges have been annexed to fairs, and numerous facilities afforded to the disposal of property in them. To give them a greater degree of solemnity, they were originally, both in the ancient and modern world, associated with religious festivals. In most places, indeed, they are still held on the same day with the wake or feast of the saint to whom the church is dedicated; and, till the practice was prohibited, it was customary in England to hold them in churchyards!—(*Jacob's Law Dict.*, art. *Fair.*) But since the growth of towns, and the opportunities afforded for the disposal and purchase of all sorts of produce at the weekly or monthly markets held in them, the utility of fairs, in this country at least, has very much diminished; they have also lost much of their ancient splendor; and, though some of them are still well attended, and of real use, a good number might be advantageously suppressed. But it is far otherwise in inland countries, where the facilities for carrying on commercial transactions are comparatively circumscribed. There it is of the utmost importance that certain convenient places and specified periods should be appointed for the bringing together of commodities and dealers. This is not only the readiest and best means of promoting commerce, but also of softening national antipathies, and diffusing a knowledge of the products, arts, and customs of other countries.

2. *Establishment of English Fairs.*—No fair can be holden without grant from the crown, or a prescription which supposes such grant. And before a patent is granted, it is usual to have a writ of *ad quod damnum* executed and returned, that it may not be issued to the prejudice of a similar establishment already existing. The grant usually contains a clause that it shall not be to the hurt of another fair or market; but this clause, if omitted, will be implied in law; for if the franchise occasion damage either to the king or a subject, in this or any other respect, it will be revoked; and a person whose ancient title is prejudiced is entitled to have a *scire facias* in the king's name to repeal the letters patent. If his Majesty grant power to hold a fair or market in a particular place, the lieges can resort to no other, even though it be inconvenient. But if no place be appointed, the grantees may keep the fair or market where they please, or rather where they can most conveniently.

3. *Time of holding Fairs and Markets.*—These are either determined by the letters patent appointing the fair or market, or by usage. The statute 2 Edw. 3. enacts, that the duration of the fair shall be declared at its commencement, and that it shall not be continued beyond the specified time. By statute 5 Edw. 3, any merchant selling goods after the stipulated time is to forfeit double the value of the goods sold.

4. *Effects of Sales in Fairs and Markets.*—A *bonâ fide* sale made in a fair or open market, in general, transfers the complete property of the thing sold to the vendee; so that however vicious or illegal that title of the vendor may be, the vendee's is good against every one, except the king. But the sale, in order to come within this rule, must take place *on the market day, and at the place assigned for the market.* The city of London is said to be a market overt every day of the week, except Sunday; every shop being a market overt for such things as the shopkeeper professes to deal in. The property of goods may, however, be changed, and effectually transferred to the buyer, by a *bonâ fide* sale in a shop out of London, whether the shopkeeper be the vendor or vendee, if the goods are of the kind in which he trades. A wharf in London is not within the custom, and is not a market overt for articles brought there. But a sale in a market will not be binding if it be such as carries with it a presumption of fraud; as, for example, if it take place in a back room or secret place; if the sale be covinous, and intended to defraud the real owner, or if the buyer know that the vendor is not the real owner of the goods, etc. It is very difficult to transfer the property of horses, even when they are sold in an open market, without the consent of the real owner.

5. *Court of Pié Poudre.*—According to English usage, at every fair or market there is incident, even without any express words in the grant, a court of *pié poudre*, in allusion to the dusty feet of the suitors. The steward or mayor may preside. It has cognizance of all questions as to contracts made in the market respecting goods *brought and delivered there*, etc. Formerly *pié poudre* courts were held at every considerable fair, but they are now entirely laid aside.

6. *Principal British Fairs.*—Among these may be specified Stourbridge, in Worcestershire. Bristol has two considerable fairs, one in March and one in September. Exeter December fair, for cattle, horses, and most sorts of commodities. Weyhill fair, in Hampshire (October 10), has, probably, the greatest display of sheep of any fair in the kingdom. Bartholomew fair, in London, used to be of considerable importance, but latterly it was appropriated only to shows of wild beasts, and such-like exhibitions, and has, within these few years, been very properly suppressed. St. Faith's near Norwich (October 17), is the principal English fair for Scotch cattle. They are sold to the graziers and feeders of Norfolk, Suffolk, Essex, etc., by whom they are fattened for the London markets, where they are met with in great abundance. But besides those sold at St. Faith's, large numbers of Scotch cattle are disposed of at Market Harborough, Carlisle, Ormskirk, and other places. Ipswich has two considerable fairs: one in August, for lambs; and one in September, for butter and cheese:

it is reckoned that above 100,000 lambs are annually sold at the former. Woodborough-hill, in Dorset, for west country manufactures, as kerseys, druggets, etc. Woodstock October fair, for cheese. Northampton and Nottingham have each several large fairs, for horses, cattle, cheese, etc. The August fair of Horncastle, in Lincolnshire, is the largest horse-fair in the kingdom, many thousand horses being exhibited for sale during its continuance: it is resorted to by crowds of dealers from all parts of Great Britain, by several from the Continent, and sometimes even from North America. Howden, in Yorkshire, has, also, a very large horse-fair, particularly for Yorkshire hunters. Devizes, in Wiltshire, has several large fairs for sheep and cattle. There is usually a large display of cheese at the Gloucester April fair. A guild, or jubilee, commencing the last week of August, is held every twentieth year at Preston, in Lancashire; the last was held in 1842, and was well attended. The October fair of Market Harborough, Leicestershire, lasts 9 days, and a great deal of business is usually done in cattle, cheese, etc. Woodbridge Lady-day fair is celebrated for the show of Suffolk horses. Falkirk fair, or tryst, is one of the most important in Scotland, for the sale of cattle and sheep. The October fair of Ballinasloe, in the county Galway, is famous for the display of cattle and sheep; by far the largest proportion of these animals raised for sale in Connaught being disposed of at it. The sheep are generally from three to four, the heifers from three to four, and the bullocks from four to five years of age. They are mostly lean; and are kept for a year in Leinster before they are fit for the Dublin or Liverpool markets.

7. *Principal French Fairs.*—Among these may be specified the fairs of St. Germain's, Lyons, Rheims, Chartres, Rouen, Bordeaux, Troyes, and Bayonne; but they are much fallen off. The most important of the modern French fairs, is that of Beaucaire, on the right bank of the Rhone opposite to Tarrascon, 14 miles east of Nismes. It is very favorably situated for an *entrepôt*, being, exclusive of the command of internal navigation afforded by the Rhone, connected by canals with the sea and the *Canal du Midi.* The fair, which commences on the 22d and finishes on the 28th July, was formerly the greatest in Europe, and, though a good deal fallen off, it is still attended by a vast concourse of people, not from France only, but also from Switzerland, Germany, Italy, Spain, and the Levant. Almost every sort of article, whether of convenience or luxury, may then be met with in the town. It is said that the number of visitors still amounts to from 70,000 to 80,000, and the amount of business done to 150,000,000 fr.; but we have little doubt that these estimates are very greatly exaggerated; and that the first would be nearer the mark were it reduced to 50,000 or 60,000. All bills due at this fair are presented on the 27th, and protested on the 28th. A tribunal instituted for the purpose, takes cognizance of, and immediately settles all disputes growing out of transactions that take place at the fair. A military force attends to preserve order, and the prefect of the department, who is always present, entertains the principal merchants and strangers.

8. *German Fairs.*—The principal German, or rather European fairs, are those of Frankfort-on-the-Maine, Frankfort-on-the-Oder, and Leipsic. The concourse of merchants, and the business done at these fairs, are generally very great. They are copiously supplied with the cotton stuffs, twist, cloths, and hardware of England; the silks and jewelry of France; the printed cottons of Switzerland and Austria; the raw, manufactured, and literary products of Germany; the furs of the North; Turkey carpets; Cashmere shawls, etc.; and there, also, are to be found merchants of all countries, those of Ispahan negotiating with those of Montreal for the purchase of furs; and Georgians and Servians supplying themselves with the cottons of Manchester and the jewelry of Paris. There, in fact, are met the representatives, as it were, of every people in the world, laboring, though without intending it, to promote each other's interest, and to extend and strengthen those ties that bind together the great family of the human race. The fairs at Frankfort-on-the-Maine should begin the first on Easter Tuesday, and the second on the Monday nearest to the 8th of September. Their duration is limited to three weeks, but they usually begin from eight to fifteen days before their legal commencement. Accounts are kept in rixdollars, 1 rixdollar of account = 1½ florin, or 4½ copsticks, or 22½ batzen. The rixdollar = 3s. 1·8d.; so that the par of exchange is 141 batzen per £1 sterling. 100lb. common Frankfort weight = 103lb. avoirdupois. The foot = 11·27 English inches. The fairs at Frankfort-on-the-Oder are three in number, viz.: Reminiscere, in February or March; St. Margaret, in July; and St. Martin, in November. They ought, strictly speaking, to terminate in eight days, but they usually extend to fifteen. The Prussian government gives every facility to those who attend these fairs. Accounts are kept in Prussian money, that is, in rixdollars of 2s. 11¼d. 100lb. Prussian = 103lb. avoirdupois. The foot = 12·356 English inches. The fairs of Leipsic are still more celebrated than those of either Frankfort. They are held thrice a-year—on the 1st of January, at Easter, and at Michaelmas. The first is the least important. The Easter and Michaelmas fairs are famous, particularly the former, for the vast number of new publications usually offered for sale. They are attended by all the principal booksellers of Germany, and by many from the adjoining countries, who adjust their accounts, learn the state of trade in all parts of the world, and endeavor to form new connections. Most German publishers have agents in Leipsic; which is to the literature of Germany, what London is to that of Great Britain. As many as 5000 new publications have been in a single Leipsic catalogue! They are also great markets for Saxon woolens and other goods, British calicoes, French silks, and, in fact, for most descriptions of produce. The fairs ought to close in eight days, but they usually continue for about three weeks. No days of grace are allowed. The holder of a bill must demand payment on the day it becomes due; and, if not paid, he must have it protested on that very day, and returned by the first opportunity. If he neglect any of these regulations, he loses all right of recourse upon the drawer and indorsers. Money of account at Leipsic same as Frankfort-on-the-Maine. 100lb. Leipsic = 103lb. avoirdupois. The foot = 11·11 English inches.—KELLY'S *Cambist; Manuel de Nelkenbrecher;* BOWRING'S *Report on the Prussian Commercial Union*, pp. 255, 269, etc. Dr. Bright gives, in his *Travels in Hungary* (pp. 201–223), an interesting account of the fairs held at Debretzin and Pesth. The latter has become the grand centre of Hungarian commerce; most part of which is conducted at its fairs.

9. *Italian Fairs.*—Of these, the most celebrated is that of Sinigaglia, a small, but handsome town of the Papal dominions, on the Misa, near its confluence with the Adriatic. The fair commences on the 20th of July, and should terminate on the last day of that month, but it usually continues eight or ten days longer. The duties on goods brought to the fair are extremely moderate, and every thing is done to promote the convenience of those frequenting it. All sorts of cotton, woolen, and silk goods, colonial produce, iron and steel, hardware, jewelry, brandy and liquors, timber, drugs, spices, etc., are brought here by the English, French, Austrians, Swiss, etc. These are exchanged for the various raw and manufactured products of Italy and the Levant; consisting, among others, of raw, thrown, and wrought silks; oil, fruits, cheese, alum, soda, sumach, sulphur, etc. The value of the imports for the fair of 1841, was estimated at about

£1,700,000. Accounts are kept in scudi of 20 soldi; the scudo = 4s. 4d. very nearly. 100lb. Sinigaglia = 73¾ avoirdupois. The ell or braccio measures 25.33 English inches.—*Manuel de Nelkenbrecher*; MACGREGOR's *Tariffs*, *Italy*, p. 121.

10. *Russian Fairs.*—These are numerous, and many of them are well attended. The most important is held at Nijnii-Novgorod, at the confluence of the Oka with the Wolga, lat. 56° 19′ 40″ north, long. 44° 28′ 30″ east. Previously to 1817 this fair was held in a less convenient situation, at Makarieff, lower down the Wolga. But the buildings for the accommodation of the merchants at the latter having been accidentally burnt down in 1816, government took advantage of the circumstance to remove the fair to Nijnii. It is principally carried on within the new bazaars constructed for that purpose on the left bank of the Oka. These, which are divided into parallel rows, or streets, are constructed of stone walls and roofed with iron, having covered galleries in front supported by iron pillars. They are built on piles, and, to guard against inundations, the ground on which they stand has been raised about 20 feet. Being inclosed on three sides by canals, and on the fourth by a navigable inlet of the Oka, there is every facility for the delivery and shipment of goods. The establishment is of great extent, comprising 2524 booths, and is admitted on all hands to be at once the largest and most perfect of its kind that is anywhere to be met with. But, in addition to the above, no fewer than 2506 shops and booths belonging to private parties, and constructed of wood, were occupied during the fair of 1841. The fair begins on the 1st of July, and continues for a month or six weeks.

The total value of the various articles of Asiatic (including Chinese) produce exposed for sale at Novgorod in 1841 amounted to 9,146,719 silver roubles, being more than double the value of the products of western Europe exposed in the same year. Of the latter, indigo, wine, and cottons were the principal articles.—*Journal des Manufactures*, *Petersburg*, 1842. The stationary population of the town, which may amount to about 25,000, is, during the fair, said to amount to from 130,000 to 160,000, including Chinese, Persians, Armenians, Tartars, Bokharians, etc. Theatrical exhibitions, shows of wild beasts, and other Bartholomew fair exhibitions, add to the attractions of the scene. Another celebrated Russian fair is held in the month of December, at Kiachta, in Mongolia, on the Chinese frontier, lat. 50° 21′ 5″ north, long. 106° 28′ 15″ east. The town is small, the population not exceeding 4000 or 5000; but by far the largest part of the commerce between the Russian and Chinese empires is transacted at its fair, and it is also the centre of the political intercourse between them. The commodities brought hither by the Russians consist principally of Russian and German broadcloths, furs, sheep and lamb skins, leather, coarse linens, worsted stuffs, cattle, etc., with, for the most part, bullion. These they change with the Chinese for tea, raw and manufactured silk, nankeens, porcelain, sugar candy, rhubarb, tobacco, musk, etc., the value of the articles, however, other than tea, being comparatively inconsiderable. The quantity of tea purchased at the Kiachta fairs by the Russians, which has latterly increased very considerably, amounted, in 1850, according to the official returns, to 210,179 poods, or 7,566,444 pounds, of very superior tea, worth about 2s. 6d. per pound, and 85,440 poods (3,076,840 pounds) inferior or black tea. At an average of the six years ending with 1850, the total imports of all sorts of tea into Russia through Kiachta was estimated at 11,748,464 pounds, Eng., a year. According to the same accounts, the total value of the exports to China through Kiachta, in 1850, amounted to 6,916,071 silver roubles, and that of the imports to about the same. The customs duty received at Kiachta in 1848 amounted to £923,554. The Russian trade is in the hands of a comparatively small number of merchants, some of whom are very rich; that of the Chinese is much more diffused. Commodities may be conveyed from Kiachta to European Russia either by land or by water. In the former case the journey takes a year; in the latter, it takes three years, or rather three very short summers; the rivers being for the most part of the year frozen over.—*Schnitzler*, *Statistique Générale de l'Empire de la Russie*, p. 143, etc.

11. *Turkish Fairs.*—Several important fairs, of which little or nothing is known in this country, are held at various places in European Turkey. Among others may be specified those of Usundji, or Usundjova, in Roumelia; Joanima, in Albania; Stronga on the Lake of Ocrida; Novi-Bazar, in Upper Mœsia; Islivni, in Thrace; Prelip and Nicopoli, in Macedonia; Eski-Djouma, in Bulgaria; and Zeitoun and Pharsalia, in Thessaly. The largest and most important of these fairs is that of Usundji, held at the village of that name, on the Usundji, a tributary of the Maritza, about 44 miles W. by N. of Adrianople. It was visited by M. Blanqui in 1841, and by Mr. Spencer in 1850. The latter says (but statements of this sort are very apt to be exaggerated), that it was attended by from 80,000 to 100,000 people, who had journeyed hither from all parts of European Turkey for the purpose of disposing of their wool, hides, raw cotton, leeches, and other products of the country, and of purchasing in return the manufactures of the West. The show of the latter is very extensive. Sheds are erected in the village by government, which serve as warehouses for the merchants, and every house is converted into a han for the reception of strangers. But by far the greater number of the latter have, notwithstanding, to encamp with their camels, horses, etc., on the surrounding plain. Blanqui speaks in high terms of commendation of the good order that prevailed, in the absence of any thing like police, among the motley population at the fair.—(BLANQUI, *Voyage en Bulgarie*, p. 252; SPENCER's *Travels in European Turkey*, ii., 346, etc.) This great fair, which lasts for 15 days (Blanqui) is held, like the other fairs, in autumn, immediately after harvest. But though it be largely frequented by German, Swiss, Italian, and Greek merchants, who transact a great amount of business, it is very little, if at all, known in England. This is the more surprising, seeing that we have consuls at Adrianople and other places not very distant from the seat of the fair. And it might have been supposed that these functionaries would have been anxious to send home the most ample details with respect to this and other fairs in their vicinity; describing the products which might be most advantageously bought and sold at these marts; the routes by which they might be most easily reached, and so forth. But if such reports anywhere exist, they have not, at all events, been published. And hence, probably, the fact of the business of these fairs being mostly in the hands of foreigners.

12. *Eastern Fairs.*—The most important fair in the Eastern world is that held at Mecca during the resort of pilgrims in the month of Dhalhajja. It used to be frequented by many thousands of individuals of all ranks and orders, brought together from the remotest corners of the Mohammedan world; and though the numbers attending it have declined of late years, the concourse is still very great. See CARAVAN. Hurdwar, in Hindostan, in lat. 29° 57′ N., long. 78° 2′ E., 117 miles N.E. from Delhi, is famous from its being one of the principal places of Hindoo pilgrimage, and the greatest fair in India. The town, which is but inconsiderable, is situated on the Ganges, at the point where that sacred stream issues from the mountains. The pilgrimage and fair are held together at the vernal equinox; and Europeans, nowise addicted to exaggeration, who have been repeatedly present on these occasions, estimate that from 200,000 to 300,000 strangers

are then assembled in the town and its vicinity. But every twelfth year is reckoned peculiarly holy; and then it is supposed that from 1,000,000 to 1,500,000, and even 2,000,000 pilgrims and dealers are congregated together fróm all parts of India and countries to the north. In 1819, which happened to be a twelfth year, when the auspicious moment for bathing in the Ganges was announced to the impatient devotees, the rush was so tremendous that no fewer than 430 persons were either trampled to death under foot, or drowned in the river! The foreigners resorting to Hurdwar fair for commercial purposes only, consist principally of natives of Nepaul, the Punjab, and Beshwaur, with Afghans, Usbeck Tartars, etc. They import vast numbers of horses, cattle, and camels; Persian dried fruits, shawls, drugs, etc.: the returns are made in cotton piece goods, indigo, sugar, spices, and other tropical productions. The merchants never mention the price of their goods, but conduct the bargain by touching the different joints of their fingers, to hinder the bystanders gaining any information. During the Mahratta sway, a kind of poll-tax and duties on cattle were levied; but all is now free, without impost or molestation of any sort. Owing, also, to the precautions adopted by the British government, the most perfect order is preserved; much to the surprise and satisfaction of the natives; for, antecedent to our occupation of the country, the fairs usually ended in disorder and bloodshed.—(*Private Information*, and the excellent account of *Hurdwar* in HAMILTON'S *Gazetteer.*)

The fairs of Portobello, Vera Cruz, and Acapulco, once so famous, are now totally deserted; that of the Havana is also much fallen off.

In the United States, fairs are principally confined to exhibitions of agricultural and mechanical articles, and also for the sale of fancy articles for charitable purposes, under the control of private companies, and not subject to especial restrictions or laws. In the western States, especially in the stock-growing districts of Kentucky, fairs are held in each county, at the county towns, once every month, for the sale of live stock, etc., subject only to local restrictions. These fairs or sales are of great convenience to the farmers or drovers, by bringing them together at stated times. As an instance of their usefulness, in Paris, Bourbon county, Kentucky, a town of 1500 inhabitants, live stock to the amount of $100,000, on an average, changes hands every court day.

Falkland Islands (Fr. *Malouines*, Sp. *Malvinas*), a group of islands in the South Atlantic Ocean, belonging to Great Britain, and lying about 250 miles east of the nearest mainland of South America, between 51° and 53° S. lat., and 57° and 62° W. lóng., or in precisely the same latitudes south as London and the midland counties are north. The group consists of two principal islands, East and West Falkland, with several hundred others of different sizes clustered around and in the strait between them. East Falkland is about 85 miles in length by 40 in breadth, and West Falkland 80 miles long by 25 to 30 miles wide. They are separated from each other by Falkland Sound. The other islands range in size from 16 miles by 8 to mere islets of half a mile across. The whole group is deeply indented by numerous harbors and creeks, which, if they diminish the area, produce more than counterbalancing advantages. Very little is known of West Falkland. It is uninhabited, but at certain seasons it is visited by whaling and other vessels. East Falkland is nearly divided into two unequal portions by the estuaries called Breton Sound and Choiseul Sound, the two parts of the island being connected by an isthmus not more than a mile and a half across. The northern portion is crossed by a chain of rugged hills, called the Wickham Heights, extending due east and west from Port William to Port Sussex, and varying in height from 800 to 2000 feet.

There are few wild animals indigenous to the Falklands. The only quadruped is the warrah or wolf-fox (*Canis Magellanicus*), rather taller, but not much heavier, than our fox. The other animals which are found in a wild state are those which have been left there by Europeans, as horned cattle, horses, sheep, wild hogs, and rabbits, all of which are very abundant. There is a plentiful supply of excellent fish in all the creeks, and of small trout in the lakes and rivulets. Hair and fur seals abound, and the black whale is still numerous about these coasts. The wild fowl are also numerous, as swans, geese, ducks, snipes, etc. There are few land birds or insects, and no reptiles. A gigantic sedgy grass, called tussac, of the genus Carex, is very common on most of these islands. Its blade averages seven feet in length by about three quarters of an inch in width, is extremely nutritious, and admirably adapted for fattening cattle. Turnips, carrots, potatoes, and vegetables thrive well, and barley and oats have been successfully cultivated. Furze and other shrubs grow well, but there are as yet no trees. Peet is abundant, and some of it is highly bituminous. Coal has been discovered, but whether it can be profitably worked has not yet been ascertained.

The discovery of these islands has been by many attributed to Amerigo Vespucci, in 1502; but it is more probable that they were first discovered by Davis in 1592. In 1594 Hawkins sailed along their north shore; and in 1690 Strong sailed through the channel which separates East from West Falkland, and called it Falkland Sound, whence the group afterward took its name. During the earlier parts of the eighteenth century these islands were frequently visited by French vessels; and in 1764 a French colony was established at St. Louis, on East Falkland. Two years later the English planted a colony at Port Egmonton, West Falkland. In 1767 the Spaniards took possession of the French settlement, and three years later of the English. In consequence of this step, some negotiations were entered into, the result of which was that the sovereignty of these islands were ceded to the English, who, however, some time afterward abandoned them. Though frequently visited by whaling vessels and others, they continued without permanent inhabitants till 1820, when they were taken possession of by the republic of Buenos Ayres. A settlement was formed at Port Louis, which rapidly increased until 1831, when, in consequence of a dispute with the United States, it was destroyed by the Americans. In 1833 the English again assumed possession of the Falklands, and stationed an officer and boat's crew at Port Louis. In 1840 the government resolved to colonize these islands, and sent out for that purpose a governor and a small establishment, who settled at Port Louis. A more advantageous situation for a settlement was subsequently found on the south side of Stanley Harbor, where, in 1844, a town was laid out. Mr. Lafone, a wealthy merchant, obtained from government an extensive tract of land, and possession of all the wild cattle and other wild stock for six years, from 1st January, 1848, in consideration of a payment by installments of £60,000. Mr. Lafone's interests have recently been purchased by a chartered company, which now possess, in East Falkland, all the southern peninsula called Lafonia, consisting of about 600,000 acres, besides 138 islands and islets, with an aggregate area of about 200,000 acres, until January, 1856. The company possesses absolute right to all the wild cattle or other wild stock which may be found upon any of the islands, but after that period this right ceases except as to stock, etc., then in actual possession of the company. In 1847 the population of the colony was 270. The governor of these islands, in January, 1853, reports the colony to be steadily progressing. In 1851, the number of tons of shipping that entered the port of Stanley was 17,538, and in 1852 it was 22,024, being an increase of 4,486 tons. This necessarily produces a demand for produce and labor. Unskilled laborers earn from 3s. to 5s. a day, and skilled from 6s. to 10s. Provisions are abundant, and at reasonable prices. "The transference to the Falkland Islands Company of the large interests held by Mr. Lafone, and the commencement by that corporation of a more comprehensive system of operation, supported by a large capital, gives me very favorable hopes of benefit to the colony, and, I trust, to the shareholders." (*Report.*) In 1849, twelve allotments of one acre each, near the town, were put up for sale, and were sold on an average at £6 per acre; and eleven similar allotments, sold in 1852, brought on an average £12 per acre, or six times the usual government price. "The master of a barque, the *Record*, lately in the harbor, publicly notified that he would take passengers to the gold diggings in Australia at £10 per head, and it gives me much pleasure to add that not a person could be found in the colony to accept his proposition." (*Report.*) Being chiefly dependent upon the ships that call here to refit or for refreshments, the opening of a ship-canal between the Atlantic and Pacific Oceans would affect this settlement very much, and might probably lead to its abandonment.—E. B.

Except as commercial and military stations, these islands possess no importance. There is no tonnage duty levied on vessels entering the ports of these islands; nor, indeed, any charges, except for storage, which is effected in bulk, and for which there is a charge of from $5 to $10 per day. In a recent official communication addressed by the present governor of the Falkland Islands, that functionary observes: "I beg to state that, as regards the precise limit to which Great Britain will limit the right of fishing, I have no instructions. I will, however, communicate with her Majesty's government on the subject by the first opportunity." As American captains cruising about these islands have, on one or two recent occasions, been subjected to considerable inconvenience and expense by the executive authority of the Falkland Islands—so much so, indeed, as in one instance to render the interposition of a United States' vessel of war necessary—it becomes a matter of some importance to American whaling interests to have the question settled as speedily as possible.—*Com. Rel. U. S.*

Fall, the name given in Scotland to a measure both of length and superficies. As a measure of length, the fall is equal to six Scots ells, or 6·1764 English yards; and as a measure of superficies, to 36 square ells.

Fall, the sea term for the rope of any pulley or system of pulleys. To *fall aboard* signifies to run foul of another vessel.

Falling Home. The term applied to the timbers or upper parts of the sides of a ship when they curve inwards. The old ships fell home, or tumbled in (as it is called), much more than the modern ones, which approach more nearly to being *wall-sided.*

Fall River, Massachusetts, 46 miles S. of Boston, situated on the Fall River, at its junction with the Taunton, which falls into Mount Hope Bay, a branch of Narraganset Bay. The harbor on Taunton River is safe and easy of access, and has depth of water sufficient for the largest ships. Fall River has a large coasting trade, and is engaged in the whale and other fisheries. It has extensive cotton and woolen factories, bleaching-works, founderies, etc., and communicates regularly with New York by steamers, and with Boston by railway. Pop. (1855) 12,680.

Falmouth, a seaport town of England, on a branch of the estuary of the Falmouth, 14 m. N.N.E. the Lizard Point. Lat. 50° 8′ 8″ N., long. 5° 2′ 7″ W. The harbor is formed by the estuary of the Falmouth, has numerous creeks, and is about five miles in length and one mile in breadth. The entrance is defended by Pendennis and St. Mawe's castles, both built in reign of Henry VIII., and the former containing large barracks, magazines, etc. Its position at the entrance of the English Channel, has rendered Falmouth for the last 150 years a principal station for the foreign mail-packets, and the great rendezvous for fleets proceeding to the south and west.

False Keel, the timber added below the main keel, both to serve as a defense, and also, by deepening the plane surface, to enable the ship to hold a better wind.

Fan, a simple and well-known implement employed to produce coolness by agitating the air. Upward of 3000 years ago the artist of ancient Egypt painted the fan on the walls of the tombs at Thebes, where the Pharaoh sits surrounded by his fan-bearers. These officers acted as generals or marshals, using their fans as standards in war, and in peace they assisted the Pharaoh in the temple, and waved their variegated fans both to produce a cooling breeze, and to guard the sacred offerings from the contamination of noxious insects. The fan is mentioned by Euripides, and its Grecian forms were far more beautiful than the Egyptian. The wings of a bird joined laterally and attached to a slender handle, formed the simple yet graceful fan of the priest of Isis, when Isis became a Grecian deity. It was sometimes formed of feathers of different lengths, spread out in the form of a semicircle, but pointed at the top. This fan, the precise type of the state-fan of India and China of the present day, was waved by a female slave. The fan is mentioned by Terence and Ovid; and was termed indifferently "flabellum" or "muscarium." When the Romans were at meals, it was the duty of certain slaves, when the weather was warm, to cool the room with fans and drive away the flies. The modern Greek church places a fan in the hands of its deacons to guard the officiating priest and the elements from desecration. When the fan was brought to France by Catherine de Medicis, it was so constructed that it could be folded in the manner of those used in the present day. Fans in the luxurious reigns of Louis XIV. and XV., shone with gilding and gems, and were ornamented with the pictures of Boucher and Watteau. At that time no toilet was esteemed complete without a fan, the cost of which was frequently as high as from $60 to $70.

In fan-making, the Chinese and French are the great rivals, and may be said to monopolize the supply of the whole world. In the lacquered fans the superiority of the natives of China is fully admitted. These are unrivaled both in lowness of price and in originality of design, brilliancy of coloring, and in general correctness of workmanship. In China the manufacture of fans is almost entirely confined to Canton, Soutchou, Hang-tchoo, and Nankin. The fans of ivory and bone, and of feathers, are made exclusively for exportation to Europe or America. Those used by the Chinese are of bamboo, polished or japanned, and covered with paper. They are sold at from 20 cents to $3 per dozen, according to the quality of the frame and the design of the leaf.—E. B.

In France, fan-making has arrived at a high degree of perfection, and presents a remarkable instance of the subdivision of labor. About twenty different operations, performed by as many pairs of hands, are necessary to the production of a fan which sells for less than one halfpenny. The processes are not all carried on in the same manufactory, but form four distinct branches of trade, directed by distinct masters; but the operatives usually work at home at their own houses. The frame-work of fans is mostly made in the department of Oise, where 2000 men, women, and children are thus employed. The woods employed are chiefly plum, ebony, lime, and sandal-wood; and the piercings which form such a general decoration to fans, are performed by minute saws, which the workman makes for himself out of pieces of watch-spring.

In one fan there are in some specimens 1600 saw-piercings in a square inch of mother-of-pearl. The printing, the coloring, the mounting, and the finishing of fans are mostly conducted at Paris, where the fan-factories are on a considerable scale.

"The number of fan-makers, or *eventaillistes* (those who finish the fans which have been roughly made in the provinces), in Paris, in 1827, was 15, who employed 1010 work-people (344 men, 500 women, and 166 children), and sold about 1,010,500 francs' worth of fans. According to the *Statistique sur l'Industrie à Paris*, it appears that in 1847 there were 122 fan-makers, comprising chamber-masters, as mounters, feuillistes, painters, and colorers. The value of the fans made was 2,526,316 francs. These masters employed 575 work-people (262 men, 264 women, 29 youths, and 20 girls). The workmen on the average earn 4 francs, and the women 2½ francs per day. The men were for the most part copper-plate engravers and printers, lithographic draughtsmen and printers, painters, and colorers; the women were mounters, illuminators, painters, colorers and overlookers. Thus in twenty years it appears that the produce in fans had increased in value nearly threefold, while the number of work-people had diminished one half. This change is attributed to the employment of machinery, especially of the fly-press, in stamping out and embossing the ribs, and the extensive employment of chromo-lithography, an art not practiced at the former period. By these means the French have been enabled greatly to increase their exports by the production of cheap fans, to compete with those made by the Chinese.

Farina. (Lat. far, *corn*, of which it is made.) Meal or flour, obtained by grinding and sifting wheat and other seeds; hence the term *farinaceous food*.

Faroe, or **Feroe** (Danish, *Färöerne*), a group of islands belonging to Denmark, in the North Sea, between Iceland and the Shetland Islands, about 200 miles north-west of the latter, between N. lat. 61° 20′ and 62° 25′, and between W. long. 6° 16′ and 7° 40′. The group consists of 17 inhabited and several uninhabited islands, the former having an area of 490 square miles, and (in 1850) 8150 inhabitants. The principal islands, with their populations, in 1845, were Strömö, 2162; Osterö, 1909; Süderö, 1156; Vaagö, 649; Sandö, 528; and Bordö, 304. They consist throughout of rocks and hills, rising to a considerable height, and separated from each other by narrow valleys, or rather ravines. Although, however, these hills rise abruptly, there are often on their summits, or at different stages of their ascent, plains of considerable magnitude. They everywhere present to the sea perpendicular cliffs, broken into a thousand fantastic forms, presenting to those who sail along the coast, at every turn, the most picturesque and varied scenery. The highest peak is that of Skellingfell, in the island of Strömö, which rises to about 3000 feet above the sea. The rocks consist generally of trap, and exhibit little variety of composition, though they present some striking geological phenomena. The zeolites and chalcedonies here collected have long supplied the best specimens of these minerals to the cabinets of Europe. Coal is found in Süderö and some of the other islands, and turf is abundant.

The climate is moist and foggy, and violent storms are frequent at all seasons. July and August are the only summer months, but the winters are not very severe. It seldom freezes for more than one month, and the harbors are rarely ice-bound. The only grain crop is barley; and on account of the uncertainty of the weather, it is frequently reaped in a half-ripe condition. Agriculture is in a very backward state, the infield, or cultivated land, being calculated to be to the outfield, or uncultivated, in the proportion 1 to 60. The plow is seldom used, being in fact ill suited to the rugged and uneven surface of the land. The ground is therefore turned up with the spade, care being taken not to destroy the roots of the grass. Horses and cows are few in number, and the latter give very little milk, in consequence, probably, of the very coarse hay upon which they are fed. Sheep are numerous, and form the chief riches of the islanders—some individuals having flocks of from three to five hundred. The sheep are never housed either in summer or winter, and in severe seasons they suffer considerably. The wool is generally coarse, and is torn off the animals in so rough a manner as often to lacerate the skin. The catching of the numerous birds which build their nests upon the face of the cliffs, forms a great source of subsistence to the inhabitants. The persons employed in this hazardous trade display great ingenuity and the most adventurous spirit. Sometimes the fowler is let down from the top of the cliff by a rope fastened to his waist; at other times, where there is any footing at all, he climbs the steepest rocks, or, where that is impossible, he is pushed upward by poles made for the purpose. The puffin (*Alca arctica*) is the most common of these birds, and the eider-duck is here often shot for food. The fisheries are important and valuable.

The monopoly of the trade of the Faroe Islands was for some time in the hands of a mercantile house at Copenhagen; but it has now been assumed by government, and neither Dane nor foreigner is allowed to interfere. The trade is carried on between Copenhagen and Thorshavn. The chief exports are hosiery, tallow, dried and salt fish, train-oil, feathers, skins, and butter. Thorshavn, the capital of these islands, is situated on the south-east side of the island of Strömö, upon a narrow tongue of land, having creeks on each side, where ships may be safely moored. Population about 1500. The houses are built of wood, and roofed with birch bark covered with turf, the greenness of which makes it impossible, at a very short distance, to distinguish the place from the surrounding fields. The character of the people is generally marked by great simplicity of manners, kindness and hospitality. They are well fed and clothed, and seem to be kindly treated by the Danish government. The average duration of life, as stated by Dr. Panum, is 44 2-5 years; while in Denmark it is only 36. The language of the people is a remnant of the old Norse, but that of the courts, churches, and schools is the modern Danish. See *Færoæ and Færoæ Reserata*, by LUCAS JACOBSEN DEBES, translated from the Danish into English, 1675; *Description of the Faroe Islands*, by the Rev. G. LANDT, London, 1810; an account of their geology and mineralogy, in the *Trans. of the Royal Soc.*, Edin., vol. vii., by Sir G. S. MACKENZIE, Bart., and THOMAS ALLEN, Esq.; *Den Danske Stats Statistik*, vol. iv., 1853; J. NICHOL'S *Account of Iceland, Greenland, and the Feroe Isles;* Dr. PANUM'S *Official Report on the Diseases of Feroe*, 1849, of which an abstract in vol. vii. of the *Medico-chirurgical Review*. The scenery of these islands is well illustrated in a work entitled *Cruises of the Yacht Maria*, London, 1855.—E. B.

Farthing, a small English copper coin, amounting to ¼ of a penny. It was anciently called *fourthing*, as being the fourth of the integer or penny. A farthing of gold, equal in value to the fourth part of a noble, or 20d. in silver, is mentioned in statute 9th Henry V., cap. 7.

Fascines (*fascis*, a bundle), in fortification, faggots, or bundles of rods, or small branches of trees, bound together in several places. They are used for various purposes, such as raising batteries, filling ditches, forming parapets, etc., and vary in dimensions according to the purposes to which they are to be applied. Fascines dipped in pitch are sometimes employed to fire the enemy's lodgments or other works.

Fashion (Fr. *façon;* originally from the Lat. *facere*, to make or form), a term used to signify the prevailing mode or taste in any country, the only recognized quality which it possesses being mutability. It may safely be averred that, in proportion to the influence which fashion exercises in any country may its claim to civilization be vindicated—nothing being so characteristic of a rude and barbarous state of existence as a rigid adherence to the customs of antiquity. The term *fashion* has generally been considered as applicable chiefly to the adornment of the person, in conformity with the prevailing taste as introduced by some individual of consideration in society; but it has a much wider signification, being applied to the most trivial kind of conventional usages, a disregard or ignorance of which is sufficient, in the eyes of the votaries of this tyrannical goddess, to banish the offender beyond the pale of civilized society.

Fat, an oily concrete substance, contained in the cells of the adipose or cellular membrane of animal bodies. Fat also denotes a measure of capacity, but indefinite. Thus a fat of isinglass contains from 3½ cwt. to 4 cwt.; of yarn, from 220 to 221 bundles, etc. Fat, or vat, a large wooden tub or vessel used in breweries and tanneries; also as a measure for malt, containing eight bushels.

Fathom, a measure of length, six feet, chiefly used for measuring the length of cordage, and the depth of water and mines.

Fayal. The Azores, or Western Islands form a range situate in the Atlantic Ocean, extending in an oblique line from north-west to south-east, between 37° and 40° N. lat., and 25° and 32° W. long. It has been a subject of some controversy among geographers, to what division of the globe they ought to be referred; but they are now generally considered as pertaining to Europe. It does not appear that the ancients had any knowledge of the Azores, or of any group in this sea, except the Canaries, to which they finally applied the celebrated appellation of the Fortunate Islands. But the Arabian geographers, Edrisi and Ibn al Vardi, describe, after the Canaries, nine other islands in the Western Ocean. That these were the Azores is highly probable, since their number is exactly nine; and because a species of hawk is specially noticed by these writers as existing there in great abundance—a circumstance that afterward appeared to the Portuguese so remarkable, that they gave them the name of Azores, or Hawk Islands. The climate in which they are placed also makes them north of the Canaries. Some other coincidences also might be pointed out; and, upon the whole, there appears no reason to doubt that the Azores are really the nine islands enumerated by the Arabians. The Arabian writers represent them as having been populous, and as having contained cities of some magnitude; but they state that the inhabitants had been greatly reduced by intestine warfare. At the time of their discovery they were uninhabited, and covered with forests and underwood, which have now entirely disappeared.

The first European discovery of this group is claimed by the Flemings. A Flemish merchant named Van der Berg, is reported, in sailing from Lisbon, to have been driven upon these shores in the year 1439. The intelligence soon reached the court of Lisbon, where it excited considerable interest; and the navigator Cabral was sent to prosecute the discovery. In 1459 the islands began to be planted and colonized, and in so fertile a soil the inhabitants rapidly multiplied. In 1580 they fell, with the other Portuguese territories, under the dominion of Spain. At this time the Azores were the grand rendezvous in the voyage homeward of the fleets, which came laden with the wealth of both the Indies. Hence they became a theatre of that maritime warfare which was carried on with such spirit by the English under Queen Elizabeth against the peninsular powers. In 1586 Sir Walter Raleigh equipped two pinnaces of 35 and 40 tons, the command of which he gave to Captain Whiddon. Having taken two or three prizes, they fell in, off St. Michael, with the great fleet of Spanish galleons, consisting of 24 sail, two of them carracks of 1000 or 1200 tons. They attacked them, however, without hesitation, hoping to cut off some straggling member of this great body, but were unable to make any impression upon it. In 1587, Sir Francis Drake, after having swept the harbor of Cadiz, sailed for the Azores, where he took an East India carrack, richly laden, and the first that had ever fallen into the hands of the English. In 1589 the Earl of Cumberland fitted out a squadron, sailed for the Azores, and made numerous prizes. Under the active administration of Pombal, considerable exertions were made for the improvement of the Azores; but the stupid and bigoted government which followed rather tended to destroy these benefits, and to make the islands take a retrograde course.

Physical Aspect.—The Azores within a recent period attracted some attention as the theatre of contest between the parties contending for the crown of Portugal. The adherents of the constitution, who supported against Miguel the rights of Maria da Gloria, obtained possession of Terceira, where they succeeded in maintaining themselves. After various struggles, Queen Maria's authority was eventually established over all these islands.

The aspect of all the islands is very similar in general characteristics, presenting an elevated and undulating outline, with little or no table-land, and rising into peaks, of which the lowest (that of St. Mary's) is 1889 feet, and the highest (that of Pico) 7613 feet above the level of the sea. Their lines of sea-coast are, with few exceptions, high and precipitous, with bases of accumulated masses of fallen rock, in which open bays, or scarcely more inclosed inlets, form the harbors of the trading towns. The climate is particularly temperate and equable, the extremes of sensible heat and cold being, however, increased by the degree of humidity present in the atmosphere. The range of the thermometer is from 45° Fahr., the lowest known extreme—or 48° the ordinary lowest extreme of January—to 82° the ordinary, or 86° the highest known extreme of July, and near the level of the sea. Between these two points (both taken in the shade) there is from month to month a pretty regular gradation of increase or decrease, amounting to somewhat less than four degrees. (*Geographical Journal*, vol. xv.) They have an aggregate area of 700 square miles, and in 1841 had a population of 214,300. St. Michael, the largest and most populous of these islands, has an area of 224 square miles and (1840) 80,809 inhabitants. Proceeding from east to west, this island presents a considerable variety of surface. The east end rises from a bluff sea-cliff of between 1200 and 1400 feet elevation, to a lofty inland peak from which a central range, varying in height from 2000 to 2500 feet, runs to the westward, terminating in the Serra de Agoa de Pao, 3060 feet above the sea. The sea-coast gradually declines in approaching the last point, where it is not more than about 100 feet high. The part next seen is lower, and its outline, as presented by the summits of numerous volcanic monticules of about 1300 feet elevation, united in a central ridge more undulating; the western extremity being marked by the conspicuous Serra Gorda, 1574 feet above the sea; and its shores on both sides are low, broken, and rocky. Of the remaining part the aspect is that of a vast truncated cone, irregularly cut off at an elevation of about 800 feet, and falling on the north, south, and west sides to a perpendicular coast of between 300 and 800 feet high. The outline is varied by the intervention of peaks, thrown up on the summit and flanks, and round the foot of the mountain. In the higher parts, the surface is generally covered with an undergrowth of heaths, cedar, laurel, laurestinus, and other evergreen shrubs which give the mountains an exceedingly rich and wooded appearance. Like all volcanic countries, the face of the island is uneven and irregular, being deeply excavated by numerous ravines and roughened by streams of semi-vitrified and scoriaceous lava that resist all atmospheric influences and repel vegetation. Heavy rains falling on the mountains afford a constant supply of water to four lakes at the bottom of extinct craters or subsidences, and a number of minor reservoirs; and through them to small streams running rapidly down on all sides into the sea.—*Geographical Journal*, vol. xv. See HUNT'S *Merch. Mag.*, 1855–6; *Com. Rel. U. S.*, pp. 233, 234: pub. by Dep. of State.

In the year 1591 a most tremendous earthquake appears to have been felt all over the Azores, and to have shaken St. Michael for twelve days without intermission. Since that period, there is no record of any such great convulsion, except one in 1757, of which we have no particulars, and it was probably much less formidable; nor are any of its volcanoes at present in a state of action. Hot springs abound in every part of the island, and from almost every crevice vapor is seen issuing. But the most remarkable phenomena are the Caldeiras or boiling fountains, which rise chiefly from a valley called the Furnas, near the western extremity of the island. The water ascends in columns to the height of about 12 feet, after which it dissolves in vapor, forming clouds of various shapes and colors. The heat is such as to boil an egg in two minutes, though the sulphureous impregnation unfits it from being employed in culinary purposes. The ground in the immediate vicinity is entirely covered with native sulphur, like hoar frost. At a small distance is a remarkable phenomenon called the Muddy Crater, the vertex of which, 45 feet in diameter, is on a level with the plain. Its contents are in a state of violent and continual ebullition, accompanied with a sound resmbling the waves of a tempestuous ocean. Yet they never rise above its level, unless occasionally to throw to a small distance a spray of the consistence of melted lead. The Furnas abounds also in hot springs, some of which it is impossible to touch without being scalded. There is almost always, however, a cold spring near to the hot one, so that the water can be brought to any temperature that may be desired. These springs, after being long neglected, have, within the last half century, been greatly resorted to, and the cures performed in cases of palsy, rheumatism, and similar maladies, are said to have been very wonderful.

The plains are fertile in wheat, barley, and Indian corn; while vines and oranges grow luxuriantly on the sides of the mountains. They are made to spring even from the interstices of the volcanic rocks, which are sometimes blasted in order that they may receive the plants. Raised in this manner, these fruits are said to be of superior quality; but the great expense originally required in such a mode of cultivation confines it to persons of some capital. The western part of the island yields hemp, which might be raised to a considerable extent. The exports consist of wine, fruit, and provisions. Foreign intercourse used to be confined rigorously to Lisbon; but since the emigration of the court, the inhabitants have assumed the privilege of trading directly with England, America, and other countries. The principal town on the island is Ponta Delgada, which contains about 20,000 inhabitants. It is built with tolerable regularity, the streets being straight and broad. The religious edifices are numerous and elegant. When visited by Captain Boid in 1831, it had six churches, eight monasteries, and four convents; but these last, which were noted for the irregular lives of their vestals, have since been suppressed. The harbor receives only small vessels: those of any magnitude must anchor in an open road, which, though not dangerous, can not be occupied during the prevalence of southerly gales. Its other towns are Villa Franca, Ribeira, Grande, Alagoa, Agoa de Pao, etc.

St. Mary.—St. Mary is a small island immediately adjacent to St. Michael, through the medium of which its trade is conducted, as it has no good harbors of its own. It has an area of 36 square miles, producing wheat in abundance, of which a considerable quantity is exported. It is of trap formation, and contains beds of marine shells. Population in 1840, 4666.

Terceira.—Terceira, though smaller than St. Michael, yet being placed in a more central position with respect to the other islands has been chosen as the seat of government. The port of Angra is also superior to any of those in St. Michael. This island does not exhibit nearly the same extensive traces of volcanic action; and the summits of its mountains are generally level. It is represented by Adanson, however, as entirely composed of volcanic products. The lava, he says, is of a thicker grain than that of Teneriffe. It abounds in grain and cattle; but the wines are inferior, and the fruits are raised merely for internal consumption. The residence of the government renders the society somewhat superior to that which is found in the other islands. The number of inhabitants is estimated at 50,000.

Fayal.—Fayal is the most frequented of all the islands after St. Michael, as it has one of the best harbors in the Azores, and lies directly in the track of vessels that are crossing the Atlantic in any direction. Its principal town is Villa de Horta. Captain Cook found that all sorts of fresh provisions might be obtained there: the bullocks and hogs are good, but the sheep small and poor. The town is defended by two castles and a wall, both in decay, and serving rather for show than strength. The city contains two convents for monks and three for nuns, with eight churches. These are the only good buildings in it, no other having glass windows. The bay is two miles in length and three quarters of a mile in breadth, and the depth of water from 6 to 20 fathoms. Though a good road, it is not altogether free from danger in S.S.W. and S.E. winds. Population 23,000.

Pico.—A considerable quantity of wine is shipped from Fayal under the appellation of Fayal wine, but really the produce of Pico, one of the most remarkable of the Azores. This island is composed of an immense conical mountain, rising to the height of 7613 feet, and bearing every trace of volcanic formation. The soil consists entirely of pulverized lava, and the ground has even been said to sound hollow when struck. All the lower parts of the mountain are in the highest state of cultivation, and covered with vine and orange plantations. The wine, which forms a sort of inferior Madeira, is in considerable demand. Pico produces also a valuable species of wood, resembling and equal in quality to mahogany. Population 26,000.

Graciosa and St. George are two small islands, situated between Fayal and Terceira. Graciosa is chiefly noted for the extreme beauty of its aspect and scenery. About fifty years ago St. George suffered from one of those awful visitations to which the Azores are subject. In 1808 a caldeira, situate in the centre of the island, was observed to be in a state of violent fermentation. It continued during several days to emit subterranean noises, and to cause violent convulsions throughout every part of the island. At length the great crisis came: vast streams of fire issued forth in every direction, with clouds of smoke, which, but for the volcanic light, would have involved every thing in midnight darkness. The principal stream took its direction toward the beautiful town of Ursula, which it seemed on the point of swallowing up; but suddenly changing its direction, it rushed into the sea by a different channel; a happy event, which superstition ascribed to the prayers of the Ursuline nuns. Many hundred acres of fertile land, however, were covered with scoriæ and ashes; some lives were lost, and general gloom and consternation diffused throughout the island. The inhabitants, however, soon applied themselves to repair the injury which their land had sustained. Population about 20,000.

The two small and most westerly islands of Corvo and Flores seem but imperfectly to belong to the group. They lie also out of the usual track of navigators; but to those who, missing their course, are led hither, Flores affords good shelter in its numerous bays. Its poultry is said to be the finest in the world; and the cattle are numerous, but small. The surplus produce of these islands is not of much importance. Population above 15,000.

Commerce of the Azores with the United States.—A communication to the Department of State, dated Fayal, April 3d, 1857, laments the inability to announce any improvement in the commerce between the Azores and the United States. The vintages of 1855 and 1856 were so much injured by the "odium," both in regard to quantity and quality, that no wine has been shipped abroad, and the quantity yet remaining of former vintages is exceedingly small. From the Island of St. Michaels there were shipped last season, just ended, an amount equal to 300,000 Sicily boxes of oranges, about 40,000 from Terceira, and about 5,500 from this island; and of all that quantity only about 1,500 boxes were shipped to the United States. Shipments have been made on a larger scale, but the results have been unfavorable; the vessels having to contend with almost constant gales of contrary winds, and the fruit being of a more perishable nature than that of Sicily, Spain and Portugal. The importation of cereals will swell the amount of imports, but it will be very ephemeral, and the ports will be closed as soon as circumstances will permit.

The seat of government of the Azores is at Angra, in Terceira. Ponta Delgada, in St. Michaels, is, however, the chief commercial city. The exports of corn from the Azores from 1835 to 1841, principally to Portugal, are given in the following table:

Years.	Quantities.					Values.
	Moios.		Quarters.		Bushels.	
1835..........	11,675	=	35,025	=	280,200	299,230
1836..........	11,080	=	33,240	=	265,920	272,865
1837..........	5,565	=	16,695	=	133,560	139,710
1838..........	9,580	=	28,740	=	229,920	246,785
1839..........	4,890	=	14,670	=	117,360	112,625
1840..........	12,153	=	36,459	=	291,672	311,025
1841..........	9,000	=	27,000	—	216,000	235,000

The oranges exported in 1801 amounted in value to $50,000; in 1820, to $125,000; and in 1840, to $450,000. For five years, ending with 1840, the average annual value of exports to Portugal was $215,645; to foreign countries, $260,815. Average annual value of imports during the same period, from Portugal, $266,600; from foreign countries, $397,110.

COMMERCE OF THE UNITED STATES WITH FAYAL AND OTHER AZORES, FROM OCTOBER 1, 1820, TO JULY 1, 1856.

Years ending.	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821......	$26,837	$11,158	$37,995	$137,982	....	$1,070	2,638	....
1822......	33,160	10,454	43,614	202,445	....	....	2,558	124
1823......	27,841	15,704	43,545	41,429	$8,500	1,221	1,562	261
1824......	17,463	4,023	21,486	45,103	....	4,978	939	805
1825......	33,421	4,695	38,116	61,763	....	3,407	1,751	266
1826......	16,976	2,495	19,471	86,261	....	5,766	753	....
1827......	13,487	4,861	18,348	84,203	8,000	21,299	839	....
1828......	19,559	4,719	24,278	70,328	....	12,773	1,934	....
1829......	7,949	78	8,027	21,302	....	3,000	672	137
1830......	6,649	1,524	8,173	32,912	....	11,340	244	. 137
Total...	$203,342	$59,711	$263,053	$783,728	$16,500	$64,854	13,890	1,730
Sept. 30, 1831......	$10,549	$6,049	$16,598	$32,092	....	$3,200	475	251
1832......	23,402	11,363	34,765	45,424	....	7,384	812	....
1833......	18,387	3,528	21,915	26,281	....	3,250	910	....
1834......	9,558	3,911	13,469	18,481	....	2,707	760	....
1835......	12,033	6,400	18,433	26,678	$5,000	4,736	1,179	....
1836......	7,181	450	7,631	17,374	....	432	691	....
1837......	13,408	3,531	16,939	29,023	....	2,364	486	....
1838......	7,556	1,681	9,237	32,746	....	....	509	68
1839......	9,130	4,739	13,869	15,222	....	....	819	....
1840......	10,475	5,623	16,094	38,138	....	....	1,089	....
Total...	$121,675	$47,275	$168,950	$281,459	$5,000	$24,073	7,730	319
Sept. 30, 1841......	$13,137	$5,785	$18,922	$16,093	$2,000	....	1,068	....
1842......	49,183	19,600	68,783	41,049	....	$1,000	1,622	100
9 mos. 1843......	8,569	621	9,190	12,783	....	....	742	....
June 30, 1844......	19,246	6,983	26,229	29,570	2,200	1,515	1,115	....
1845......	2,831	51	2,882	28,573	....	....	184	....
1846......	4,225	....	4,225	41,297	....	1,000	152	151
1847......	9,466	525	9,991	34,564	....	10,500	1,108	....
1848......	3,660	....	3,660	11,438	....	....	315	....
1849......	14,204	1,839	16,043	17,052	....	3,500	1,284	....
1850......	14,421	2,152	16,573	16,328	....	....	908	161
Total...	$138,942	$37,556	$176,498	$248,747	$4,200	$17,515	8,498	412
June 30, 1851......	$20,240	$1,045	$21,285	$32,852	....	$4,357	1,532	728
1852......	17,766	1,386	19,152	29,346	....	1,332	1,447	686
1853......	21,307	4,440	25,747	10,892	....	....	1,777	....
1854......	10,030	440	10,470	21,584	....	....	560	463
1855......	13,972	593	14,560	199,111	....	....	1,552	1,380
1856......	15,959	490	16,449	22,383	....	....	1,713	....

The harbor of Fayal is the best in the Azores, and greater facilities are offered to ships in distress, by affording refuge or supplies. American whalers frequently visit Fayal, and deposit large quantities of oil, to be transhipped to other ports, amounting annually to a value of upward of $300,000, most of which is forwarded to the markets of the United States. The direct imports from the United States to the Azores consist chiefly of timber, staves, heads for hogsheads, etc. The duties on lumber and staves are moderate. On cut nails they exceed 100 per cent., and on window-glass they rise over 300 per cent. American cotton manufactures are in good demand, and during the past few years have competed advantageously with those of Great Britain. The commercial regulations differ but little from those of the mother country. Foreign vessels, bringing the productions of the country to which they belong, and coming from the ports of the same, are admitted on the same footing as Portuguese vessels. When laden with the produce of other countries, they are subject to a differential duty of 15 per cent. There are no tonnage duties, light, or hospital dues, levied on shipping at the Azores. The entire charges to which a vessel is subject amount to $19 80, which is raised to $23 40 if the vessel has crossed the equator. The navigation of these islands employs about 3,000 tons in foreign and coasting trade. The latter is carried on with Lisbon, Madeira, and the different ports of the islands, and is restricted to national vessels. In 1852, 77 vessels, with a tonnage of 8,780 tons, entered these islands; of which number 8 were American, with an aggregate tonnage of 1,800 tons.

The chief inconvenience to which foreign tonnage is subjected in these islands, arises from the inconsistent and arbitrary sanitary regulations, which emanate from the home government at Lisbon, and which preclude all discretionary power on the part of the local authorities. For instance, should the Portuguese consul at New Orleans notify his government that the yellow fever prevails in that city (say in the month of September), orders are immediately forwarded by the Board of Health at Lisbon to the authorities of the islands to consider that city as infected. These orders, by the ordinary mode of conveyance, will not reach the islands until the following January; and notwithstanding it may be notorious that the fever ceased in October or November, a vessel that should arrive at Fayal, having left New Orleans in January, or later, would not be admitted, even should she be provided with a clean bill of health, certified with all formality, by the very same consul who had reported to his government the existence of the sickness! This regulation frequently exposes American captains to great inconvenience and considerable loss.—*Com. Rel. U. S.*

Feathers, Bed-feathers (Fr. *Plumes*, *Plumes à lit*; Ger. *Federn*, *Bettfedern*; Du. *Bedreern*, *Pluimen*; It. *Piume*; Sp. *Plumas*), make a considerable article of commerce; particularly those of the ostrich, goose, heron, swan, peacock, and other poultry. The feathers of the ostrich have been held in the highest estimation from antiquity downward, and have furnished favorite decorations for the fans and head-dresses of ladies, the helmets of warriors, and the most splendid processions. Many parts of Great Britain supply feathers for beds; and an inferior sort is brought from Ireland. Eider-down, the finest variety of its class, is imported from the north of Europe; the ducks that supply it being inhabitants of Greenland, Iceland, and Norway. The eider-duck breeds in the islands on the west of Scotland, but not in sufficient numbers to form a profitable branch of trade to the inhabitants. Hudson's Bay furnishes very fine feathers, especially for quills. The down of the swan is brought from Dantzic, as well as large quantities of superior feathers.

Ostrich and other Plumes.—The long feathers of the wings and the tail constitute the ordinary ostrich plume. The animal is captured and killed with much care, to prevent any injury to the plumage. The feathers are sorted into various qualities, scoured or cleaned, bleached, dried, shaken, and opened, the ribs scraped with a bit of glass, the filaments made to assume a curly form by scraping, dyed or not, according to circumstances, and adapted for the adjustment of military hats or other garments. Those in England who are versed in the heraldry of pomp and formality would know the ostrich plumes worn by the Knights of the Garter or the Knights Grand Crosses of the Bath from the court plumes adapted for ladies, and the black plumes for officers of the Highland regiments. In recent years, means have been devised for imparting brilliant dyes to ostrich feathers, several different colors to one feather, gradually shaded or blended one into another. Then, besides the ostrich, we have the feathers of the marabout, the ibis, the bird of paradise, the vulture or rhea, the emu, the heron, the plotus, the egret, the pheasant, the peacock, the turkey, the swan, the eagle, and some other birds—all applied as ornaments to dress. Some of these are very costly: some are used almost exclusively for one particular purpose, while others have their fashionable and unfashionable periods in the public favor. Some of the marabout feathers are knotted with gold, to make a costly trimming for dresses. The emu feathers are more worn on the Continent than in England. The heron feathers, worn by the Knights of the Garter, frequently cost 50 guineas the plume, and sometimes above 100 guineas, on account of their scarcity. The large egret feathers are worn by the Hussars.

Fecamp, a seaport town in France, department of Seine-Inférieure, situated on the English Channel, at the mouth of a small cognominal river 23 miles N.N.E. of Havre. Population about 10,000. It occupies the bottom and sides of a narrow valley opening out toward the sea, between two cliffs, on one of which stands a light-house. Its port, though small, is one of the best on the Channel, and has lately been greatly improved by the construction of an inner port, with a fine quay, etc. It carries on a considerable trade in Baltic and colonial produce, brandy, salt, etc.; and sends out vessels to the whale, cod, mackerel, and herring fisheries. The river affords abundant water-power for numerous cotton, oil, and other mills. Fécamp has also sugar refineries, tanneries, building-docks, and manufactures of hardware, candles, soda, etc. The town consists almost entirely of one street upward of two miles in length.

Feejee Islands. These islands constitute a group in the South Pacific Ocean, favorably situated for the whaling interests of the United States, if the habits of the natives did not render it unsafe for whale-ships to enter any of their ports, unless under the protection of a man-of-war. The group consists of 154 islands in all, 65 of which are inhabited, and contains a population estimated at 134,000 souls. The principal islands are Viti Levu and Paou, or Sandal-wood Island; others are Vuna, Kandaboo, Ovolau, Bau, Mathuata, and Goro; each of the islands containing from 5,000 to 13,000 inhabitants. Sandal-wood was formerly a leading production of this group, but it has now entirely disappeared. The great fertility of the soil, however, and the low price at which vessels could recruit their stores, and obtain supplies of fresh provisions and excellent water, taken in connection with the fact that the whaling interests of citizens of the United States in that quarter involve annually from seven to eight millions of dollars, show how important this group might become to American whalers, if they were only strong enough to prevent or resent acts of piracy and plunder.

An official communication to the State Department, under date of January 1, 1854, says: "The chief and inhabitants of Bau (at present the controlers of this group), causing the destruction of property at Lavuka, live by the fruits of begging, theft, and robbery—one unbroken series of robberies and butcheries. In default of justice, these men escape." When our whalers are fortunate enough to escape from the atrocities above described, they can obtain a full supply of all descriptions of vegetables, pork, poultry, etc., for an entire crew for about $56, in trade. The same communication further informs the Department, that American vessels are actually driven away from this archipelago, the natives being emboldened in the perpetration of these acts by the absence of American vessels of war in any of their ports. During the past year (1855) an American ship of war, the *John Adams*, visited the Feejee Islands for the purpose of inquiring into, and demanding reparation for, the cruelties and acts of plunder and piracy committed by the natives upon American ships trading and fishing in the Feejeean archipelago. The result of this visit, it is believed, will put an end to the atrocities of these savages, and secure a safe and commodious retreat for American whalers in those distant seas. It is understood that this security is guarantied by a convention or treaty agreed to by Tui Viti, the king of the islands. There are no quarantine regulations observed at any of these islands, and consequently no bills of health are required. Passengers are subjected to no port or landing requirements, and are at liberty to go ashore when and as they please.

There are no custom duties, nor are there any light, hospital, or other dues or taxes exacted. For pilots, the charges are such as can be agreed upon. It has been already stated that this group of islands affords a convenient and excellent stopping-place for our whale-ships engaged in their hazardous and laborious toil in the South Pacific seas. It should be added, that our trading ships generally, in that quarter of the globe, could beneficially call at these islands, particularly if freighted with miscellaneous cargoes of cotton goods, weapons of war, cutlery, and other similar wares suited to the barbarous and semi-civilized natives, could they but be taught to pay proper respect to the American flag. During the three years ending with 1853, the exports from the United States to the Feejee Islands amounted, in the aggregate, to $136,000, viz.: in 1851, to $32,000; in 1852, to $54,000; in 1853, to $50,000. The merchandise received in barter for American imports consist of biche-de-mer, tortoise-shell, gums, arrow-root, and cocoanut-oil. The exports from the United States consist of assorted cargoes, and the annual value may be estimated from the preceding figures, as the trade is almost exclusively one of barter, in which the American shippers usually realize 250 per cent. profit on their merchandise. During the last six months of 1855, there arrived at the port of Lanthala five American vessels, including two ships of war (the *John Adams* and the *St. Mary's*), measuring, exclusive of the two latter, an aggregate of 1124 tons. Three whale-ships also touched at the islands during the same period. The inward cargoes of two of the merchant vessels referred to, amounting in value to $4000, consisted of general cargoes, of which was landed, in value, $3000. The remaining vessel was laden with outfits, stores, and whaling-lines, valued at $30,000, none of which was landed at the islands. The outward cargoes consisted of biche-de-mer, 1500 peculs, and shells, 1000 pouds, valued at $41,000. One of these vessels made a voyage to Sydney with yams, cocoanut-oil, and live stock, while the natives were collecting her cargo of biche-de-mer.—C. D.—*Com. Rel. U. S.*

Felt, a kind of stuff resembling coarse cloth, made of hair or wool, without weaving. The fur of the hare, rabbit, seal, beaver, and the wool of the sheep, are the materials chiefly used for making elt. The hairs and loose flocks of wool are thoroughly mixed together by an operation called *bowing*, which depends on the vibrations of an elastic string; when, in consequence of their anatomical structure, they become matted together.

Felted Cloth. This woolen fabric is made without spinning or weaving. *Varnished* or *Japanned Felt* is made by imbuing the stuff of coarse hat bodies with drying oil, prepared by boiling 50 lbs. of linseed oil with white lead, litharge, and umber, of each one pound. The felt is to be dried in a stove, and then polished by pumice-stone. Five or six coats of oil are required. The surface is at last varnished. When the object is intended to be stiff, like visors, the fabric is to be impregnated first of all with flour-paste, then stove-dried, cut into the desired shape, next imbued with the drying-oil, and pumiced repeatedly; lastly, placed, to the number of 20, in a hot iron mold, and exposed to strong pressure. Japanned hats made in this way are sold in France at 1s. 3d. a piece; and they will stand several years' wear.

Felting (Fr. *Feutrage;* Ger. *Filzen*), is the process by which loose flocks of wool, and hairs of various animals, as the beaver, rabbit, hare, etc., are mutually interlaced into a compact textile fabric. The first step toward making felt is to mix, in the propor proportions, the different kinds of fibres intended to form the stuff; and then, by the vibratory strokes of the bowstring, to toss them up in the air, and to cause them to fall as irregularly as possible upon the table, opened, spread, and scattered. The workman covers this layer of loose flocks with a piece of thick blanket stuff slightly moistened; he presses it with his hands, moving the hair backward and forward in all directions. Thus the different fibres get interlaced, by their ends pursuing ever tortuous paths; their vermicular motion being always, however, root foremost. As the matting gets denser, the hand pressure should be increased, in order to overcome the increasing resistance to the decussation. A first thin sheet of soft, spongy felt being now formed, a second is condensed upon it in like manner, and then a third, till the requisite strength and thickness be obtained. These different pieces are successively brought together, disposed in a way suitable to the wished-for article, and united by continued dextrous pressure. The stuff must be next subjected to the fulling-mill.

Felling Timber. In arboriculture, when a full-grown tree is cut down, it is said to be felled; but this term is never applied to young trees or bushes, undergrowth, or hedges, which are said to be rooted out or cut over. Much has been written respecting the proper season for felling trees; some arguing in favor of midwinter, and others in favor of midsummer. The question principally turns upon the quantity and the value of the soft or outer-wood in the trunk of the tree to be felled, known by foresters and carpenters as the sap. As this sap or outer-wood is the only portion of the trunk in which the sap or juices of the tree circulate, it is evident that if no value be set upon it the tree may be cut down at any season, because the truly valuable part of the trunk, the mature timber, is impermeable to the sap in its ascent through the soft wood, and is, therefore, in the same state at every season of the year. On the other hand, where much value is attached to the soft or outer-wood, where this outer-wood is wished to be made as valuable as possible, or where, as in the case of comparatively young trees, the greater part of the trunk consists of sap-wood, felling ought to take place when there is least sap in the course of circulation. This season is, without doubt, midwinter, which, all other circumstances being equal, is unquestionably the best season for felling timber; the next best being midsummer, when the sap is chiefly confined to the young shoots, the circumference of the soft wood, and the bark; as the worst is the spring, just before the development of the buds, when the tree is fullest of sap, and receiving constantly fresh supplies from the root; and in autumn, immediately before the fall of the leaf, when there is a superabundance of sap, from its being as it were thrown out of employment by the falling of the leaf. In general, all the soft woods, such as the elm, lime, poplar, willow, etc., should be felled during winter; hard woods, like the oak, beech, ash, etc., when the trunks are of large size, and valued chiefly for their heart-wood, may be felled at any time. See articles DRY ROT and WOOD.

Felucca (Ital. *feluca*), a little vessel with oars and lateen sales, common in the Mediterranean. It has a rudder at the stem and another at the stern, to be applied as occasion requires.

Ferment (Lat. *ferveo*, I boil), the substance which is essential to the process of fermentation. It is either naturally present in the fermentable juice, as in the grape, or it is added, as in the manufacture of beer, where *yeast* constitutes the ferment. Ferments are of an albuminous or glutinous character; the presence of nitrogen seems essential in their composition, hence they are classed by chemists among azotized compounds. Their modus operandi is still unexplained.

Fermentation (Lat.) When certain vegetable substances are dissolved in water, and subjected to a due temperature (between 65° and 85°), they undergo a series of changes which terminate in the production of alcohol or spirit; these changes constitute the phenomena of *vinous fermentation.* Sugar and some ferment are essential to the process; and during the formation of the alcohol the sugar disappears, and carbonic acid is more or less abundantly evolved. The simplest case of fermentation is that of *must*, or of the expressed juice of the grape, which, when exposed, either in close or open vessels, to a temperature of about 70°, soon begins to give off carbonic acid, and to become turbid and frothy; after a time a scum collects upon the surface, and a sediment is deposited; the liquor which had grown warm gradually cools and clears, loses its sweet taste, and is converted into *wine.* The chief component parts of must are water, sugar, mucilage, gluten, and tartar. During the fermentation carbonic acid escapes, the sugar disappears, and with it the greater part of the mucilage; the gluten chiefly forms the scum and a portion of the sediment; and the tartar, originally in solution, is thrown down in the form of a colored deposit. It appears, therefore, that the new products, which are *alcohol* and *carbonic acid*, are principally formed at the expense of the sugar; and Gay Lussac's experiments have shown that 45 pounds of sugar are resolved, in the process of fermentation, into 23 of alcohol and 22 of carbonic acid. Sugar and water alone will not ferment; the ingredient requisite to the commencement of the change is the gluten, which absorbs in the first instance a little oxygen from the air, becomes insoluble, and induces the subsequent changes. The reason why grapes never ferment till the juice is expressed, seems to depend upon the exclusion of air by the husk or membranes; and if grapes be bruised in a perfectly close vessel, carefully excluding oxygen, the juice undergoes no change; so that the mere breaking down of the texture of the fruit is insufficient. But a very short exposure of the pulp to air is sufficient to induce that change in the juice which leads on to fermentation, and which is afterward independent of the further contact of air, the evolution of carbonic acid being exclusively referable to the decomposition of sugar. In *beer* the alcohol is derived from the sugar, original and produced, of the malt. When wine is exposed to air and a due temperature, a second fermentation ensues, which is called *acetous fermentation*, and which terminates in the production of *vinegar.* During this process oxygen is absorbed, and more or less carbonic acid in most cases evolved; but the apparent cause of the formation of vinegar is the abstraction of hydrogen from the alcohol, so as to leave the remaining elements in such proportions as to constitute *acetic acid.* Thus alcohol is theoretically constituted of charcoal, water, and hydrogen, and acetic acid of charcoal and water only; the oxygen of the air, therefore, converts the hydrogen of the alcohol into water, and so effects the change into vinegar.

Fern, or **Farn Islands**, a group of small islets or rocks, 17 in number, lying off the coast of Northumberland, but included in the county of Durham. There are two light-houses on these islands. It was here, in 1838, that Grace Darling and her father, in stormy weather, rescued the passengers of the *Forfarshire* steamer. The Fern Islands are frequented by immense numbers of sea-birds.

Fernando de Noronha, an island in the South Atlantic, lying about 70 leagues from the coast of Brazil. It is about 20 miles in circumference, and the surface is rugged and mountainous. It has several harbors defended by forts, and serves as a place of banishment for criminals from Brazil. N. lat. 3° 56′, W. long. 32° 28′.

Fernando Po, or **Fernao do Pao**, an island on the west coast of Africa, lying in the Bight of Benin, about 20 miles from the mainland, in N. lat. 3° 25′, E. long. 8° 50′. It is about 44 miles in length from N.N.E. to S.S.W., and about 20 in breadth. The coasts are steep and rocky, and the interior is mountainous. A ridge of mountains toward the centre of the island rises to the height of 8000 feet, and is terminated at each extremity by a peaked mountain, the one at the northern extremity attaining a height of 10,700 feet. The southern extremity of the island is also intersected by several steep mountains, varying from 1,000 to 3,000 feet. These mountains are covered, most of them to their summits, together with the intervening valleys, with dense forests of shrubs and lofty trees of luxuriant growth. The rocks are of volcanic origin, and the soil is rich and fertile, producing rice, sugar-cane, cotton, tobacco, yams, palms, etc. Sheep, goats, fowls, turtle, and fish, are abundant The climate is salubrious, though the rainy season lasts from May to December, and is succeeded by a season of dense fogs. The harbors are small, the largest being Port Clarence on the northern shore. This island was discovered in 1471 by a Portuguese navigator, whose name it bears. It was taken possession of by Spain in 1778, but abandoned in 1782. The English in 1827 formed a settlement here, but relinquished it in 1834; the Spaniards resumed possession of it in 1844, and have given it the name of *Puerto de Isabel.* The native population is estimated at about 15,000.

Ferrol, a seaport town of Spain, province of Coruña, and one of the first naval arsenals in the kingdom, is situated on the N. arm of the Bay of Betanzos, 12 miles north-west of the town of Coruña. The harbor, which is one of the best in Europe, is deep, capacious, and secure; but the entrance, which is a strait about two miles in length at the narrowest part, only admits one ship at a time, and is commanded on either side by strong forts. The town is protected on the land-side by a wall, on which 200 cannon might be mounted. The dockyard is divided into two parts, the outer being the smaller, and the whole occupying a space of more than 115,000 square yards. Behind the inner dock are the dwellings of the operatives, and in the north angle are the founderies, rope-walks, and magazines. They are all, however, as well as the arsenal, in a neglected and ruinous condition.

Ferry (Germ. and Sax. *fahren*, to pass over), in law, a right arising from royal grant or prescription to have a boat to carry men and horses across a river, and to levy reasonable toll. The land on both sides ought to belong to the owner of the ferry-boats.

Fescue grass, a valuable grass for meadows and pastures. (*Festuca pratensis*, Lin.) In deep, rich soils, somewhat moist, it is considered as the most bulky and nutritive of all grasses; but in poorer soils it is equaled, if not surpassed, by the rye grass (*Lolium perenne*), and the meadow foxtail grass (*Aleopecurus pratensis*). The meadow fescue grows to the height of between 2 and 3 feet; but the sheep fescue (*F. ovæna*), and several other species, seldom grow above 6 inches or a foot in height, and are chiefly sown on sheep pastures, and used to lay down lawns and grassy surfaces to be mown in pleasure grounds. All the fescues are perennials.

Fez, an extensive country of Africa, and at one time the most flourishing kingdom in the northern part of that continent. It now, however, forms a province of the empire of Morocco. *Fez*, or *Fas*, the capital of this kingdom, was built in 793, A. D., by a prince named Edris, and having soon risen to be a city of the first magnitude, became the capital of the western Mohammedan states. In the 12th century it is said to have contained 700 temples and mosks, and other public edifices, a number of which were erected upon a magnificent scale, and adorned with a profusion of marble pillars. The manufactures of Fez consist of woolen *hhaïks*, sashes, and silk handkerchiefs, slippers of good leather, which they tan remarkably well, red felt caps, some coarse linen cloth, fine carpets, a curious kind of earthenware, weapons of several kinds, saddlers' ware, jewelry, and copper utensils. The arts here find little encouragement, and are, indeed, far inferior to those of Europe, except in the preparation of leather, and in the fabrication of carpets and of hhaïks, which the manufacturers know how to weave as fine and as transparent as gauze. They are also expert workers in wax, weapons, and harness. The heat during the summer is very great; but in other seasons of the year, particularly winter, the climate is agreeable. With regard to the number of inhabitants, much difference of opinion prevails among travelers.

Fibre (Lat. *fibra*), a fine thread or filament; a fine slender body, such as those of which flesh, nerves, plants, roots, etc., are composed. In our manufactures vegetable filaments and fibres are among the most important of the whole series of raw produce; furnishing thread, cloth, cordage, and the like. For these purposes the filamentous parts of the *Gossypium Cannabis*, and *Linum*, or cotton, hemp, and flax, are used. The fibres of other plants have peen employed in different countries for the same uses. Putrefaction destroys the pulpy matter, and leaves the tough filaments entire. Different kinds of cloth are prepared in the East from the fibres of the bark of certain trees boiled in a strong lye. Some of these cloths are very fine, and approach to the softness of silk, but in durability fall short of cotton; others, again, are coarser and stronger, and much exceed cotton in durability. See FLAX.

Fid, a short bar of wood or iron put through the heel or lower part of a topmast, and resting by its ends on the trestletrees, and on which the mast is therefore supported. When the topmast is to be got down, it is first lifted to take the pressure off the fid, which is then withdrawn.

Fid, or **Splicing-fid**, is also a sharp cone of wood for opening the strands of rope.

Fiddles, or **Violins** (Ger. *Violinen*, *Geigen*; Du. *Viool en*; Fr. *Violons*; It. *Violini*; Sp. *Violines*; Rus. *Skripizii*), musical instruments, too well known to need any particular description. The finest-toned violins are those made in Italy; they are usually called Cremonas, from the name of the town where they were formerly manufactured in the highest perfection; $500 and more have not unfrequently been given for a first-rate Cremona violin.

Figs (Ger. *Feigen*; Du. *Vygen*; Fr. *Figues*; It. *Fichi*; Sp. *Higos*; Lat. *Fici*, *Caricæ*; Arab. *Teen*), the fruit of the fig-tree (*Ficus carica*), a native of Asia, but early introduced into Europe.

It flourishes in Turkey, Greece, France, Spain, Italy, and northern Africa, and even sometimes ripens its fruit in the open air in this country. Figs, when ripe, are, for the most part, dried in ovens to preserve them; and then packed very closely in the small chests and baskets in which we import them. The best come from Turkey; those of Kalamata, in the Morea, are said to be the most luscious.—THOMSON'S *Dispensatory*.

Dried figs form a very considerable article of commerce in Provence, Italy, and Spain; besides affording, as in the East, a principal article of sustenance for the population. In Spain, figs are chiefly exported from Andalusia and Valencia; but they are more or less abundant in every province. In the northern parts of France there are many fig gardens, particularly at Argenteuil.

Figure Head. The figure, statue, or bust, on the projecting part of the head of a ship, called the cutwater.

Figures, in Arithmetic, are the numeral characters, or ten digits, by which numbers are expressed. They are supposed to be of Indian origin, and to have been introduced into Europe by the Moors of Spain in the 13th century; but the date of their introduction is much disputed.

Filbert, or **Filberd**, the well-known fruit of the cultivated hazel nut, or *Corylus avellana*, is a seed-vessel inclosed within an involucre or cupule, which is the part commonly called the husk. This organ is of the same nature as the cup of the oak, and the prickly case in which the nuts of the sweet chestnut and the mast of the beech are inclosed. In the filbert it is much larger than in the common nut; and it is this character, together with the lengthened figure of the nut, which distinguishes the two races of nuts and filberts. The best known varieties of the filbert are the red, the frizzled, and the white, the latter being the kind most commonly grown.

File, Files (Da. *File*; Du. *Vylen*; Fr. *Limes*; Ger. *Feilen*; It. *Lime*), an instrument of iron or forged steel, cut in little furrows, used to polish or smooth metals, timber, and other hard bodies. Files are of various forms, sizes, and cuts, according to the uses to which they are to be applied. When the surface is cut in transverse furrows by a straight sharp-edged chisel and mallet, the instrument is properly called a file; but when it is raised by a triangular punch, it is termed a rasp. This last kind is chiefly employed for rubbing wood and horn. The larger kind of files are made of blistered steel; but the small and fine files of cast steel. Various ingenious machines have been contrived for cutting the teeth of files, but these have not hitherto succeeded so well as to supersede file-making by the hand. After the file has been cut it must undergo the process of tempering. This is said to be well effected in the following manner: A saturated solution of common salt, stiffened to the consistence of cream with ale grounds, or with any cheap farinaceous matter, such as bean-flour (some use well-dried chimney-soot), is to be spread over the file, in order to preserve its surface from oxydation during the process; it is then uniformly heated in a coke or charcoal fire to a cherry-red color; and on its removal from the fire it is to be suddenly quenched in cold and pure spring water. It is subsequently cleaned with charcoal and a rag; after which it is laid up in wheat bran to preserve it from rust. When the file is intended to cut iron or steel, it is found preferable to substitute animal carbon for the grounds or farinaceous matter mentioned above. This will give even to iron a superficial hardness sufficient for any kind of file.

Filigree, or **Fillagree** (Ital. *filigrano*; Lat. *filum*, a thread, and *granum*, a grain), a very delicate kind of ornamental work in gold or silver, wrought in the manner of little threads, or threads and grains intermixed. Filigree work is of eastern origin, and was first introduced into Europe by the Italians. In Sumatra, manufactures of this kind have been carried to the highest degree of perfection, and yet the tools employed are exceedingly coarse and clumsy. These are generally rudely and inartificially formed from any piece of old iron. A piece of iron hoop suffices for making the wire-drawing instrument; an old hammer head, stuck in a block, serves as an anvil; and two old nails, tied together at one end, will suffice for a pair of compasses. The gold is melted in a piece of *preeoo* or earthen rice-pot, or sometimes in a crucible of ordinary clay. In general no bellows are used, but the fire is blown with the mouth, through a joint of bamboo; and if the quantity of metal to be melted is considerable, three or four persons sit round the furnace, which is an old broken quallee or iron pot, and blow together. At Padang, where the manufacture is most considerable, they have adopted the Chinese bellows. The method of drawing the wire differs but little from that which is used by European workmen. When drawn to a sufficient fineness, it is flattened by beating it on the anvil; and when flattened, a twist is given to it by rubbing it on a block of wood with a flat stick. After twisting they again beat it upon the anvil, and thus it becomes flattened wire with indented edges. The end of the wire is folded down with a pair of pincers, and thus is formed a leaf, or element of a flower, which is cut off. The end is again folded and cut off till they have a sufficient number of leaves, which are laid on singly. Patterns of the flowers or foliage, in which there is seldom much variety, are prepared on paper of the size of the gold plate on which the filigree is to be laid. According to these, they begin to dispose on the plate the larger compartments of the foliage; for which they use plain flattened wire of a larger size, and fill it up with the leaves before mentioned. In order to fix the work, they employ a gelatinous substance made of the berry called *boca sago*, ground to a pulp on a rough stone. After the leaves have been all placed in order, and stuck on bit by bit, a solder is prepared of gold filings and borax moistened with water, which is strewed over the plate, when it is put in the fire for a short time, and the whole becomes united. This kind of work on a gold plate is called *carrang papan;* but when the work is open, it is called *carrang trouse.* In executing the latter, the foliage is laid out upon a card, or soft kind of wood, and stuck on, as before described, with the sago berry; and the work, when finished, being strewed over with the solder, is put into the fire, when the card or soft wood burning away, the gold remains connected. If the piece be large it is soldered at several times. In the manufacture of badjoo buttons, they first make the lower part flat, and having a mold formed of a piece of buffalo's horn, indented to several sizes, each like one half of a bullet mold, they lay their work over one of these holes, and with a horn punch press it into the form of a button; after which they complete the upper part. When the filigree is finished they cleanse it by boiling it in water with common salt and alum, or sometimes lime juice; and in order to give it that fine purple color which they called *sapo*, they boil it in water mixed with brimstone. The manner of making the little balls with which their works are sometimes ornamented, is simple. They take a piece of charcoal, and having cut it flat and smooth, make in it a small hole, which they fill with gold dust, and this being melted in the fire becomes a little ball. They are very inexpert at finishing and polishing the plain parts, hinges, screws, and the like, being in this as much excelled by the European artists as the latter fall short of them in the fineness and minuteness of the foliage. The Chinese also make filigree, mostly of silver, which looks elegant, but wants the extraordinary delicacy of the Malay work. The price of the workmanship depends upon the difficulty or uncommonness of the pattern. In some articles of usual demand it does not exceed one third of the value of the gold, but in matters of fancy it is generally equal to that of the metal.

In India, the articles usually made in gold and silver filigree are bracelets, ear-rings, brooches, chains, groups of flowers, and small boxes and caskets. Mr. Taylor, in his "Account of the Arts in India," says: "The design best adapted for displaying the delicate work of filigree is that of a leaf; it should be drawn on stout paper, and of the exact size of the article intended to be made. The apparatus used in the art is exceedingly simple, consisting merely of a few small crucibles, a piece of bamboo for a blow-pipe, small hammers for flattening the wire, and sets of forceps for interweaving it. The gold and silver wire made by the Hindoos for this and other purposes is of varied character, according to the purposes for which it is intended; thus, the *goolrbatoon* is made at Dacca for the embroidering of muslins and silks; *goshoo* for caps and for covering the handles of chowries; *salmah* for turbans, slippers, and hookah-snakes; and *booiun* for gold lace and brocades. For some of these purposes it is not strictly wire, but gold thread, that is, silk covered with silver and then with gold."—E. B.

Fill. The sea term for bracing a yard which had been laid aback, so that the wind may act on the after or proper side of the sail.

Finesse (Fr.) may be defined simply as a peculiar aptitude of discovering, in any business, the best means of attaining the object in view; or as the power of embracing in one comprehensive glance the various interests of any subject, together with ingenuity to devise and tact to carry out the plan best calculated to obtain success.

Finland, called by the natives *Suomemna*, the Region of Lakes and Swamps, is a government of Russia, comprising, besides the old Swedish province of Finland, the two Lapmarks of Kami and Torneă, and the district of Wiborg. It lies between N. lat. 59° 50′ and 70° 6′, and E. long. 20° 30′ and 32° 45′ being bounded on the N. by Norwegian Finmark, by Sweden W. and the Gulf of Bothnia, S. by the Gulf of Finland, and E. by the governments of St. Petersburg, Olonetz, and Archangel. It is about 730 miles in length from N. to S., with an average breadth of about 185 miles. The sea-coast of Finland throughout its entire extent presents the same succession of fiords and rocky headlands as characterize the whole seaward frontier of Sweden and Norway. The fiords of Finland, however, are far more limited than those to the west of the Gulf of Bothnia, and seldom exceed a few miles in extent, although their mouths contain an equal number of islands, some of which, as the isles of Sveaborg, have been converted into fortresses of great strength. The coasts of the Bothnian and Finland Gulfs are thickly strewn with rocks of granite and limestone, presenting in soms places a labyrinthine archipelago of little islands, rendering the navigation extremely dangerous. The greater portion of the interior is a vast table-land averaging in height from 400 to 600 feet, and interspersed with hills of no great elevation. In the north, however, are the Manselka Mountains, which attain a height of nearly 4000 feet, and stretch southward, though with several interruptions, until they terminate in lofty cliffs on the Gulf of Bothnia. The great mass of mountains is composed of red granite, and vast quantities of the same rock lie in boulders on the lower grounds, and prove a very serious obstacle to their cultivation. Many of the heights are bare, but the greater part of them being of moderate elevation are covered with forests chiefly of pine; and in their combination with the vast number of lakes inclosed by their bases, often form very romantic scenery. The extensive forests are sometimes devastated by the tempests of winter, which seem to find access to their very centres in tornadoes, tearing up by the roots or bending and snapping the largest pines. Frequently also ravages are committed in them by conflagration occasioned often through the carelessness of the peasants. The interior of Finland is also intersected and broken up by a vast number of lakes, throwing out winding arms and branches in all directions, which, while they offer the greatest facilities for inland navigation, render land traveling circuitous and dangerous. Many of the high roads pass over islands on these lakes, the natural strength of whose situation has been taken advantage of, to cover them with batteries; and some of them, as at Wiborg and Nyslot, are considered impregnable, save to fraud or famine. The principal of these lakes are Ladoga, the greater portion of which belongs to this government; Lake Saima, which is crowded with islands and discharges its superfluous waters in a series of cataracts into Lake Ladoga, but which is now connected by means of a canal with the Gulf of Finland near Wiborg; and Lake Enara in the extreme north, covering above 1000 square miles, and having its outlet in the Frozen Ocean. The chief rivers are the Ulea, which is navigated by trading-vessels, though its stream is very rapid; the Cano, which passes Biörneborg; the Aurajoki, which at Abo is about 100 yards broad; the

Kymen, which flows into the middle of the Gulf of Finland; and the Tornea, which discharges itself at the northern extremity of the Gulf of Bothnia, and forms the present boundary between Sweden and Russia. The climate varies much according to the locality. In Lapmark, in the north, it is polar somewhat modified, and the sun disappears during December and January. Further south at Uleaborg, winter begins in October and continues to May, to which month spring is limited. Summer commences in June and lasts three months, which are generally so hot and dry that the crops, particularly where the soil is of a sandy nature, often suffer from drought. The autumn, like the spring, is confined to one month, and may be said to commence and terminate in September. Even in summer the nights are cold, particularly about the middle of August. During summer, however, the progress of vegetation is remarkably rapid; and there have been instances of grain being sown and reaped in six weeks. In the more southern parts the climate is less severe; the winter being of five or six months' duration. Dense fogs are frequent, and heavy rains take place in autumn. The soil is for the most part stony or sandy; but nothwithstanding this it is much more productive than the opposite part of the Scandinavian peninsula, and when in the possession of Sweden it was termed the granary of that country. The principal crops are barley and rye, but owing to the nature of the surface and climate a large portion of the land is fit only for pasture. In the north, where vegetation is almost confined to the growth of moss and lichen, other domestic animals are superseded by the reindeer, of which great herds are kept. In addition to timber (chiefly fir), large quantities of potash, pitch, and rosin are obtained, and form the principal articles of export. The mineral productions are chiefly confined to iron, lead, sulphur, slate, and granite. The first is only wrought to a limited extent for the supply of a few furnaces; wrought iron being now principally imported from Sweden. A great number of excellent granite quarries have been opened chiefly on the borders of the lakes or sea-coasts to secure the advantage of water carriage. From these are obtained blocks of extraordinary magnitude and beauty, which are employed for architectural and artistic purposes. One of the finest specimens is the monolith obelisk recently erected in St. Petersburg to the Emperor Alexander. In its rough state it was 12 feet in diameter, and 80 feet in length. The manufactures of Finland are insignificant. Agriculture, the rearing of cattle, and fishing are the principal occupations of the inhabitants. The coasts present many good harbors, but on account of the long winter they can not be extensively used. In winter sledges afford an easy and rapid communication with different parts, and even with Sweden across the Gulf of Bothnia. In March, 1809, Barclay de Tolly crossed over with a division of the Russian army from Vasa to Umea in Sweden.

From official documents the returns of the trade of Finland for the year 1848, were, in silver roubles of the value of about 3s. 2d., as follows:

EXPORTS.

To Sweden and Norway	197,942
To other countries	1,946,994
Export duty on the same	38,704
Total	2,183,640

IMPORTS.

From Sweden and Norway	430,366
From other countries	3,123,590
	8,553,956
Deduct import duty thereon	893,500
Total	2,660,456

Showing an excess in the imports over the exports of 476,816 roubles, which, however, was in part covered by the freight earned by the merchant shipping. The above statements indicate a falling off as compared with former years in the export trade to Norway and Sweden. To these two countries the leading articles of export and their value were—fish, 23,569 roubles; hides, 8616; beef, 24,578; grain, 15,083; tallow, 30,809; tar, 11,483; firewood, 11,483. The imports were—books, 16,200 roubles; fish, 25,228; iron and steel, 250,870; sugar, 66,418; tobacco, 4677; dye-woods and stuffs, 23,990. The exports to other countries were also less than in former years; the chief articles were—potash, 16,733 roubles; butter, 183,409; tar, 324,717; wood and timber, 921,360. The chief imports from other countries were—medicines, 20,914 roubles; cotton, 138,318; arrack, rum, brandy, 169,794; coffee, 597,708; fruits, 106,042; dye-stuffs, 134,550; yarn, 349,993; iron and steel, 89,709; salt, 531,665; sugar, 544,485; wine, 140,528; manufactures wove, 666,145.

In 1831 Finland was divided administratively into eight circles or *läns*, which are subdivided into *fogderier* or districts, and *herads* or bailiwicks. There is a distinct establishment at St. Petersburg for the government of this vast province. The governor-general, who resides at Helsingfors, has the superintendence of the military affairs. Finland has a diet composed of the four orders of the nobility, clergy, citizens, and peasantry, and a code of laws and judicial system similar to that of Sweden, but the diet is rarely convoked, except to consent to the imposition of fresh taxes, a senate more recently established having replaced it in the exercise of its functions. The regiments raised in Finland are not promiscuously intermixed with the general forces of the Russian empire; and their fleet, by far the best manned portion of the Russian navy, forms a distinct squadron under the Finnish flag. None but a native Finlander can hold any office of trust in the country. Almost all the inhabitants are Lutherans under the bishops of Abo and Borgo, except in the circle of Wiborg, where they belong to the Russian church. Public education is in a very backward state. At Helsingfors is a university, transferred from Abo in 1828; and all the towns have schools, but there is a great deficiency of country schools. The majority of the inhabitants are Fins, who call themselves *Suomalans* or *Suomes*, but they are denominated Tschudes by the Russians. They are of middle height, robust, flat-faced, with prominent cheek-bones, light, reddish, or yellowish-brown hair, gray eyes, little beard, and a dull sallow complexion. They are courageous, hospitable, and honest, but obstinate in the extreme, indolent, dirty, and, it is said, revengeful. Their customs and habits have been handed down from time immemorial, and their costume forcibly bears out the supposition of their being of oriental origin. The peasants wear long loose robes of a coarse manufacture, secured by a silken cincture like the *kummerbund* of the Mussulmans. The eight läns with their areas and populations are as follows, commencing from the south and east:

	Area.	Population.
Wiborg	16,700	224,701
St. Michael,	9,271	135,231
Nyland	5,376	149,714
Tavastehuus	7,112	182,586
Abo	10,626	250,238
Vasa	15,938	199,437
Kuopio	17,039	156,706
Uleaborg	63,415	125,114
Total	145,477	1,373,727

The chief towns of Finland are Helsingfors, the present capital, Abo, the former capital, Wiborg, Tavestehuus, Vasa, Uleaborg, and Tornea. The Fins were pagans living under their own independent kings till the twelfth century, about the middle of which Finland was conquered by the Swedes, who introduced Christianity. The province of Wiborg was seized by Peter the Great in 1721, and the remainder of the country was annexed by conquest to the Russian dominions in 1809.—*Athenæum*, 18th March, 1854.

Fire-Arms. Under this designation is comprised all sorts of guns, fowling-pieces, blunderbusses, pistols, etc. The manufacture of these weapons is of considerable importance; employing at all times, but especially during war, a large number of persons. Small arms were contrived by Schwartz, A. D. 1378; they were brought to England about 1388. Fire-arms were a prodigious rarity in Ireland in 1489, when six muskets were sent from Germany as a present to the earl of Kildare, who was then chief-governor. Muskets were first used at the siege of Rhegen, in 1425. The Spaniards were the first nation who armed the foot soldier with these weapons.—*Ulloa.* Voltaire states, that the Venetians were the first to use guns, in an engagement at sea against the Genoese, in 1377; but our historians affirm that the English had guns at the battle of Cressey, in 1346; and the year following at the siege of Calais.

Fire-engine, a species of forcing-pump in which the water is subjected to pressure sufficiently strong to raise it to the required height. Those of the ordinary construction consist of two forcing-pumps, wrought by the reciprocating motions of two transverse levers. The water is forced into an air-vessel, by which means the inclosed air is condensed, and by its reaction it forces the water through a movable pipe, which terminates in a conical form, and is directed upon the flame. Braithwaite's steam fire-engine is an ingenious application of the moving power of steam to the working of fire-engines. The mechanical arrangement of this machine consists of two cylinders of about six inches in diameter, one of them being the steam-cylinder, and the other the water-pump; and they are placed horizontally, so that a parallel motion is easily obtained. An engine of this kind will deliver about 9000 gallons an hour to the height of 90 feet. The time of getting the engine into action from the moment of igniting the fuel (the water being cold), is less than ten minutes. Mr. Miles Greenwood, of Cincinnati, made, in 1852, the first successful practical application of the steam fire-engine; and engines of his construction are now in use in Cincinnati, St. Louis, and many other large cities.

Fire-damp, the explosive carburetted hydrogen of coal mines. See SAFETY LAMP.

Firelock, or **Fusil.** A musket or small gun, which is fired with a flint and steel; and thereby distinguished from the old musket, or *match-lock*, which was fired with a match. The date of the invention of firelocks is uncertain.

Fire-ships. They were first used in the sixteenth century. Among the most formidable contrivances of this kind ever used, was an explosion vessel to destroy a bridge of boats at the siege of Antwerp, in 1585. The first use of them in the English navy was by Charles, Lord Howard of Effingham, afterward earl of Nottingham, lord high admiral of England, in the engagement with the Spanish Armada, July, 1588.—*Rapin.*

Fireworks. (*Feux d'artifice*, Fr.; *Feuerwerke*, Germ.) The composition of luminous devices with explosive combustibles is a modern art resulting from the discovery of gunpowder. The finest inventions of this kind are due to the celebrated Ruggieri, father and son, who executed in Rome and Paris, and the principal capitals of Europe, the most brilliant and beautiful fireworks that were ever seen. The following description of their processes will probably prove interesting to many of my readers:

The three prime materials of this art are, nitre, sulphur, and charcoal, along with filings of iron, steel, copper, zinc, and resin, camphor, lycopodium, etc. Gunpowder is used either in grain, half crushed, or finely ground, for different purposes. The longer the iron-filings, the brighter red and white sparks they give; those being preferred which are made with a very coarse file, and quite free from rust. Steel-filings and cast-iron borings contain carbon, and afford a more brilliant fire, with wavy radiations. Copper-filings give a greenish tint to flame; those of zinc a fine blue color; the sulphuret of antimony gives a less greenish blue than zinc, but with much smoke; amber affords yellow fire, as well as colophony, and common salt; but the last must be very dry. Lampblack produces a very red color with gunpowder, and a pink with nitre in excess. It serves for making golden showers. The yellow sand or glistening mica, communicates to fireworks golden radiations. Verdigris imparts a pale green; sulphate of copper and sal-ammoniac, a palm-tree green. Camphor yields a very white flame and aromatic fumes, which mask the bad smell of other substances. Benzoin and storax are used also on account of their agreeable odor. Lycopodium burns with a rose color and a magnificent flame; but it is principally employed in theatres to represent lightning, or to charge the torch of a fury.

Firkin, a measure of capacity, equal to 9 ale gallons, or 7½ imperial gallons, or 2538 cubic inches. See WEIGHTS AND MEASURES.

Firlot, a dry measure used in Scotland. The Linlithgow wheat firlot is to the imperial bushel as ·998 to 1; and the Linlithgow barley firlot is to the imperial bushel as 1 ·456 to 1. See WEIGHTS AND MEASURES.

Firman (more properly *Fermân*), in the Persian language, signifies a command, and is the name given in Turkey, Persia, and India, to mandates or certificates of the sovereign, issued for various purposes. Those best known to Europeans are given to travelers, and serve as passports. The Fermân has placed at its head in Turkey the cipher of the reigning Sultan, written in a complicated manner, affixed by the chief secretary of the sign manual. In the East Indies, the term firman is used for a written permission to trade.

Fisc (Lat. *fiscus*), in *Civil Law*, the treasury or revenue of a state. Fiscus, in its primary sense, denoted a basket or hanaper used by the Romans for holding large sums of money, and hence was applied to a money-chest or a purse. Under the emperors the term fiscus came to be applied to the imperial revenue or privy purse, in contradistinction to the *ærarium* or public treasury. Ultimately, when the emperors had concentrated in themselves the whole sovereign power, the word fiscus lost its distinctive character, and was used in the same sense as ærarium under the republic. Various officers were employed in the administration of the fiscus; as procuratores, advocati, patroni, and præfecti. From fisc, is derived the word confiscation, which signifies to take the goods of a condemned person and appropriate them to the public treasury.

Fiscal Year. The fiscal year of the United States formerly ended on 31st December, and up to the year 1843, on 30th September; but Congress enacted, August 26, 1842, "That on and after the first day of July, in the year of our Lord 1843, the fiscal year of the treasury of the United States, in all matters of accounts, receipts, expenditures, estimates, and appropriations, shall commence on the first day of July in each year; and the reports and estimates required to be prepared and laid before Congress at the commencement of each session by the Secretary of the Treasury, in obedience to the acts of Congress, of the 2d of September 1789, and of May 10th, 1800, shall be a report and estimate for each fiscal year, commencing as aforesaid, and terminating on the 30th day of June, in the succeeding calendar year."

Fish (Ger. *Fische*; Du. *Visschen*; Da. and Sw. *Fisk*; Fr. *Poissons*; It. *Pesci*; Sp. *Pescados*; Port. *Peixes*; Rus. *Rib*; Pol. *Ryby*; Lat. *Pisces*), a term used in natural history to denote every variety of animal inhabiting seas, rivers, lakes, ponds, etc., that can not exist for any considerable time out of the water. But in a commercial point of view, those fishes only are referred to, that are caught by man, and used either as food or for some other useful purpose. Of these, herring, salmon, cod, pilchard, mackerel, turbot, lobster, oyster, whale, etc., are among the most important. See the different articles under these titles.

As the seeds of a plant are numerous enough to insure an immense progeny if even a small percentage of them be properly managed, so do fishes produce eggs in such number as might soon overstock the waters, were there not destructive agencies at hand. It is not improbable that we are on the eve of valuable improvements in the management of fish. It has been found that trout and other valuable fish have declined in some of the French rivers; and on careful investigation it has been made apparent that not one egg in a hundred comes to maturity—the rest being devoured by other fish, washed away, or destroyed by mud. Two French fishermen, observing these facts, resolved on an attempt to collect some of the trout-eggs, and to secure the young fish from the voracity of the larger ones; they did so, and placed the eggs on a layer of gravel, which they deposited in a box full of holes. This box they fixed in the bed of a flowing stream, and covered it with pebbles, thus far imitating the practice of the mother-fish. In due time the eggs excluded, and almost every one was found to be good. Several hundred fish were thus obtained, which were kept in water free of danger, and supplied with food. Applying this operation the next year to a great number of fish, they obtained several thousand trout; and in a year or two more the number had increased to millions. The rivers in many departments of France were supplied from this artificial source; and the French government are now encouraging the system in every way. Not only trout, but salmon, carp, pike, tench, and perch, are thus preserved; and, moreover, the system has enabled fish of different species to be naturalized in strange waters, or removed from river to river.

Fisheries. The fisheries may be divided into deep-sea and shore fisheries. The latter are, of course, under the control of the nation owning the shore along whose line the fish are caught. But the deep-sea fisheries and the ownership of discovered shore-lines, have always given rise to disputes and quarrels. It has, however, been settled that a nation has exclusive control and right over the shore fisheries extending three miles from the coast; giving, sometimes, under certain restrictions, a right for other nations to use the shore for the purpose of curing and packing the fish caught beyond three miles of the shore.

Although fishing is an ancient and honorable employment, fisheries were not of much importance until after the discovery of Newfoundland. Holland had fisheries of some note in the 15th century; but owing to the state of maritime knowledge they were much confined; when, however, Newfoundland was discovered, an almost magical change took place. In the library of Venice there is a map, which authorizes the conjecture that land was found before 1436. But little was known until 1497, when Cabot made his first voyage. From this time voyages were made in pursuit of codfish at irregular periods, until the latter part of the 16th century, when enterprise and capital became plenty. Colonies were formed first at Newfoundland, and afterward at Acadia which comprised Nova Scotia and New Brunswick, and part of Maine. So much importance was given to the fisheries as a nursery of seamen, even at that early age, that laws were enacted in 1853 to prevent persons from eating meat Wednesdays and Saturdays except under a license, so that fisheries might be increased.

The great benefit from the fisheries was from the early colonization of this country. It is questionable whether we should not have been quite a century behind in this, had it not been for colonies founded on our coasts by the fishermen. The first direct voyage made by the English was in 1602, and the vessel catching codfish near the southern cape of Massachusetts, gave the name it yet bears.

The disputes in regard to fishing have disturbed commerce since this country was discovered. A full account of the disputes and treaties settling them, can be found in the able report of Lorenzo Sabine, Esq., to Congress in 1852.

We can notice but one or two affecting our own country. In 1782, Adams, Franklin, Jay, and Laurens were commissioners to negotiate a treaty with Great Britain, which contained this article:

"It is agreed that the people of the United States shall continue to enjoy, unmolested, the right to take fish of every kind on the Grand Bank, and on all the other banks of Newfoundland; also, in the Gulf of St. Lawrence, and at all other places in the sea where the inhabitants of both countries used at any time heretofore to fish; and also, that the inhabitants of the United States shall have liberty to take fish of every kind on such part of the coast of Newfoundland as British fishermen shall use (but not to dry or cure the same on that island), and also on the coasts, bays, and creeks, of all other of his Britannic majesty's dominions in America; and that the American fishermen shall have liberty to dry and cure fish in any of the unsettled bays, harbors, and creeks of Nova Scotia, Magdalene Islands, and Labrador, so long as the same shall remain unsettled; but so soon as the same, or either of them, shall be settled, it shall not be lawful for the said fishermen to dry or cure fish at such settlement, without a previous agreement for that purpose with the inhabitants, proprietors, or possessors of the ground."

Notwithstanding the position taken by Messrs. Adams, Clay, Bayard, and Gallatin, at Ghent, that our treaty rights were not abrogated by the war, the British government revived their pretension to the contrary immediately after the peace. An American vessel was fallen in with by an armed ship, the *Jaseur*, Locke, commander, in June, 1815, when about 45 miles from Cape Sable; and her papers were endorsed, "Warned off the coast, not to come within 60 miles." So extraordinary a procedure was promptly disavowed as unauthorized; but discussions ensued, which were terminated in 1818, by the conclusion of a treaty that embodied a compromise of the adverse views of the two cabinets, and which is still in force. The article is as follows:

"Whereas, differences have arisen respecting the liberty claimed by the United States, for the inhabitants thereof, to take, dry, and cure fish on certain coasts, bays, harbors, and creeks, of his Britannic majesty's dominions in America, it is agreed between the high contracting parties, that the inhabitants of the said United States shall have forever, in common with the subjects of his Britannic majesty, the liberty to take fish of every kind on that part of the southern coast of Newfoundland, which extends from Cape Ray to the Rameau Islands, on the western and northern coast of Newfoundland; from the said Cape Ray to the Quirpon Islands, on the shores of the Magdalene Islands and also, on the coasts, bays, harbors and creeks, from Mount Joly, on the southern coast of Labrador, to and through the Straits of Bellisle, and thence northwardly indefinitely along the coast; without prejudice, however, to any of the exclusive rights of the Hudson's Bay Company; and that the American fishermen shall also have liberty, forever, to dry and cure fish in any of the unsettled bays, harbors and creeks of the southern part of the coast of Newfoundland, hereabove described, and of the coast of Labrador; but so soon as the same, or any portion thereof, shall be settled, it shall not be lawful for the said fishermen to dry or cure fish at such portion so settled, without previous agreement for such purpose, with the inhabitants, proprietors, or possessors of the ground. And the United States hereby renounce, forever, the liberty heretofore enjoyed or claimed by the inhabitants thereof, to take, dry, or cure fish, on or within three marine miles of any of the coasts, bays, creeks, or harbors of his Britannic majesty's dominions in America, not included within the above-mentioned limits: provided, however, that the American fishermen shall be permitted to enter such bays or harbors for the purpose of shelter, and of repairing damages therein, of purchasing wood, and of obtaining water, and for no other purpose whatever. But they shall be under such restrictions as may be necessary to prevent their taking, drying, or curing, fish therein, or in any other manner whatever, abusing the privileges hereby reserved to them."

The distinguishing features of this article, as compared with the stipulations of the treaty of 1783, are obviously two: first, that we gave up the *catching* along certain shores; and, secondly, that our facilities of *drying* and *curing* were increased. The practical construction of *both* governments has been, until a recent period, that our vessels could *fish* everywhere, as under the treaty of 1783, except *within three miles of certain coasts;* in other words, that our rights were not impaired on the southern shore of Newfoundland, between Cape Ray and the Rameau Islands, on the western and northern shores of Newfoundland, from said Cape Ray to the Quirpon Islands, at the Magdalene Islands, between Mount Joly and the Straits of Bellisle, and through these straits to an indefinite extent along the shores of Labrador; *while elsewhere in British America we retained the sea-fisheries, but surrendered the inner, or shore fisheries.*

During the discussions abroad, in consequence of the outrage of the *Jaseur* and other British cruisers, Congress was not unmindful of the fishing interest, both to repair the wrongs of unauthorized captures and to afford protection against foreign competition. The tariff of 1816 imposed a duty of one dollar the quintal on foreign dried or smoked fish imported into the United States, two dollars the barrel on salmon, one dollar and fifty cents the barrel on mackerel, and one dollar the barrel on all other kinds of pickled fish.

So, in 1817, an act was passed which required that all officers, and three quarters of the crews of vessels employed in the cod-fishery, and claiming the bounty or allowance, should be American citizens, "or persons not the subjects of any foreign prince or state;" while no such vessel, it was provided by further enactments, should be deprived of bounty, if prevented from fishing the full time prescribed by law, by reason of detention or seizure by British ships-of-war.

In the revision of the tariff in 1824, there was no change in the rates of duty imposed on foreign fish. These rates were continued also in the tariffs of 1828 and 1832. Thus, in four revisions, the principle of ample protection was preserved, except that the products of the sea, like all other commodities imported, were subject to the provisions of the "compromise" measure introduced by Mr. Clay. In the present tariff, specific duties on fish are entirely abolished, and the uniform rate of 20 per cent. ad valorem substituted, which on some kinds is merely nominal, and on all insufficient. The ad valorem system has proved extremely beneficial to British colonists. In fact, having driven us from the markets of Catholic Europe, they are in active competition with us for our own.

A bounty or allowance has been commonly allowed by governments in consideration of the fisheries being nurseries for seamen, and a chief dependence in time of war to supply the marine.

In 1852, the bounty laws in this country, gave to vessels:

"If measuring more than five tons, and not exceeding thirty tons, $3 50 per ton.

"If measuring more than thirty tons, $4 per ton.

"If the above 30 tons, with crews not less than 10 persons, and having been exclusively employed at sea in the cod-fishery 3½ calendar months, $3 50 per ton.

"The allowance for one vessel during the season, whatever may be her tonnage, can not exceed $360.

"Vessels exclusively employed at sea in the cod-fishery the full time required to entitle them to bounty, and afterward wrecked, may be allowed bounty under the provisions of the act of 26th May, 1824, which requires the evidence of the loss of the vessel to be transmitted to the Comptroller for his decision thereon. Under the act of March 3, 1849, this duty has been transferred to the Commissioner of the Customs, to whom the proof, certified by the collector of the district to which the vessel belonged, should be sent for his official direction thereon.

"Instructions will be given in due season in regard to the mode of payment of bounty allowances, at and after the close of the year. To obviate any responsibility which might otherwise devolve on collectors, should such payments be made upon proof regarded as insufficient under the present instructions, it will be advisable that probable claimants to fishing-bounty allowances be apprized, before the sailing of vessels on their first cod-fishing voyage, of the requirements of these instructions, which are intended to supersede and supply the place of all former instructions on this subject. THOMAS CORWIN, *Secretary of the Treasury.*"

We make the following extracts from Sabine's able Report on the American fisheries:

Cod-fishery of France.—The French were the first European cod-fishers in the American seas. There is a tradition among the fishermen of Biscay that their countrymen visited Newfoundland before the time of Columbus. It is said, indeed, that the great discoverer was informed of the fact by a pilot who had been engaged in the enterprises. The story, improbable as it is, seems to have been treated with respect by some writers of the 16th century, but may be dismissed now as one which rests upon no clear and authentic testimony.

But that the Newfoundland fisheries were known to the Biscayans and Normans as early as the year 1504, is quite certain. When Cabot discovered our continent, Europe, including England, was Catholic; and during the fasts of the church, the pickled herring of Holland was the principal food. The consumption of fish was immense; and the Dutch, having enjoyed the monopoly of the supply, had become immensely rich. The knowledge communicated by Cabot and the voyagers who followed him, that the waters of America contained, not only an abundance, but many varieties of fish, gave rise to an excitement on the subject of fishing hardly less intense than is witnessed at the present time relative to mining. Persons of the highest rank, and not engaged in commercial pursuits, became shareholders in adventures to the new fishing-grounds. And though the Dutch refused to abandon the particular fishery by which they had obtained both wealth and celebrity, vessels wearing the flags of France, England, Spain, and Portugal came annually in search of the cod for nearly a century before a single European colony was founded in America north of the ancient limits of the United States.

We have seen that when, in 1778, France embarked in our revolutionary struggle, her fishermen, absent at Newfoundland, were recalled to enter her ships of war. The same reliance is placed upon them now. War was apprehended in 1841, and M. Thiers followed the example of the statesman referred to; and M. Rodet affirmed that, "without the *resources which were found in the sailors engaged in the fisheries, the expedition to Algiers could not have taken place.*"

These reasons are not only sufficient to justify, but to demand, national encouragement. But it may be urged, in addition, that the open or deep-sea cod-fishery differs from almost every other employment; that in war it is nearly or quite destroyed; that in peace it can not be pursued for more than four or five months in a year; that often skill and industry are insufficient to insure good fares; and that, when success attends severe toil and exposure, the fishermen barely subsist. The effects of a "bad catch" are, indeed, sad and calamitous. The disasters of 1847 afford a recent and a forcible illustration. In that year the French cod-fishery proved a failure. The quantity of fish caught was scarcely a sixth part of that of former seasons; and the fishermen, discouraged, abandoned the business as early as the middle of August. The labor of the summer and the expenses of repairs and of outfits lost, the actual want of food and clothing until another year came round was alone prevented by the bounty allowed by the government.

The manner of fishing is now the only topic that need claim attention. It is to be observed that the principal fishing-grounds are three, and that on each there is a difference in the mode of operations and in the size of the vessels. First, the fishery on the *coasts* of Newfoundland, which has always been considered the most important, as being more certain and employing the greatest number of men. The vessels are of all sizes—from 30 to 200, and even 300 tons. The latter size is, however, rare. When the vessel arrives on the coast, which is generally early in June, she is dismantled. Her boats, with two men and a boy in each, are sent out every morning, when the weather will permit, to fish until night. On the return in the evening, the fish taken are split, salted, and put in "*kenches*" or piles; remaining in piles a few days, they are "washed out" and dried until they are fit to ship. These processes are repeated from day to day until the fare is completed, or the season has passed away. Toward the close of September, fishing is suspended, and the vessels depart for France or the West Indies.

The Grand Bank fishery is pursued in vessels of between 100 and 200 tons' burden, with two strong *chaloupes*, or boats, to each. From 16 to 20 men compose a crew. The vessels proceed first to St. Pierre, land the shore fishermen and "curers," and thence take position on the banks, anchoring in 70 or 80 fathoms of water. Every thing in readiness, the chaloupes are launched and sent out at night to place the "ground-lines," to which are attached some four or five thousand hooks. When not too boisterous, these lines are examined every day, and the fish attached to the hooks split, salted, and placed in the hold of the vessel. Meanwhile, the fish caught on board by the men not assigned to the boats are treated in the same way. The first fare is usually secured in June, and carried to St. Pierre to be dried. The second fare is cured at the same place; but the third—if fortunately there be another—is commonly carried to France "green."

This fishing is difficult and dangerous. It requires expert and daring men. It is prosecuted in an open, rough, and often a stormy sea, and frequently involves the loss of boats and their crews.

The third fishery, at St. Pierre and Miquelon, is similar, in some respects, to that between Cape Ray and Cape John, on the coast of Newfoundland. Boats, instead of vessels, are, however, employed in it. The boats of the two islands are between three and four hundred in number, and require two men to each. They go out in the morning and return at night. Thus, as in all shore fisheries, the fishermen always sleep at their own homes. As this is the only business of the islands, nearly all the men, women, and children are engaged in catching or curing. The season opens in April, and closes usually in October.

We have seen the importance attached by France to her immense American domains, and with what pertinacity she maintained her pretensions to the monopoly of the fishing-grounds. It remains to speak more particularly than has yet been done of the two lone, bare, and rocky islands that remain to her as monuments of the vicissitudes of the human condition and of national humiliation.

The situation of St. Pierre and Miquelon commands the entrance of the Gulf of St. Lawrence. The growth of wood is insufficient even for fuel. They produce no food, and the inhabitants are dependent on France and other countries for supplies. The population of St. Pierre in 1847 was 2030, of which about one quarter was "floating," or non-resident. The population of Miquelon at the same time was 625.

There are several Catholic churches and schools, priests, monks, and nuns. In 1848 a hospital, sufficiently commodious to receive upward of 100 sick persons, was erected. The dwellings are of wood. The government-house is of the same material, and plain and old-fashioned. The streets are narrow, short, and dirty. The official personages are a governor, a commissary or minister of marine, a harbor master, and some inferior functionaries. The military, limited by treaty to 50 men, consists of about 30 *gens d'armes*. Upon the station is a single armed ship, though other armed vessels are occasional visitors. The present light-house was erected in 1845, at a cost of 80,000 francs, and, well built of brick, is a substantial edifice.

Such are the TWO ISLANDS—TWO LEAGUES IN EXTENT—which remain to the power that once possessed the whole country bordering on the Mississippi, the limitless regions penetrated by the St. Lawrence; Acadia, from Canseau, in Nova Scotia, to the Kennebec river, in Maine; the island of Cape Breton; and the hundred other isles of the bays of the northern and eastern possessions.

The extent of the French cod-fishery may be estimated from the following statistics:

FRENCH COD-FISHERY.

Years.	No. of vessels.	Tonnage.	Number of men.	Quintals of fish.	Value.
1504	....	....	....	....	....
1527	12	....	....	....	....
1577	150	....	....	....	....
1578	150	....	....	....	....
1615	100	....	....	....	....
1721	400	....	....	....	....
1744	564	....	27,500	1,441,500	....
1745	100	....	....	....	....
1768	259	24,420	9,722	200,000	$861,728
1773	264	24,996	10,128	....	....
1774	....	....	15,137	....	....
1786	....	....	7,000	426,400	....
1787	....	....	6,000	128,590	....
1816	....	30,954	8,108	....	....
1823	184	16,258	3,655	....	....
1824	348	36,999	6,672	....	....
1825	336	35,172	6,311	....	....
1826	341	38,938	7,088	....	....
1827	387	44,868	8,238	....	....
1828	381	45,094	7,957	....	....
1829	414	50,574	9,428	....	....
1830	377	45,036	8,174	....	....
1831	302	35,180	6,243	300,000	....
1833	....	....	10,000	....	....
1834	....	....	10,000	....	....
1835	....	....	....	800,000	....
1839	....	54,995	11,499	....	....
1841	400	....	11,900	....	....
1843	400	....	....	....	....
1847	....	....	12,000	450,000	....

Cod-fishery of Spain.—Participating in the excitement which prevailed in Europe on the discovery in the American seas of varieties of fish not previously known or used in the fasts of the Roman church, Spain was an early competitor with France and England. Vessels of her flag were certainly at Newfoundland as soon as the year 1517. 60 years later, the number of her vessels employed in the fishery there is estimated at 100. The number rapidly diminished. Sylvester

Wyat, of Bristol, England, who made a voyage to the St. Lawrence and Newfoundland in 1593, found only eight Spanish ships in a fleet of upward of 80 sail of French and English vessels. From the remarks of Smith—who became the Father of Virginia—it would seem that in the early part of the 17th century, the Spanish fishery was pursued with greater vigor than at the time last mentioned. But the greater wealth to be acquired in the gold regions of South America soon lured the Spaniards from an avocation of so great toil, and of so uncertain rewards. No controversy between Spain and England as to their respective rights to the fishing-grounds ever arose.

Spain retired from our waters in peace, and at her own pleasure. Little is heard of her in connexion with our subject for quite a century, and until the peace of 1763. Her claim—resting on discovery—ever vague and uncertain at the north, had become almost as obsolete as that of the King of England to the title of King of France. Still, in the definitive treaty concluded at Paris, she formally renounced "all pretensions which she has heretofore formed, or might form, to Nova Scotia or Acadia, in all its parts, and guaranties the whole of it, and with all its dependencies," and ceded and guarantied to England, "in full right, Canada, with all its dependencies, as well as the island of Cape Breton, and all other islands and coasts in the Gulf and River of St. Lawrence; and, in general, every thing that depends on the said countries, lands, islands, and coasts, with the sovereignty, property, possession, and all rights acquired by treaty or otherwise." With this treaty the history of the Spanish fishery in America terminates. Spain relinquished her rights at the peace of 1763, with reluctance, though she had long ceased to exercise them. A letter of Sir Joseph Yorke is quoted in the correspondence of Horace Walpole, in which it is said: "By what I hear from Paris, my old acquaintance, Grimaldi, is the cause of the delay in signing the preliminaries, insisting upon points neither France nor England would ever consent to grant, such as the liberty of fishing at Newfoundland—a point we should not dare to yield, as Mr. Pitt told them, though they were masters of the Tower of London."

Cod-fishery of Portugal.—An account of this fishery may be embraced in a single paragraph. If materials exist by which to ascertain its progress and final extent, I have not been able to find them.

Portuguese vessels were at Newfoundland as early as those of Spain; and in 1577, the number employed there is estimated at 50. These two facts comprise the substance of my information upon the subject, except that Portugal, like Spain, soon abandoned all attention to the claims derived from the voyages of her navigators to the northern parts of our continent, and devoted her energies and resources to colonization in South America, and the acquisition of wealth in the mines of Brazil. The rivers and coasts of Portugal abound in fish; but the fisheries are neglected by the government. The whole number of sailors and fishermen who belonged to the kingdom in 1826, was only 18,700. I find in an official document a statement which shows that during the 24 years ending in 1825, the quantity of dry codfish imported into Portugal was 7,520,000 quintals, of the value of more than $39,000,000! As late as the year 1839, certainly, the government pursued the policy of levying a tax or duty on the produce of the domestic or coast fishery—a fact which enables us to account for the miserable condition of the kingdom, as regards its maritime strength and resources.

English Cod-fishery—Newfoundland.—Newfoundland is the oldest colony of England in America. It is said that in the public library of Venice there is a map, constructed by Andrea Bianco, in 1436, which authorizes the conjecture that it was known to fishermen before the voyage of Cabot, in 1497. The story, to state its substance in a word, is, that the island *Scorafixa*, or *Stoxafixa*, on the map, and the island of Newfoundland, are identical, because the codfish is called *stockfish* in the northern languages. The English resorted to Iceland for the cod, previous to the year 1415, but there is no account of their fishing at Newfoundland prior to 1517. Some writers suggest that the French commenced at the same time. But the fact, generally admitted, that the ships from England, France, Spain, and Portugal, to the number of fifty, were employed in 1517, is alone sufficient to show that the fishing-grounds had been visited for several years. Indeed to consider that the French went to Newfoundland for the first time in 1504, and that in thirteen years, and in the infancy of distant and perilous voyages, their adventures had attracted the attention of three other nations to the extent just stated, is to allow an increase of flags and of vessels so rapid as to still require explanation, without a knowledge of the fishing enthusiasm of the period. Besides, some forty or fifty houses for the accommodation of fishermen were built at Newfoundland as early as 1522.

A few miles back from the coast, Newfoundland is almost an unbroken wilderness. The inhabitants, as a body, are as ignorant of the interior of the island as are others. To them, and to all the world, the colony is known for its fisheries, and for these alone. To enumerate St. John's, Ferryland, Fugo, and Burin, and the settlements on the bays of Conception, Trinity, Bonavista, Fortune, Bull's, Placentia, and St. Mary's, is to recall almost every place of note. There was no free port until 1828, and no bank until eight years later. From the discovery of Cabot to the arrival of a bishop of the church, was 343 years. The population in 1806—about two and a quarter centuries after the attempt at colonization by Gilbert—was less than 26,000. It was less than 74,000 in 1836; and but 96,606 in 1845.

It remains to speak of the fishing-grounds; of the manner of catching and curing, and of the habits of the persons who are employed in the fishery. As the vessel or "bank" fishery has been abandoned by the English, an account of it is reserved for the third part of this report. The boats used for the shore fishery require from two to four men each. The number of boats in 1838, was 6159; and in 1845, 9989. The fishing is performed within the harbors, and early in the season, near the land. The men stand while at ther toil, and each is able to tend more than one line. At times the fish fasten to the hooks so rapidly, that the fishermen display great activity. A boat is often filled in two or three hours. On the shores are "stages," or buildings erected on posts, and projecting into the sea, to allow boats to come to them as to wharves or piers. The fish are carried to these "stages," where, in the hands of the "cut-throat," the "header," the "splitter," and the "salter," as four classes of the "shoresmen" are called, they are prepared for the "dryer." When sufficiently salted, they are washed, and transported on "hand-barrows" to the "flakes," where they are spread and dried. Once cured, they are piled in warehouses to await sale or orders for shipment. The "salter" and the "dryer" should be careful and expert men; the one to distribute the salt with a skillful hand—the other, that damps and rains do not injure the fish while exposed in the air. Three qualities are usually sorted for exportation, and a fourth, consisting principally of broken and discolored fish, is retained for consumption. Women and children are sometimes employed in the boats, and very frequently assist the curers on shore. During the fishing season there are no idlers of either sex.

The labors of the fishermen and shoresmen are almost incessant. The time devoted to sleep, under circumstances that often occur, is insufficient for the demands of nature; while long abstinence from food is not uncommon.

The fishermen formerly lived in the rudest of structures; but they now occupy comfortable dwellings. Their food is coarse, and their manners rough. Intoxicating drinks were once as common among them as tea or water. Of late years there has been a sensible change for the better; and a large class are moral and temperate. Their habits of life are irregular, from the necessities of their position; but in hospitality and acts of kindness they are not excelled by men of the higher walks of society. They are to be judged in mercy, for their opportunities to improve are few, and their temptations to err are many.

ENGLISH COD-FISHERY, NEWFOUNDLAND.

Year.	No. of vessels.	Tonnage.	No. of men.	No. of boats.	Quintals of fish exported	Value.
1577	50	....	....	....	....	....
1603	200	....	10,000	....	....	....
1615	250	....	....	....	....	....
1622	400	....	....	....	....	....
1626	150	15,000	5,000	....	....	....
1670	80	....	....	....	....	....
1674	270	....	10,800	....	....	....
1701	121	7,991	2,727	....	....	....
1716	161	9,193	2,119	....	106,952	....
1724	....	....	....	....	111,000	....
1732	....	....	....	....	210,000	....
1750	283	33,512	4,103	....	....	....
1763	177	17,268	2,531	....	493,654	....
1769	354	....	....	....	....	....
1770	368	....	....	....	....	....
1771	369	....	....	....	....	....
1772	306	....	....	....	....	....
1774	254	....	23,652	....	759,877	....
1785	292	....	....	...	591,276	....
1786	280	....	....	....	....	....
1787	306	....	....	....	....	....
1788	389	....	....	....	....	....
1789	304	....	....	....	....	....
1790	259	31,644	....	....	684,421	....
1791	245	34,166	....	....	....	....
1792	276	....	....	....	....	....
1798	....	15,838	1,268	....	....	....
1799	336	33,503	2,410	....	453,337	....
1800	....	....	....	....	382,000	....
1805	....	....	....	....	526,380	....
1814	....	....	....	....	1,200,000	$12,000,000
1815	....	....	....	....	1,180,661	....
1820	....	....	....	....	899,729	....
1825	....	....	....	....	973,464	....
1830	....	....	....	....	760,177	....
1832	....	....	....	....	619,177	....
1833	....	....	....	....	683,536	....
1834	....	....	....	....	674,988	....
1835	....	....	....	....	712,588	....
1838	....	....	....	6,159	724,515	2,420,000
1840	....	....	....	....	915,795	2,880,000
1841	....	....	....	....	1,009,725	3,025,000
1842	....	....	....	....	1,007,980	2,805,000
1843	....	....	....	....	936,202	2,660,000
1844	....	....	....	....	852,162	2,410,000
1845	....	....	....	....	1,000,333	2,980,000
1847	....	....	....	....	837,973	2,450,000
1848	....	....	....	....	920,366	2,455,000
1849	....	....	....	9,989	1,175,167	2,940,000

ENGLISH HERRING-FISHERY, NEWFOUNDLAND.

Year.	Barrels pickled exported.	Value.
1838..........	15,276	$53,615
1839..........	20,806	69,200
1840..........	14,686	45,180
1841..........	9,965	31,805
1842..........	13,839	35,595
1843..........	9,649	22,850
1844..........	13,410	33,325
1845..........	20,903	56,170
1847..........	9,907	25 555

The Newfoundland Seal-Fishery, so called.— This business is of recent origin. The first account of it is in 1795, but it was not prosecuted to any extent until the general peace, in 1814. Seals frequent the coasts of Newfoundland in the spring. They go upon the ice in the polar seas to bring forth their young, and are swept along by the currents to milder regions, where, still upon the ice, hundreds of thousands of them are annually killed. During the passage from the remote north, they apparently live without much food, but yet are quite fat when seen by those who adventure in pursuit of them. The vessels engaged in catching seals are from fifty to two hundred tons, and carry from fifteen to forty men each. They leave Newfoundland in March, and proceed to sea until they meet the ice, and on falling in with it, are forced into it as far as possible, by implements which are arranged for the purpose. Fast imbedded in the vast and seemingly limitless fields of ice the crews disperse in every direction in search of seals, which are inactive, and are generally easily caught. They are killed with fire-arms and with clubs, and often while asleep. Occasionally the large ones resist. The moans of the young during the slaughter are piteous.

The flesh of seals is unfit for food, and they are only valuable for their fat and skins. The common method is, to strip off the skins and fat together, and to carry these parts to the vessels, leaving the remainder upon the ice; but when the weather or other circumstances will not permit this, the carcass is transported whole, and the valuable parts are stripped off subsequently. Seal-catching closes toward the end of April. The most fortunate vessels make two voyages in a season. After the arrival of the vessels in port, the fat is separated from the skins, cut into pieces and put into vats, where, by the warmth of the sun, the oil oozes out. The skins are spread and salted in piles, and when properly cured, are packed in bundles of convenient size. In the whole circle of human employments, few or none are more exciting and perilous than the catching of seals. A storm of sleet and snow in the night is terrible, and the stoutest hearts quail. While the vessels are absent, the greatest anxiety prevails in the ports of departure, and the most distressing rumors prevail: at times, a full month elapses before the arrival of a single vessel, and every imaginable cause is assigned by alarmed families and friends for the delay of tidings from the sealing-ground. North-east gales drive the ice toward the shore, and frequently produce fearful disasters to both life and property In 1843 the loss of vessels was very considerable, and several entire crews perished. Some vessels were wrecked in 1849.

The year 1827 was uncommonly prosperous. Forty-one vessels laden with seals arrived at St. John's in a single week. They caught 69,814 of the objects of their search. One of these vessels took upward of 3000 in six days, and another, still more successful, about 3500 in the same time. The intense excitement which attended the slaughter of so large numbers, in so short a space, can be readily imagined.

STATISTICS OF THE NEWFOUNDLAND SEAL-FISHERY.*

Year.	Employed.			Exports.	
	Vessels.	Tonnage.	Men.	Seal-skins.	Tuns of oil.
1795	....	....	....	4,900	....
1815	....	....	....	141,374	8,225
1820	....	....	....	221,334	8,224
1825	....	....	....	221,510	7,806
1829	....	....	....	280,613	....
1830	92	6,198	1,985	559,342	12,371
1831	118	8,046	2,578	....	....
1832	153	11,462	3,294	442,683	10,010
1833	106	8,665	2,964	501,436	....
1834	125	11,020	2,910	360,155	9,030
1835	120	11,167	2,912	557,494	11,780
1836	126	11,425	2,855	381,041	....
1837	121	10,648	2,940	252,910	....
1838	110	9,300	2,826	375,361	...
1839	76	6,447	2,029	437,501	...
1840	75	6,190	2,058	631,385	...
1841	72	5,965	2,078	417,115	....
1842	74	6,035	2,054	344,683	....
1843	106	9,625	3,177	651,370	....
1844	121	11,088	3,775	685,530	....
1845	128	11,972	3,938	352,202	....
1846	....	...	....	....	....
1847	324	30,819	9,885	436,831	....
1848	163	16,444	5,497	521,004	....
1849	278	26,123	9,388	306,072	....
1850	....	....	....	400,000†	.. .

* The vessels were from the port of St. John's, except in 1847, 1848, and 1849.

† Estimated from the several accounts of the catch of that year.

Reference to the table of statistics will afford information as to the general state of this branch of indus try since the year 1830. It will be seen that the return of vessels fitted out, is from the port of St. John's alone. The number from Concepcion, Trinity, and Bonavista Bays, and from other parts of the island, is known to be considerable, and in 1845 to have exceeded that of the capital, but I have been unable to procure accurate accounts for any other year.

Fisheries of Nova Scotia.—The original grantee of that half fabulous, never defined country, Acadia, was Pierre de Gast Sieure de Monts, a Protestant, and a gentleman of the bed-chamber of Henry the Fourth of France. In 1603, his royal master, by letters patent, gave him the territory between the 40th and 46th degrees of latitude, and in the following year De Monts came in person to explore and take possession of his domains. Sixteen years before the landing of the pilgrims at Plymouth, he wintered upon an island in the River St. Croix, which, since the adjustment of the boundary-line between the United States and New Brunswick, has been considered within the limits of Maine. This island is claimed by the heirs of the late General John Brewer, of Robbinston. Relics of De Monts' sojourn upon it continue to be found. Annapolis—the Port Royal of the French—was founded before his return, and is the oldest settlement in Nova Scotia. The "lieutenant-general of Acadia, and the circumjacent country," accomplished but little. His patent allowed him to "carefully search after and to distinguish all sorts of mines of gold and silver," and gave him the monopoly of the trade in furs. He seems to have confined his attention to measures to secure the latter; yet fish were caught, cured, and carried to France. A permanent fishery was established at Canseau. Acadia soon passed from De Monts into Catholic hands, while the English grant to Sir William Alexander, in 1621, embraced a large part of it. As the events connected with our subject at this time appear in the account of the French fisheries, there is nothing to demand our attention until after Nova Scotia was permanently annexed to the British crown, by the treaty of Utrecht, in 1713.

Down to the period of our Revolution, Nova Scotia was hardly known except for its fisheries. The resident English population was so small in 1719, that Phillips, the military governor, was compelled to select the council, required by his instructions, from his garrison. Thirty-six years later, the whole number of inhabitants was estimated at only 5000. In 1760, the township of Liverpool was settled by persons from Massachusetts, who designed to prosecute the salmon-fishery, and who, successful in their labors, caught a thousand barrels in a season. They were followed in 1763 by about one hundred and sixty families from Cape Cod, who selected the spot called Barrington, transported thither their stock and fishing vessels, and founded one of the most considerable fishing towns at present in the colony. The whole value of the imports at this period was less than five thousand dollars. In truth, the House of Assembly asserted in 1775, that the amount of money in Nova Scotia was £1200 (or $4800), of which one fifth was in the hands of farmers. Such was the general condition. The settlement of Halifax, the capital, requires a more particular notice. Thomas Coran, a famous projector of the time, whose name occurs often in the history of Maine, engaged in a scheme to commence a town on the site of this city as early as the year 1718, and his petition for a grant of land received a favorable report from the Lords of Trade and Plantations; but the agents of Massachusetts opposed his plans, because they interfered with the freedom of the fisheries, and he was compelled to abandon his purpose.[*]

At the restoration of Cape Breton, in 1748, the founding of a capital for Nova Scotia was undertaken as a government measure. "As a substitute for Louisbourg restored to France," said Mr. Hartley in the House of Commons, "you settled Halifax for a *place d'armes*, leaving the limits of the province as a matter of contest with France, which could not fail to prove, as it did, the cause of another war. Had you kept Louisbourg, instead of settling Halifax, the Americans could not say, at least, that there would not have been that pretext for imputing the late war to their account." The new city was named in honor of the Earl of Halifax, the president of the Lords of Trade and Plantations. "The site," says Haliburton, "about midway between Cape Canseau and Cape Sable, was preferred to several others, where the soil was better, for the sake of establishing in its neighborhood an extensive cod-fishery, and fortifying one of the best harbors in America." Thus, Halifax was designed as a fishing capital, and "as a substitute for Louisbourg." Liberal grants of land were made to officers and men who were dismissed from the land and naval service at the close of the war, and Edward Cornwallis was appointed military governor. Horatio Gates then an officer in the British army, and subsequently the victor at Saratoga, was among the first who landed at Halifax, in 1749. The project involved the government in serious difficulties, and the expenditure of enormous sums of money. The amount first appropriated was £40,000. In a few years the cost to the nation was nearly two millions of dollars! The fisheries were neglected, and the colonists, unable to support themselves, petitioned Parliament for additional relief, even after so large an amount of money had been disbursed for their benefit. Omitting details, we may state that five millions of dollars of public money were expended finally in the colonization of Nova Scotia, according to the plan devised by the Board of Trade and Plantations.

United States.—Our continent was discovered in 1497, by Cabot; and from the moment that the chronicler of his voyage made known to the people of England that our waters teemed with fish—that here "were great seals, and those which we commonly call salmons; and also soles above a yard in length, but especially there is a great abundance of that kind which the savages call *baccalos* or codfish"—down to the year 1620, as we have seen in the first and second parts of this report, the intercourse of the French and English with the northerly seas of America was constant; and of all this were not the Puritans as well informed as others? Were they ignorant of what transpired in the New World in the ten years immediately preceding their flight from England, and during the ten years of their residence in Holland? While among the Dutch they were neglected, if not unkindly treated, and became poor and unhappy. Many places to which to emigrate were mentioned, and the advantages and disadvantages of each were amply discussed. As soon as the decision of the little flock was made, some were dissatisfied and withdrew. The question arises, why did they decide to come to America?

I have no space to argue a question which involves so many inquiries, but can not forbear to state that, in a few words, some of the principal incidents which attended their coming to their "wilderness home." Omitting to notice the accounts of Amidas and Barlow, who explored the southern coast of the United States in 1584, under the auspices of Sir Walter Raleigh, and what is said of Sir Richard Grenville's expedition to the same region the year following, as well as the various other enterprises which, in several particulars, are pertinent to the subject, we come at once to the voyage of Gosnold, in the year 1602. He was the first Englishman who sailed directly across the ocean, and the first who attempted to make a settlement within the limits of New England. The story of his adventures was written by two of his associates, Archer and Brereton, and published in London* immediately after his return. Of Brereton little seems to be known; but Gosnold and Archer were subsequently prominent among the early settlers of Virginia, and between the latter and the celebrated Smith there was a long and a desperate quarrel. From Brereton's narrative, as well as from the tracts appended thereto, it appears that Raleigh was the patron, perhaps the original mover, of the enterprise. As containing the earliest information of Massachusetts printed in England, these papers are of great value. The attention of merchants, of fishermen, and of those interested in colonization hitherto, and for nearly a century, directed exclusively to Newfoundland, was now to be diverted, in some measure, to New England. The results will appear as we progress.

---

[*] It is said, in Burke's Commoners of England, that Major William Markham (of the family of Markham, of Becca Hall), who was born in 1686, built the first house in Halifax, Nova Scotia.

Arrived on our coast, Gosnold anchored near land which he called "Shoal Hope;" but, catching a "great store of codfish," he changed the name to Cape Cod.† While there, says Archer, "we saw sculls of herring, mackerel, and other small fish, in great abundance." Brereton, whose account is more exact and definite, remarks with much earnestness upon most matters connected with our inquiries. "Surely, I am persuaded," he observes, "that, in the months of March, April, and May, *there is upon this coast better fishing, and in as great plenty as in Newfoundland;* for the sculls of mackerel, herrings, cod, and other fish, that we daily saw as we went and came from the shore, were wonderful; and, besides, the places where we took these cods (and might in a few days have laden our ship) were but seven fathoms water, and within less than a league of the shore, when in Newfoundland they fish in forty or fifty fathoms water, and far off."

To pass the observations which were recorded as they continued their explorations, we find in the tracts appended to Brereton the prediction that, "*forasmuch as merchants are diligent inquisitors after gains, they will soon remove their trade from Newfoundland*" *to New England*, where there is a better climate, greater security against the depredations of pirates, and less expense for outfits, shorter voyages, and safer harbors. The writer, anticipating that a colony would soon be founded, predicted further, that the ships of *all* the nations that "have been accustomed to repair unto the Newfoundland for the commodity of fish and oils alone, will henceforth forsake" that island, "when once we have planted people in these parts; by whose industry shall be provided, for all commerce," the products of the sea, "and many commodities besides, of good importance and value." Eighteen years elapsed; the Pilgrims anchored off the same "Shoal Hope," and settled this very country.

Pring followed Gosnold, and explored the waters of Maine, in 1603. He saw and named the Fox islands, in Penobscot Bay, and found good mooring and fishing. Like Gosnold, he considered the fish which he took superior to those of Newfoundland. He made a second voyage three years later; and Gorges remarks that his discovery of the eastern part of New England was perfect, and his account of it accurate. Waymouth, under the patronage of several English noblemen, and other persons of rank, came in 1605. "A True Relation" of his adventures was written by James Rosier, "a gentleman employed in the voyage," and printed in London in the same year. He agrees with those who had preceded him in every essential particular. As they departed for England, they caught very large fish; and he says that those on board of the ship, who were familiar with the business, "would warrant (by the help of God), in a short voyage, *with a few good fishers, to make a more profitable return from hence than from Newfoundland; the fish being so much greater, better fed, and abundance with train*," etc.*

The Fisheries from the commencement of the Revolutionary Controversy to the Declaration of Independence.—In tracing the origin and progress of the fisheries of New England, we have seen that they furnished our first articles of export, and laid the foundation of our navigation and commerce. It was so in Europe. Of the present maritime powers of the Old World, there is scarcely one that does not owe much of its commercial prosperity to the same branch of industry. Some fugitives from the wrath of the monster Attila fled to the isles of the Adriatic, where, of necessity, they adopted the avocation of fishermen. By this employment, steadily continued, Venice in a few centuries became renowned for her wealth, commerce, and naval strength. The origin of the republic was celebrated for a long period, and the omission or refusal of a Doge to provide the customary banquet, and to submit to the fishermen's embrace, allowed by his predecessors on this national festival, made the name of Contarini hateful, and well-nigh caused the subversion of all legal restraint, and the overthrow of the reigning family. Genoa, too, grew rich and powerful by the same means, and, not content with her own limited fishing-grounds, undertook the conquest of others. Usurping the fisheries of the regions of the Bosphorus, she captured and for a while awed into submission their rightful owners. Amsterdam, from a village of herring-catchers, cabins, and curing-sheds, rose, by the skill of the inmates of these frail structures, by the fame of their commodities in foreign countries, and by the immense consumption of them at home, to unexampled affluence and grandeur; and the sayings everywhere current two centuries ago, that "Amsterdam is founded on herring-bones," and that "Dutchmen's bodies are built of pickled herrings," were hardly more than quaint expressions of historic truth.

So steadily and successfully were the fisheries pursued by the people of Plymouth, Massachusetts, New Hampshire, and Maine, that only fifty years elapsed from the landing of the Puritans, before an English writer of high authority in matters of trade, expressed his apprehension as to the events likely to result, in the following remarkable words: "New England," said he, "is the most prejudicial plantation to this kingdom." And why? Because, "of all the American plantations, his majesty has none so apt for building of shipping as New England, nor any comparably so qualified for the breeding of seamen, not only by reason of the natural industry of that people, but principally by reason of their cod and mackerel fisheries; and, in my poor opinion, there is nothing more prejudicial, and in prospect more dangerous, to any mother kingdom, than the increase of shipping in her colonies, plantations, or provinces." Sir Josiah Child was alarmed too much, probably, at what really was in his own time, but still saw with a prophet's eye what was to be. But the policy of England, from the restoration of the Stuarts down to the Revolution, was in strict accordance with the apprehensions expressed by him, and she not only neglected and declined all support to the navigation and commerce of New England, but directly oppressed and restrained them. Omitting notice of the acts of Parliament which do not relate specially to the subject before us, the first law to claim our attention was passed in 1733, after a discussion of two years. This act, by imposing duties on rum, molasses, and sugar, imported into the colonies from any West India islands other than British, was designed to break up an extensive and valuable trade with the French, Dutch, and Spanish islands, where these products of the plantations were exchanged for fish. It is said that, previous to the commencement of the trade to these islands, molasses was thrown away by the planters, and that this article, which is now so extensively used in food, was first saved and put into casks to be brought to New England, to be distilled into rum. Certain it is, that on the passage of the act of 1733, the people of the northern colonies insisted that, unless they could continue to sell fish to the planters of the foreign islands, and to import molasses from thence to be manufactured into spirit, for domestic consumption and for trade with the Indians, they could not prosecute the fisheries without ruinous losses. The penalty for violating the act was the forfeiture of vessel and cargo. Yet New England never submitted, though a fleet was sent to enforce obedience; and the interdicted trade with the French, Dutch, and Spanish islands, did not cease until a late period of the controversy which terminated in the Revolution. In fact, therefore, a measure which threatened to ruin the cod-fishery of New England, produced, as I incline to believe, no serious injury to it, for quite thirty years.

---

* Republished in Collections of Massachusetts Historical Society, vol. 8th of 3d series.

† Prince Charles changed the name to "Cape James," in honor of his father; but Gosnold's appellation has been preserved to the present time.

* With larger *livers*—of course affording more oil.

But in 1764 the act was renewed, and the collection of the duties it imposed on rum, molasses, and sugar, was attempted by the officers of the crown, in a manner to create the most anxious concern; for, the jurisdiction of the admiralty courts was enlarged, and the people were deprived of the trial by jury in all cases arising between them and the government under this law, and the trade and navigation laws generally.

The most alarming discontents followed the collisions and quarrels which constantly occurred between ship-masters and merchants, on the one hand, and the officers of the customs on the other, in various parts of New England, and especially in Boston, Salem, Gloucester, Falmouth, and elsewhere in Massachusetts; and the impression became general among commercial men, that their business and property were both to be sacrificed to appease the clamors of the planters of the British islands, and to test the ability of the mother country to "raise a revenue in America" under the "sugar and molasses act," as this odious law was called in the politics of the day.

These incidents will serve to show the connection of the fisheries with the questions which caused a dismemberment of the British empire. It remains to speak of the act of Parliament passed in 1775, which, by depriving the people of New England of the right of fishing, was designed to "starve them into submission." The trade arising from the cod-fishery alone, at that period, furnished the northern colonies with nearly half of their remittances to the mother country, in payment for articles of British manufacture, and was thus the very life-blood of their commerce. The fishing towns had become populous and rich. Marblehead, for example, next to Boston, was the most important place in Massachusetts, and was second to the capital only in population and taxable property. A fearful change awaited all. The dispute was now to be determined by an appeal to arms, and every maritime enterprise was to be interrupted and ruined.

We have already given in this article a short historical account of the fishery of the United States, and of the treaties now or hitherto in force respecting the fisheries; so the remainder of this article will be confined to the statistics of our fisheries since our separation from Great Britain.

STATISTICS OF THE COD-FISHERY OF MASSACHUSETTS FROM THE YEAR 1765 TO 1775, AND FROM 1786 TO 1790.

Towns.	From 1765 to 1775.			From 1786 to 1790.		
	Vessels ann'lly empl'd.	Tonnage.	No. of men.	Vessels ann'lly empl'd.	Tonnage.	No. of men.
Marblehead...	150	7,500	1,200	90	5,400	720
Gloucester....	146	5,530	888	160	3,600	680
Manchester...	25	1,500	200	15	900	120
Beverly.......	15	750	120	19	1,235	157
Salem........	30	1,500	240	20	1,300	160
Newburyport.	10	400	60	10	460	80
Ipswich.......	50	900	190	56	860	248
Plymouth	60	2,400	420	36	1,440	252
Cohasset......	6	240	42	5	200	35
Hingham.....	6	240	42	4	180	32
Scituate	10	400	70	2	90	16
Duxbury......	4	160	28	9	360	72
Kingston......	6	240	42	4	160	28
Yarmouth	30	900	180	30	900	150
Wellfleet.,....	3	90	21	....	....	....
Truro	10	400	80	....	....	....
Provincetown.	4	160	32	11	550	88
Chatham......	30	900	240	30	900	240
Nantucket....	8	320	64	5	200	40
Weymouth ...	2	100	16	3	150	24
In Maine......	60	1,000	230	30	300	120
Total.......	665	25,630	4,405	539	19,185	3,292

STATISTICS OF THE FISHERIES OF THE UNITED STATES IN 1840. GENERAL VIEW SHOWING THE PRODUCE, MEN, AND CAPITAL EMPLOYED IN EACH STATE AND TERRITORY.

States and Territories.	Number of quintals of smoked or dry fish.	Number of barrels of pickled fish.	Number of gallons of spermaceti oil.	Number of gallons of whale and other fish oil.	Value of whalebone and other productions of the fisheries.	Number of men employed.	Capital invested
Maine...............	279,156	54,071	1,044	117,807	$2,351	3,610	$526,967
New Hampshire.....	28,257	1,714	....	15,234	....	399	59,680
Massachusetts,........	389,715	124,755	3,630,972	3,364,725	442,974	16,000	11,725,850
Rhode Island........	4,084	2,908	487,268	633,860	45,523	1,160	1,077,157
Connecticut..........	1,384	6,598	183,207	1,909,047	157,572	2,215	1,301,640
Vermont	....	....	....	....	....	....	....
New York...........	5	22,224	400,251	1,269,541	344,665	1,228	949,250
New Jersey..........	....	1,184	12,000	80,000	74,000	179	93,275
Pennsylvania........	....	2,012	....	....	15,240	58	16,460
Delaware............	....	28,000	49,704	142,575	7,987	165	170,000
Maryland............	....	71,292	....	....	12,167	7,814	88,947
Virginia............	....	30,315	262	....	4,150	556	28,383
North Carolina.......	2,385	73,350	....	2,387	23,800	1,784	213,562
South Carolina.......	....	425	....	....	....	53	1,617
Georgia..............	....	14	....	....	....	6	..
Alabama............	2	....	....	....	....	....	....
Mississippi...........	9	...	....	....	....	....	....
Louisiana............	....	....	....	....	....	....	....
Tennessee...........	....	97	....	....	....	7	242
Kentucky............	....	....	....	....	....	....	....
Ohio.................	....	8,506	....	14	....	165	12,210
Indiana..............	....	14	....	....	1,150	....	....
Illinois	....	1	....	28	....	....	....
Missouri.............	....	....	....	....	....	....	....
Arkansas............	....	....	....	....	....	....	....
Michigan............	....	16,535	....	60	....	453	28,640
Florida..............	69,000	78	....	....	6,000	67	9,800
Wisconsin......	....	9,021	....	1,500	155	138	61,300
Iowa................	....	....	....	....	....	....	....
District of Columbia..	....	24,300	....	....	15,500	527	64,500
Total..........	773,947	472,359	4,764,708	7,536,778	1,153,234	36,584	16,429,620

STATISTICS OF THE COD-FISHERY OF THE UNITED STATES, EXHIBITING THE TONNAGE EMPLOYED; BOUNTY PAID TO FISHING VESSELS; IMPORTS OF SALT; EXPORTS OF DRIED FISH, AND THE VALUE OF THE SAME.

Year.	Tonnage.	Bounties.	Salt imported.	Dried fish exported.	Value of exports.
			Bushels.	Quintals.	Dollars.
1789	19,185	None.	1,250,255	....	....
1790	28,348	"	2,355,760	....	....
1791	32,542	"	1,850,479	383,237	....
1792	32.060	....	1,779,510	364,898	....
1793	50,163	$72,965 32	2,027,332	372,825	....
1794	28.671	93,768 91	2,958,411	436,907	....
1795	30,934	66,280 47	2,233,186	400,818	....
1796	34.963	76,889 63	3,975,922	377,713	....
1797	40,629	80,475 76	2,674,251	406,016	....
1798	42.746	94,684 30	2,891,453	411,175	....
1799	29,978	128,605 87	2,471,969	428,495	....
1800	29,427	87,853 45	3,095,807	392.726	....
1801	39,381	74,520 92	3,282,064	410,948	....
1802	41.521	104.447 92	3,564.605	440,925	....
1803	51,813	117.173 57	3,862,804	461,870	1,620,000
1804	52,014	145,986 73	3.479,878	567.828	2,400,000
1805	57,466	152,927 72	3,652,277	514.549	2,058,000
1806	59.183	162,191 99	3,941,616	537,457	2,150,000
1807	69.306	161,254 17	4,671,628	473,924	1,896,000
1808	51.998	142,911 89	1,300,177	155,808	623,000
1809	34,486	47,166 11	No returns	345,648	1,123,000
1810	34.828	3,406 44	"	280.864	913,000
1811	43.233	None.	"	214,387	757,000
1812	30,459	"	"	169,019	592,000
1813	20.878	"	"	63,616	210,000
1814	17.855	"	333,344	31,310	128,000
1815	36,938	1,811 74	2,020,131	103.251	494.000
1816	48,126	84,736 26	6,854,821	219,991	935,000
1817	64.807	119,919 51	2,884,504	267,514	1,003,000
1818	69,107	148.915 65	3,678,526	308,747	1,081,000
1819	76,076	161,623 35	3,874,852	280,555	1,052,000
1820	72,040	197.834 68	4,711,329	321,419	964,000
1821	62.293	170,052 91	3,943.727	267,305	708,778
1822	69.225	149,897 83	4,087,381	241,228	666,730
1823	78,253	176,706 04	5,127,657	262,766	734,024
1824	77,446	208.924 08	4,401.399	310,189	873,685
1825	81,462	198.724 97	4,574.202	300,857	830,356
1826	....	215.859 01	4,564,720	260,803	667,742
1827	....	206.185 55	4,320,489	247.321	747.171
1828	94.756	239,145 20	3,962,957	265.217	819,926
1829	101,797	261,069 94	5,945,547	294.761	747,541
1830	98,529	197,642 28	5,374,046	229,796	530,690
1831	106,188	200.428 39	4,182,340	230,577	625,393
1832	102.454	219,745 27	5,041,424	250.544	749,909
1833	111.445	245,182 40	6,822,672	249,689	713,317
1834	117,485	218,218 76	6,038,076	253.132	630,385
1835	....	223.784 93	5,375,364	287,721	783,895
1836	63,306	213.091 03	5,088,666	240,769	746,464
1837	80,552	250,181 03	6,343,706	188.943	588,506
1838	70,064	314,149 00	7,103,147	206,028	626,245
1839	72.248	....	6,061.608	208,720	709,218
1840	76,036	....	8,183,203	211.425	541,058
1841	66,551	....	6,823,946	252,199	602,810
1842	54,803	....	....	256,083	567,782
1843	61.223	....	....	174,220	381,175
1844	85,224	....	....	271,610	699.833
1845	76.990	....	....	288,380	803.353
1846	79.318	....	....	277,401	699,559
1847	78,280	....	....	258,870	659,629
1848	89,856	....	....	206,549	609.482
1849	81.695	....	11,622,163	197,457	419.092
1850	93,806	....	11,224,185	168.600	365.349
1851	95,616*	....	8,681,176	151.088	367,729

* Maine, 45,528; New Hampshire, 1,916; Massachusetts, 39,982; Rhode Island, 371; Connecticut, 6,785; New York, 1,084; Total, 95,616.

The Mackerel Fishery, from the settlement of New England to the year 1852.—It is frequently said that the mackerel fishery is of very recent origin, or that, at least, *vessels* were not employed in it until about the close of the last or the beginning of the present century. Both suppositions are entirely erroneous. The Indians, regardless of the beautiful form and color of the fish, called it *wawwunnekeseag*, on account of its fatness. There is mention of it in the earliest records of the country. Winthrop relates that in 1633, the ship *Griffin*, two days before her arrival at Boston, lost a passenger by drowning, as he was casting forth a line to catch mackerel. The first settlers must have commenced the fishery soon after, since, to omit several minor incidents, we have the fact that Allerton, one of the Pilgrims who came over in the *Mayflower*, received mackerel for sale at New Haven, on "half profits," in the year 1653. That the business was prosecuted with success is evident from the additional fact, that in 1660 the commissioners of the colonies of New England recommended to the general courts of the confederacy to regulate it, "considering" that "the fish is the most staple commodity of this country." The mackerel fishery at Cape Cod was held by the government of the colony of Plymouth as public property, and its profits were appropriated to public uses. The records show that it was rented from time to time to individuals, who paid stipulated sums; and that a *part of the fund to support the first free-school established by our Pilgrim fathers was derived from it.*—SABINE'S *Report to Congress*, 1853.

The proposition to found and endow a school of this description seems to have been made in 1663, but not to have been adopted until seven years later, when the general court, "upon due and serious consideration, did freely give and grant all such profits as might or should annually accrue to the colony," from this and the bass and herring fisheries, at the same place. In 1689, the "rent of the Cape fishery was added to the appropriation for magistrates' salaries for that year."

STATISTICS OF THE MACKEREL FISHERY OF THE UNITED STATES.

Years.	Tonnage employed.	Mackerel inspected.		
		In Massachusetts.	In N. Hampshire.	In Maine.
		Barrels.	Barrels.	Barrels.
1804	....	8,079	....	....
1805	....	8,936	....	....
1806	....	8,473	....	....
1807	....	10,904	....	....
1808	....	7,738	....	....
1809	....	8,865	....	....
1810	....	13.058	....	....
1811	....	19,632	....	....
1812	....	5,018	....	....
1813	....	3,832	....	....
1814	....	1,349	....	....
1815	....	16.394	....	....
1816	....	30.021	....	....
1817	....	37,982	....	....
1818	....	47,210	....	....
1819	....	105,433	....	....
1820	....	236.243	....	....
1821	....	111.009	....	....
1822	....	160,294	....	....
1823	....	145,006	....	....
1824	....	191,650	....	....
1825	....	254,381	....	33,065
1826	....	158,740	....	....
1827	....	190,310	....	....
1828	....	237,324	....	....
1829	....	225,882	....	....
1830	....	308,462	20,300	....
1831	....	353,559	21.450	....
1832	....	212.452	21,700	....
1833	48,725	212,946	19,375	....
1834	....	252,884	18.200	40,661
1835	....	194,450	15,300	....
1836	....	176,931	9,450	25.228
1837	46,811	138,157	5,225	22.462
1838	56,649	108,538	8,420	24,312
1839	....	73,018	700	....
1840	28.269	50,992	630	....
1841	11,321	55.537	1,100	....
1842	16,096	75,543	1,050	....
1843	11.775	64.451	1,175	....
1844	16,170	86,181	1,240	....
1845	21,413	202.302	1,075	....
1846	36,463	174,064	1,369	....
1847	31,451	232,581	2,008	....
1848	43,558	300,130	2,400	....
1849	42.942	231,856	2,867	....
1850	58,112	....	8,125	....
1851	50,539*	329,242	8,073	31,472
1852	....	197,768	2,140	....

* Maine, 9,858; New Hampshire, 481; Massachusetts, 39,416; Rhode Island, 190; Connecticut, 594; Total, 50,539.

Exact statements as to the progress and extent of the mackerel fishery previous to the Revolution, are hardly to be found; but it is still certain that the people of Rhode Island and Connecticut, as well as those of Massachusetts, were "largely concerned in it;" and that fleets of sloops employed in it were often seen upon the coast and in the harbors. It is certain also that about the year 1770 the town of Scituate alone owned upward of 30 vessels that were annually fitted out as "mackerel catchers;" and that the whole number of vessels in Massachusetts was not less than 100.

Soon after the peace of 1783, a writer in a Boston newspaper, in a series of articles on American commerce, said that the mackerel fishery "was of more value to Massachusetts than would be the pearl fisheries of Ceylon."

ANNUAL RETURN OF THE NUMBER OF BARRELS, HALVES, QUARTERS, AND EIGHTHS OF BARRELS OF MACKEREL AND OTHER PICKLED FISH, ESTIMATED IN BARRELS, INSPECTED IN MASSACHUSETTS, FOR THE YEAR ENDING DECEMBER 31, 1852, AS PER THE RETURNS OF THE DEPUTY INSPECTORS, NOW IN THE OFFICE OF THE INSPECTOR GENERAL.

Where Inspected.	No. of Barrels.
Boston	39,891¾
Gloucester	48,012¾
Beverly	366⅝
Rockport	5,345¼
Newburyport	11,806
Provincetown	17,640
Truro	2,540⅝
Wellfleet	11,367¼
Chatham	57,649¼
Harwich	9,147⅞
Dennis	10,290¼
Yarmouth	3,235
Barnstable	3,198¾
Hingham	13,133⅝
Cohasset	11,616⅜
Plymouth	67
Salem	14
Total	196,768¼
The above includes all except two returns from Provincetown and one from Scituate, estimated at	1,000
Total 1852	197,768¼
Reinspected at Boston	19,771⅞
Total	317,540⅜
All other kinds of pickled fish	9,254
Total amount of mackerel inspected in 1852	197,768¼
Total amount of mackerel inspected in 1851	329,278
Decrease of 1852 from 1851	131,509¼

STATISTICS OF FOREIGN MACKEREL IMPORTED INTO AND EXPORTED FROM THE UNITED STATES, AND OF DRIED CODFISH IMPORTED INTO THE SAME.

Year.	Mackerel.		Codfish.	
	Imported into the United States.	Exported from the United States.	Imported.	
	Barrels.	Barrels.	Quintals.	Value.
1821	7	None.	....	....
1822	387	"	....	....
1823	67	"	....	....
1824	790	"	....	....
1825	242	"	....	....
1826	87	"	....	....
1827	39	"	....	....
1828	38	"	....	....
1829	95	"	....	....
1830	391	"	....	....
1831	4,552	"	....	....
1832	32	"	....	....
1833	20	"	....	....
1834	223	....	....	....
1835	8,153	850	....	....
1836	6,037	937	....	....
1837	1,256	850	....	....
1838	182	....	....	....
1839	7,046	....	4,295	$24,303
1840	11,823	....	4,061	19,355
1841	10,887	....	2,433	19,262
1842	....	....	....	....
1843	....	....	....	....
1844	....	....	....	....
1845	....	....	....	....
1846	....	....	....	....
1847	....	....	....	....
1848	....	....	....	....
1849	138,505	23,295	22,520	43,709
1850	75,491	13,577	25,115	45,961
1851	102,638	18,240	14,705	27,769

There is little of interest relating to this branch of industry for several years after the period last mentioned. A highly respectable shipmaster, who is still living, entertains the opinion that the fishery in *vessels* was commenced within 50 years; and that "he was personally engaged in the *first* regular mackerel voyage ever made in New England." His account, as related to me by himself, would occupy too much room. Its substance is, that he engaged in the coasting business for some time between Massachusetts and Maine; he commonly saw and caught mackerel during the summer months in the vicinity of the island of Mount Desert; that believing that they might be taken in quantities, he resolved finally to fit out a vessel for the express purpose; that his success was even greater than he had expected, and that others were induced to follow his example. The mistake of this gentleman probably is, that what he considered the *origin* of the vessel fishery was only a *revival* of it; since we can easily imagine that repeated losses and discouragements had caused a suspension of it.

The Herring Fishery, from its commencement to the year 1852.—We hear of this fishery among the Pilgrims. In 1641 they rented the herring *wear* at Plymouth for three years to three men, "who were to deliver the shares of fish, and receive 1s. 6d. per 1000 for their trouble." We hear of it on the coast of Maine also a few years afterward. Jesselyn says that the "herrin" were "so numerous, they take of them all summer long. In 1670," he continues, "they were driven into Black Point harbor, by other great fish that prey upon them, so near the shore that they threw themselves (it being high water) upon dry land in such infinite numbers that we might have gone half way the leg among them for near a quarter of a mile." He repeats the account in his "Chronological Observations of America;" where he states, that so "wonderful" was the quantity, that "they were half-leg deep for *a mile* together." Of the manner of cooking at that period he remarks, that "we used to qualify a pickled herrin by boiling of him in milk." These incidents are sufficient to show the early origin.

From the fragmentary notices of the fishery which are to be met with, it seems probable that, for a long time, as the *scools* of herrings came to our coasts, the inhabitants on the sea and rivers, from Maine to the Carolinas, generally secured sufficient for consumption fresh; that the more careful provided themselves with salt to cure quantities for future use; and that some, becoming regular fishermen, caught and cured the fish for sale to their neighbors of the interior. And that the practice was continued, substantially, without interruption, until the waters resorted to by the herring for the deposit of its spawn were obstructed by dams and mills, is hardly to be doubted. It is certainly true that on some of the rivers, where the fishery is now nearly extinct, the supply at the revolutionary era was considered inexhaustible; and that farmers and fishermen were in the constant habit of filling wagons and boats with scoop-nets and other simple implements.

The Halibut Fishery.—The halibut fishery on George's Bank is a new enterprise. It was commenced within a few years by the adventurous fishermen of Cape Ann. Pursued in mid-winter, it is as hazardous an employment as can well be imagined.

While the fishery was confined to the coast, the consumption of the fish was very limited. In April, 1843, the *Norfolk Herald* announced that "our market, yesterday morning, was enriched with a delicacy from the northern waters, the halibut—*a strange fish in these parts, known only to epicures and naturalists.*"

The New Orleans *Picayune*, in May of the same year, contained a similar paragraph. At present, the fish, packed in boxes with ice, is sent, sound and sweet, by railroads and vessels, to the most distant sections of the country. Vessels employed on the Bank are absent from port from six to fourteen days. The average catch of halibut is perhaps 200 to a vessel, though some obtain double that number. The weight of the fish is from 50 to 200 pounds. [For nearly the whole of this article we are indebted to Mr. Sabine's valuable *Report on Fisheries*, 1853.]

For some time, dealers in Boston purchased, packed, and shipped the fish almost exclusively; but a company was finally formed at Gloucester for the purpose of transacting this part of the business as well as the other. The fishermen, however, resort again to Boston; for this company, after losing a considerable part of their capital, relinquished their design.

The growth of the fishery has been rapid. The number of vessels employed in it, owned at Gloucester, was 30 in 1844; 63 in 1848; and about 75 in April, 1852. The present fleet contains many new, well-modeled, and fast-sailing vessels. The value of the halibut caught in 1851 was upward of $60,000.

I can not forbear to add, that had our statesmen stood by the doctrine which was asserted and maintained at Ghent by the American commissioners, *one* source of calamity at least would have been spared to our fishermen. The rights guarantied to us formed a part of, and in their very nature were as perpetual as, our independence as a nation. The first article of the convention of 1818 should never have been agreed to by our government. The third article of the treaty of 1783 ought never to have been stricken from that instrument. It is now too late to correct the mistake.

The earnings of the vessels sent to the Bank are generally ample; but the fishery is not profitable, in consequence of the extraordinary wear and tear of sails and rigging, and the frequent loss of cables and anchors. More than all, hardly a season passes without appalling disasters. Whenever a vessel is lost on George's, all on board perish.

An American citizen may contend, if he will, for the repeal of our bounty laws; he may favor a low duty, or no duty whatever, on foreign fish; but he is bound to honor the courage and perseverance of the halibut catchers of Cape Ann, who, mid the storms and gales of a northern winter, procure for him the luscious *napes* and *fins* which garnish his board.

The statistics of the produce of the United States' fisheries for 1855 and 1856 are shown by the following table, taken from the Report on Commerce and Navigation:

STATEMENT SHOWING THE DOMESTIC EXPORTS OF FISH FROM THE UNITED STATES FOR THE YEAR ENDING JUNE 30, 1856.

Whither exported.	Dried or smoked.		Pickled.		
	Cwt.	Dollars.	Barrels.	Kegs.	Dollars.
Swedish West Indies	....	....	....	1	....
Danish West Indies	2,186	8,349	1,208	....	6.678
Dutch West Indies	1,185	4,805	51	....	318
Dutch Guiana	26,249	69,455	2,192	41	11,515
England	....	....	14	....	146
Gibraltar	33	149	50	....	226
Canada	3,454	26,914	1,969	295	17,064
Other British N. American Possessions	849	2,347	286	1	1,246
British West Indies	1,613	5,301	595	1	2,945
British Honduras	1,031	4,357	169	....	1,066
British Guiana	804	2,331	75	....	725
Brit. Poss. in Africa	94	391	300	10	1,004
British Australia	8,337	37,332	4,296	206	24,992
British East Indies	40	163	2	....	15
France on the Atlantic	80	277	1	....	4
French West Indies	1,092	4,171	820	....	4,508
French Guiana	6,128	15.834	962	....	4,490
Cuba	59,854	174,828	1,109	500	5,424
Porto Rico	12,379	39,106	1,937	156	10,120
Madeira	25	120	....	....	....
Cape de Verd Islands	20	64	....	....	....
Turkey in Asia	134	450	....	....	....
Other Ports in Africa	614	2,273	591	196	3,827
Hayti	34,232	145,121	13,689	31	68,883
San Domingo	686	1,973	7	....	51
Mexico	151	724	....	138	620
Central Republic	71	310	17	....	124
New Grenada	983	4,258	180	....	1,501
Venezuela	1,149	4 960	....	....	....
Brazil	4,338	16,651	2	....	32
Uruguay, or Cisplatine Republic	110	450	....	....	....
Buenos Ayres, or Argentine Republic	53	263	4	22	159
Chili	527	2,384	....	....	....
Peru	93	435	18	4	231
Equador	14	72	....	....	....
Sandwich Islands	39	222	177	909	2,344
China	274	1,470	15	1,200	2,690
Whale Fisheries	50	201	64	355	982
Total	168,971	578,011	30,801	4,065	173,939

GENERAL STATEMENT OF DOMESTIC EXPORTS, ARRANGED BY DISTRICTS, FROM THE UNITED STATES, FOR THE YEAR ENDING JUNE 30, 1856.

Districts.	Dried or smoked.		Pickled.		
	Cwt.	Dollars.	Barrels.	Kegs.	Dollars.
Passamaquoddy	368	653	38	....	162
Bath	680	1,721	25	....	300
Portland & Falmouth.	10,275	19,888	170	500	1,088
Vermont	172	862	1,131	....	10,654
Newburyport	5,473	15,101	836	156	3,765
Gloucester	11,721	30,363	1,346	....	6,592
Salem	3,725	9,929	404	40	2,472
Boston & Charlestown.	84,408	270,973	14,805	471	78,842
Fall River	15	53	7	....	106
Providence	....	....	6	....	53
Bristol and Warren	11	49	....	....	....
Newport	96	314	9	....	79
New London	39	152	110	....	478
New Haven	538	1,940	403	....	1,594
Genesee	....	....	7	....	48
Oswego	1,164	19,726	111	295	1,636
Niagara	130	636	....	....	....
Buffalo Creek	183	971	142	....	1,975
Oswegatchie	201	914	5	....	39
New York	36,769	149,808	10,155	....	53,407
Champlain	....	....	423	....	2,192
Cape Vincent	1,414	3,194	....	....	....
Philadelphia	5,836	18,768	280	10	1,338
Presque Isle	....	....	....	....	....
Delaware	....	....	....	....	....
Baltimore	1,642	6,879	32	....	154
Alexandria	....	....	5	....	48
Richmond	27	525	....	....	....
Newbern	....	....	65	....	350
Beaufort	....	....	2	....	10
Charleston	9	34	17	1	120
Key West.....6	3,835	23,042	....	....	....
New Orleans	6	27	7	134	675
Detroit	120	410	150	....	520
Oregon	....	....	93	....	589
Puget's Sound	....	....	15	....	120
San Francisco	114	1,079	2	2,458	4.533
Total	168,971	578,011	30,801	4,065	173,939

A COMPARATIVE VIEW OF THE TONNAGE OF THE UNITED STATES EMPLOYED IN THE WHALE FISHERY; ALSO THE PROPORTION OF THE ENROLLED AND LICENSED TONNAGE EMPLOYED IN THE COASTING TRADE, COD FISHERY, MACKEREL FISHERY, AND WHALE FISHERY, FROM 1815 TO 1856, INCLUSIVE.

Year	Total tonnage.	Regist'd tonnage in the wha'e fishery.	Tonnage employ'd in steam navigation.	PROPORTION OF THE ENROLLED TONNAGE EMPLOYED IN THE			
				Coasting trade.	Cod fishery.	Mackerel fishery.	Whale fishery
1815	1,368,127	....	....	435,067	26,510	....	1,230
1816	1,372,219	....	....	479,979	37,879	....	1,168
1817	1,399,911	4,871	....	481,458	53,990	....	350
1818	1,225,184	16,135	....	503,140	58,552	....	615
1819	1,260,752	31,700	....	523,556	65,045	....	686
1820	1,280,166	35,391	....	539,080	60,843	....	1,054
1821	1,298,959	26,071	....	559.436	51,351	....	1,924
1822	1,324,699	45,449	....	573,080	58,405	....	3,134
1823	1,336,566	39,918	24,879	566,409	67,621	....	585
1824	1,389,163	33,166	21,610	589.223	68,419	....	180
1825	1,423,111	35,379	23,061	587.273	70,626	....	....
1826	1,534,191	41,757	57,059	666.420	63,761	....	227
1827	1,620,688	45.653	40,198	732,938	74,049	....	329
1828	1,741,392	54,621	39,418	758,922	74,948	....	180
1829	1,260,798	57,284	54,037	508,858	101,797	....	....
1830	1,191,776	38,912	64,472	516.978	61,555	35,973	793
1831	1,267,846	82,316	34,436	539,724	60,978	46,211	482
1832	1,439,450	72,869	90,814	649,627	54,028	47.421	377
1833	1,606,150	101,158	101,850	744,199	62,721	48,725	478
1834	1,758,907	108,060	122,815	783,619	54.404	61,082	364
1835	1,824,940	97,640	122,815	792,801	72.374	64,443	....
1836	1,882,103	144,681	145,556	873.023	62,307	64,425	1,573
1837	1,896,686	127,243	154,765	956,981	80,552	46,811	1,894
1838	1,995,640	119,630	193,414	1,041,105	70,064	56,649	5,230
1839	2,096,479	131,845	204.938	1,153,552	72.259	35,984	440
1840	2,180,764	136,927	201,339	1,176,694	76,036	28,269	....
1841	2,130,744	157,405	175,088	1,107.068	66.552	11,321	....
1842	2,092,391	151,613	229,661	1,045,753	54.804	16,097	377
1843	2,158,603	152,375	236,868	1,076,156	61,224	11,776	143
1844	2,280,095	168,294	273.179	1,109,614	85,225	16,171	321
1845	2,417,002	190,696	326,019	1,190,898	69.826	21,418	207
1846	2.562,085	189,980	347,893	1,289,871	72.516	36,463	440
1847	2,839,046	193,859	404,842	1,452,623	70.178	31,451	....
1848	3,154.042	192,180	427,891	1,620,988	82.652	43,559	433
1849	3,334,015	180,186	462,394	1.730.411	42,970	73,854	....
1850	3,535,454	146,017	525,947	1,755,796	85,646	58,112	....
1851	3,772,439	181,645	583,607	1,854,317	87,476	50,539	....
1852	4,138,440	193,798	643,241	2,008,021	102,659	72,546	....
1853	4,407.010	193,202	514.098	2,134,256	109,227	59,850	....
1854	4,802.903	181,901	676.607	2,273,900	102.194	35,041	....
1855	5,212,001	186,773	770,285	2,491,108	102.928	21.625	70
1856	4,871,652	189,213	673,078	2,211.935	95,816	29,887	248

Fisheries of the United States in 1850.

States.	Fisheries.	Capital.	Value of raw material.	Hands employed.		Entire wages per month.		Annual product.
				Male.	Female.	Male.	Female.	
Connecticut	252	$1,986,300	$19,574	2,961	....	$61,729	....	$1,734,483
Florida	15	13,975	1,280	93	5	1,635	$42	18,676
Maine	263	496,910	19,137	2,783	....	53,210	....	569,876
Massachusetts	593	5,582,650	....	11,523	....	180,885	....	6,606,849
Michigan	69	80,806	....	244	....	5,474	....	72,775
New Hampshire	86	43,700	6,836	300	....	3,000	....	59,281
New York	26	482,100	....	583	....	11,862	....	484,345
North Carolina	76	235,115	....	1,848	424	44,578	4,993	250,025
Ohio	16	11,184	4,979	85	....	1,621	....	27,565
Rhode Island	11	82,500	12,096	109	....	3,708	....	64,430
Virginia	15	40,564	32,942	133	....	2,887	....	95,002
Wisconsin	12	10,240	2,835	47	....	1,010	....	16,875
Total	1,884	$8,966,044	$99,681	20,704	429	$371,599	$5,035	$10,000,182

For a complete account of the political history and present state of the Fisheries, see Sabine's *Report to Congress*, 1853. For more extended information in regard to the various branches of the fisheries, see articles Cod Fishery, Herring Fishery, and Whale Fishery; see also *N. A. Rev.*, lvii. and lxii. (by L. Sabine); *Quar. Rev.*, lxix., 226, ix., 268, xxxvii., 345; *Edin. Rev.*, lxxviii., 46, xciii., 174; *Merch. Mag.*, xix., 145 (Balfour); *Blackwood*, liii, 640; *Am. Whig Rev.*, vi., 490 (C. Lanman); Niles's *Register*, xxix., 377 (Lloyd's *Rep.*); *Ency. Am.*, *Ency. Brit.*, 1856–7. *Census Rep. U. S.*, 1854.

Reciprocity Treaty between the United States of America and her Britannic Majesty: concluded 5*th June*, 1854; *ratified by the United States* 9*th August*, 1854; *exchanged* 9*th September*, 1854; *and proclaimed* 11*th September*, 1854.

Article 1. It is agreed by the high contracting parties that, in addition to the liberty secured to the United States' fishermen by the above-mentioned convention of October 20, 1818, of taking, curing, and drying fish on certain coasts of the British North American colonies therein defined, the inhabitants of the United States shall have, in common with the subjects of her Britannic majesty, the liberty to take fish of every kind, except shell-fish, on the sea-coasts and shores, and in the bays, harbors, and creeks of Canada, New Brunswick, Nova Scotia, Prince Edward's Island, and of the several islands thereunto adjacent, without being restricted to any distance from the shore, with permission to land upon the coasts and shores of those colonies, and the islands thereof, and also upon the Magdalene Islands, for the purpose of drying their nets and curing their fish: provided that, in so doing, they do not interfere with the rights of private property, or with British fishermen, in the peaceable use of any part of the said coast in their occupancy for the same purpose.

It is understood that the above-mentioned liberty applies solely to the sea fishery; and that the salmon and shad fisheries, and all fisheries in rivers, and the mouths of rivers, are hereby reserved, exclusively, for British fishermen.

And it is further agreed, that in order to prevent or settle any disputes as to the places to which the reservation of exclusive right to British fishermen, contained in this article, and that of fishermen of the United States, contained in the next succeeding article, apply, each of the high contracting parties, on the application of either to the other, shall, within six months thereafter, appoint a commissioner. The said commissioners, before proceeding to any business, shall make and subscribe a solemn declaration that they will impartially and carefully examine and decide, to the best of their judgment, and according to justice and equity, without fear, favor, or affection to their own country, upon all such places as are intended to be reserved and excluded from the common liberty of fishing under this and the next succeeding article, and such declaration shall be entered on the record of their proceedings.

The commissioners shall name some third person to act as an arbitrator or umpire in any case or cases on which they may themselves differ in opinion. If they should not be able to agree upon the name of such third person, they shall each name a person, and it shall be determined by lot which of the two persons so named shall be the arbitrator or umpire in cases of difference or disagreement between the two commissioners. The person so to be chosen to be arbitrator or umpire shall, before proceeding to act as such in any case, make and subscribe a solemn declaration in a form similar to that which shall already have been made and subscribed by the commissioners, which shall be entered on the record of their proceedings. In the event of the death, absence, or incapacity of either of the commissioners, or of the arbitrator or umpire, or of their or his omitting, declining, or ceasing to act as such commissioner, arbitrator, or umpire, another and different person shall be appointed or named as aforesaid to act as such commissioner, arbitrator, or umpire, in the place or stead of the person so originally appointed or named as aforesaid, and shall make or subscribe such declaration as aforesaid.

Such commissioners shall proceed to examine the coasts of the North American provinces and of the United States embraced within the provisions of the first and second articles of this treaty, and shall designate the places reserved by the said article from the common right of fishing therein.

The decision of the commisioners and of the arbitrator or umpire shall be given in writing in each case, and shall be signed by them respectively.

The high contracting parties hereby solemnly engage to consider the decision of the commissioners conjointly, or of the arbitrator or umpire, as the case may be, as absolutely final and conclusive in each case decided upon by them or him respectively.

Article 2. It is agreed by the high contracting parties that British subjects shall have, in common with the citizens of the United States, the liberty to take fish of every kind, except shell-fish, on the eastern sea-coasts and shores of the United States north of the 36th parallel of north latitude, and on the shores of the several islands thereunto adjacent, and in the bays, harbors, and creeks of the said sea-coasts and shores of the United States, and of the said islands, without being restricted to any distance from the shore, with permission to land upon the said coasts of the United States and of the islands aforesaid, for the purpose of drying their nets and curing their fish: provided that, in so doing, they do not interfere with the rights of private property, or with the fishermen of the United States in the peaceable use of any part of the said coasts in their occupancy for the same purpose.

It is understood that the above-mentioned liberty applies solely to the sea fishery; and that salmon and shad fisheries, and all fisheries in rivers and mouths of rivers, are hereby reserved exclusively for fishermen of the United States.

Article 3. It is agreed that the articles enumerated in the schedule hereunto annexed, being the growth and produce of the aforesaid British colonies or of the

United States, shall be admitted into each country respectively free of duty:

Schedule of Articles free of Duty by Reciprocity Treaty with the British Provinces of N. A. and the United States.

- Grain, Flour, and Breadstuffs, of all kinds.
- Animals of all kinds.
- Fresh, Smoked, and Salted Meats.
- Cotton-wool, Seeds, and Vegetables.
- Undried Fruits, Dried Fruits.
- Fish of all kinds.
- Products of Fish, and of all other creatures living in the water.
- Poultry, Eggs.
- Hides, Furs, Skins, or Tails, undressed.
- Stone or Marble, in its crude or unwrought state.
- Slate.
- Butter, Cheese, Tallow.
- Lard, Horns, Manures.
- Ores of Metals, of all kinds.
- Coal.
- Pitch, Tar, Turpentine, Ashes.
- Timber and Lumber of all kinds, round, hewed, and sawed, unmanufactured in whole or in part.
- Fire-wood.
- Plants, Shrubs, and Trees.
- Pelts, Wool.
- Fish-Oil.
- Rice, Broom-corn, and Bark.
- Gypsum, ground or unground.
- Hewn or wrought, or unwrought Burr or Grindstones.
- Dye-stuffs.
- Flax, Hemp, and Tow, unmanufactured.
- Unmanufactured Tobacco.
- Rags.

Article 4. It is agreed that the citizens and inhabitants of the United States shall have the right to navigate the River St. Lawrence, and the canals in Canada used as the means of communicating between the great lakes and the Atlantic Ocean, with their vessels, boats, and crafts, as fully and freely as the subjects of her Britannic majesty, subject only to the same tolls and other assessments as now are, or may hereafter be, exacted of her majesty's said subjects; it being understood, however, that the British government retains the right of suspending this privilege on giving due notice thereof to the government of the United States.

It is further agreed, that if at any time the British government should exercise the said reserved right, the government of the United States shall have the right of suspending, if it think fit, the operation of Article 3 of the present treaty, in so far as the province of Canada is affected thereby, for so long as the suspension of the free navigation of the River St. Lawrence or the canals may continue.

It is further agreed that British subjects shall have the right freely to navigate Lake Michigan with their vessels, boats, and crafts, so long as the privilege of navigating the River St. Lawrence, secured to American citizens by the above clause of the present article, shall continue; and the government of the United States further engages to urge upon the State governments to secure to the subjects of her Britannic majesty the use of the several State canals, on terms of equality with the inhabitants of the United States.

And it is further agreed, that no export duty, or other duty, shall be levied on lumber or timber of any kind cut on that portion of the American territory in the State of Maine watered by the River St. John and its tributaries, and floated down that river to the sea, when the same is shipped to the United States from the province of New Brunswick.

Fish-hooks (*Hamecons*, Fr.; *Fishangeln*, Ger.) are constructed with simple tools, but require great manual dexterity in the workmen. The iron wire of which they are made should be of the best quality, smooth and sound. A bundle of such wire is cut in lengths, either by shears or by laying it down upon an angular wedge of hard steel fixed horizontally in a block or anvil, and striking off the proper lengths by the blows of a hammer. In fashioning the *barbs* of the hooks, the straight piece of wire is laid down in the groove of an iron block made on purpose, and is dexterously struck by the chisel in a slanting direction, across so much of the wire as may be deemed necessary. A sharp-pointed little wedge is thus formed, whose base graduates into the substance of the metal. The end of the wire where the line is to be attached is now flattened or screw-tapped; the other end is sharp-pointed, and the proper twisted curvature is given. The soft iron hooks are next case-hardened, to give them the steely stiffness and elasticity, by imbedding them in animal charcoal contained in an earthen or iron box; after which they are brightened by heating and agitating them with bran, and finally tempered by exposure to a regulated temperature upon a hot iron plate. Hooks for salt-water fishing are frequently tinned to prevent them wearing rapidly away in rust.

Fish-ponds are ponds made by art, in which different kinds of fish are bred and fattened. In general this is only attempted with fresh-water fish; but in some places ponds have been formed on the sea shore, and so contrived as to have their waters renewed every tide, and in these sea fish have been kept for use for a considerable time. The fresh-water fish which is the most successfully managed in ponds is the carp.

Fiume, a seaport town of Austria. The commercial movements in the port of Fiume in 1850, including coasting trade, were: imports, 16,604,000 francs; exports, 17,803,000 francs. The coasting trade of Fiume, at all times more important in the general commerce of that port than the foreign trade, amounted in the year 1850 to 6,840,000 francs for imports, and 8,473,000 francs for exports; leaving a total for foreign commerce of 19,094,000 francs. The latter trade was distributed between the Pontifical states, Naples, Ionian Isles, Turkey, England, and France. Total tonnage employed, 342,493 tons; of which more than two thirds under the Austrian flag.

Flag, an ensign or colors; a cloth on which are usually displayed certain devices, and attached to a staff. In the army, it signifies a small banner by which one regiment is distinguished from another; in the marine, a certain banner by which an admiral is distinguished from the other ships of his squadron, or by which the ships of one nation are distinguished from those of another. The flag acquired its present form in the sixth century in Spain; it was previously small and square.—Ashe. The flag is said to have been introduced there by the Saracens; before which time the ensigns of war were extended on cross pieces of wood.—Pardon. The term flag is more particularly used at sea to denote to what country a ship belongs, and the quality of its commander. The honor of the flag salute at sea was exacted by England from very early times; but it was formally yielded by the Dutch in A.D. 1673, at which period they had been defeated in many actions. Louis XIV. obliged the Spaniards to lower their flag to the French, 1680.—Henault. After an engagement of three hours between Tourville and the Spanish Admiral Papachin, the latter yielded by firing a salute of nine guns to the French flag, June 2, 1688.—*Idem.*

To lower or strike the Flag, in the navy, is to pull it down upon the cap, or to take it in, as a token of the respect due from all ships or fleets to those which are undeniably their superiors. To lower or strike the flag in an engagement is a sign of submission or surrender. The method of leading a ship in triumph is to attach the flags to the shrouds, or the gallery in the hind part of the ship, letting them hang down toward the water, and to tow the vessels by the stern. Livy relates that this was the mode in which the Romans used the ships of Carthage.

To heave out the Flag, is to display or put abroad the flag.

To hang out the White Flag, is to ask quarter; or, when a vessel has arrived on a coast, it shows that it has no hostile intention, but comes to trade, or the like. The red flag is a sign of defiance and battle.

Flag Officers are those who command the several squadrons of a fleet.

Flag of the United States.—The act to establish the flag of the United States was enacted by Congress, April 4, 1818, viz.: "That from and after the 4th day of July next the flag of the United States be thirteen horizontal stripes, alternate red and white; that the union be twenty stars, white in a blue field. That on the admission of every new State into the Union one star be added to the union of the flag; and that such addition shall take effect on the 4th day of July then next succeeding such admission."

Flail, an instrument for threshing corn, consisting of the hand-staff, or piece held in the thresher's hand; the swiple, or that part which strikes the corn; the caplins, strong leathern thongs which unite the hand-staff and swiple; and the middle-band, a leathern thong or fish-skin that ties the caplins together.

Flambeau, a kind of torch made of thick wicks, covered with wax, and used in the streets at night, at illuminations, and in processions. Flambeaux usually consist of four wicks or branches, about an inch in thickness, and three feet long, made of coarse half-twisted hempen yarn; and these, being suspended by one end, are coated with white or yellow wax, which is poured over them from a ladle until the requisite thickness be obtained.

Flannel, a woolen stuff, composed of a woof and warp, and woven after the manner of baize. Dr. Black assigns as a reason why flannel and other substances of the same kind keep the body warm, that they compose a rare and spongy mass, the fibres of which touch each other so lightly that the heat moves slowly through the interstices, which being filled only with air, and that too in a stagnate state, give little assistance in conducting the heat. From the experiments of Count Rumford, it appears that there is no relation between the power which the substances usually worn as clothing have of absorbing moisture, and that of keeping the body warm. Having provided a quantity of several of these substances (as mentioned below), he exposed them, spread out upon clean china plates for the space of twenty-four hours to the warm and dry air of a room which had been heated by a German stove for several months, and during the preceding six hours he had raised the thermometer to 85° of Fahrenheit; after which he weighed equal quantities of the different substances with a very accurate balance. They were then spread out upon a china plate, and removed into a very large uninhabited room upon the second floor, where they were exposed forty-eight hours upon a table placed in the middle of the room, the air of which was 45° of Fahrenheit. At the end of this time they were weighed, and then removed into a damp cellar, where they were placed on a table in the middle of the vault, the air of which was at the temperature of 45°, and, by the hydrometer, seemed to be fully saturated with moisture. In this situation they were suffered to remain three days and three nights, the vault being all the while hung round with wet linen cloths, to render the air as completely damp as possible. At the end of three days they were weighed, and the weights at the different times were found as in the following table:

		Weight after being dried in the hot room.	Weight after coming out of the cold room.	Weight after remaining 72 hours in the vault.
		Parts.		
Sheep's wool		1,000	1,084	1,163
Beaver's fir		"	1,072	1,125
The fur of a Russian hare		"	1,065	1,115
Eider-down		"	1,067	1,112
Silk	Raw single thread	"	1,057	1,107
	Ravelings of white taffety	"	1,054	1,103
Linen	Fine Lint	"	1,046	1,102
	Ravelings of fine linen	"	1,044	1,082
Cotton wool		"	1,043	1,089
Ravelings of silver lace		"	1,000	1,000

In regard to these experiments Count Rumford observes, that though linen, from the apparent ease with which it receives dampness from the atmosphere, seems to have a much greater attraction for water than any other, yet it would appear, from what is related above, that those bodies which receive water in its unelastic form with the greatest ease, or are most easily wet, are not those which in all cases attract the humidity of the atmosphere with the greatest avidity. "Perhaps," says he, "the apparent dampness of linen to the touch arises more from the ease with which that substance parts with the water it contains than from the quantity of water it actually holds; in the same manner as a body appears hot to the touch in consequence of its parting freely with its heat; while another body which is really at the same temperature, but which withholds its heat with great obstinacy, affects the sense of feeling much less strongly. It is well known that woolen cloths, such as flannels, etc., worn next the skin, greatly promote insensible perspiration. May not this arise principally from the strong attraction which subsists between wool and the watery vapor which is continually issuing from the human body? That it does not depend entirely on the warmth of that covering, is clear; for the same degree of warmth produced by wearing more clothing of a different kind does not produce the same effect. The perspiration of the human body being absorbed by a covering of flannel, it is immediately distributed through the whole thickness of that substance, and by that means exposed, by a very large surface, to be carried off by the atmosphere; and the loss of this watery vapor which the flannel sustains on the one side by evaporation, being immediately restored from the other, in consequence of the strong attraction between the flannel and this vapor, the pores of the skin are disencumbered, and they are continually surrounded by a dry and salubrious atmosphere."—*Philosophical Transactions*, No. 483.

Flannels are much more luxurious productions than they were in years gone by. We knew them formerly only as woolen or worsted goods; but modern ingenuity has devised flannel made of mingled wool and silk. Its inventors claim for it a superiority over ordinary flannels, in being less irritating to the skin; it shrinks less in washing; the silk increases the strength and durability of the texture, and renders it less liable to tear. Such flannels have even been embroidered, and used for ladies' opera cloaks. Then we have choice "Thibet" flannels, made from the finest wool; and flax flannels, in which flax, prepared on Claussen's process, is mixed with wool; and fancy-colored flannels—pink, rose-color, cherry, crimson, blue, orange, and other dainty tints. The philosophy of cheapness has also visited the flannel regions, for some of the low-priced flannels contain a portion, more or less, of cotton. There are striped flannels, and cricketers' flannels, and "anti-rheumatic" flannels, and many other special and oddly-named kinds.

Flax (Ger. *Flachs*; Du. *Vlasch*; Fr. *Lin*; It. and Sp. *Lino*; Rus. *Len*, *Lon*; Pol. *Len*; Lat. *Linum*), an important plant (*Linum usitatissimum*) that has been cultivated from the earliest ages in Great Britain and many other countries; its fibres being manufactured into thread, and its seed crushed for oil. Russia supplies by far the largest portion of the flax imported into England, the principal sorts being Petersburg, Narva, Riga, Revel, Pernau, Liebau, Memel, and Oberland. Petersburg and Narva flax are nearly of the same quality, the latter being but little inferior to the former. Both sorts come in bundles, of 12, 9, and 6 heads. The Riga flax seems to deserve the preference of any imported from the Baltic. It is the growth of the provinces of Marienburg, Druania, Thisenbhausen, and Lithuania. The best Marienburg is called simply Marienburg (M), or Marienburg clean; the second quality, cut (GM); and the third, *risten drayband* (RD); of the three other provinces, the first quality bears the name of *rakitzer*; as, *Druania rakitzer* (DR), *Thiesenhausen rakitzer* (TR), and *Lithuania rakitzer* (LR). The cut flax of these three provinces is the second quality; and to the third quality belongs the *badstub* and *badstub cut* (B and BG); the *paternoster*

(PN); and *hafs three band* (HD). *Badstub* and *paternoster* are the refuse of the *rakitzer* flax, and the *three band* again the refuse of the former sort, and consequently very ordinary. The Revel and Penau consists of Marienburg, *cut*, *ritzen*, *hafs three band*, and *three band*. The Liebau and Memel growths are distinguished by the denomination of *four* and *three band*. These two sorts, as well as the Oberland flax, come from Königsberg, Elbing, etc., and are little esteemed in the British market. Flanders or Dutch flax is well dressed, and of the finest quality. Flax is extensively cultivated in Egypt. Of late years, some of the Italian ports, which used to be supplied from Russia, have been fully supplied, on lower terms, from Alexandria.

The *Phormium tenax*, or New Zealand flax, has been said to exceed every other species in strength of fibre and whiteness; qualities which, if it really posesses them in the degree stated, must make it peculiarly well fitted for being made into canvas and cordage. In point of fact, however, there is a great diversity of opinion as to its real merits, and it fetches at present but a low price. In 1831 and 1832 the imports of New Zealand flax amounted respectively to 15,725 and 15,867 cwts.; but they fell off in 1835 to 7812 cwts., and since then only trifling quantities have been imported. It is alleged that this is in consequence of the imperfect preparation of the flax, which has hitherto been entirely intrusted to the native women. But without presuming to say whether the defects with which it is charged be inherent in the flax itself, or depend on its preparation, it is abundantly certain that unless it be furnished of a superior quality, it will not suit our markets. When flax is brought to the principal Russian ports whence it is shipped, it is classified according to its qualities, and made up in bundles by sworn inspectors (*brackers*), appointed by government for the assortment of that and all other merchandise. These functionaries are said to perform their task with laudable impartiality and exactness. A ticket is attached to every bundle of assorted flax, containing the name of the inspector and owner, the sort of flax, and the period when it was selected or inspected. See HEMP. Good flax should be of a fine bright color, well separated from the tow, codila, or coarser portion of the plant; and of a long, fine, and strong fibre. In purchasing flax, it is usual to employ agents wholly devoted to this peculiar business.

ACCOUNT OF THE QUANTITIES OF FLAX AND TOW IMPORTED INTO ENGLAND DURING EACH OF THE FIVE YEARS ENDING WITH 1851, DISTINGUISHING THE COUNTRIES WHENCE THEY WERE IMPORTED, AND THE QUANTITIES BROUGHT FROM EACH.

Countries.	1847.	1848.	1849.	1850.	1851.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.
Russia........	681,167	1,085,732	1,352,335	2,240,766	818,676
Prussia.......	141,845	119,777	180,747	263,271	135,825
Hanse Towns.	34,493	24,500	24,445	20,593	14,925
Holland.......	73,603	101,959	113,786	133,240	83,121
Belgium......	39,960	54,149	75,769	107,336	79,973
France........	5,177	801	2,276	3,374	3,802
Italy and the Italian Isls..	7,695	4,376	1,250	2,247	1,885
Egypt........	57,355	62,094	50,490	46,505	48,038
Brit. Territ. in the E. Ind..	1,800	....	....	....	48
United States.	768	....	....	80	6
Other parts...	8,226	10,273	5,575	5,556	7,885
Total......	1,052,089	1,463,661	1,806,673	1,822,918	11,194,184

Flax has been but little cultivated in the United States, and only for home consumption. Efforts are now being made to increase the production. Linen mills have been erected in Fall River and other places; and the demand will after this equal the supply.

During the last half century various attempts have been made to effect the separation of the fibrous from the woody portion of the flax stem by chemical and mechanical means. In several cases the results at first appeared to be very promising, but in every instance it was soon found that there were insuperable practical objections. Among chemical agents, solutions of sulphuric acid, caustic potash, caustic soda, quicklime, and soft soap, were all in turn tried and discarded; and among mechanical processes, the ingenious contrivances of Mr. James Lee, and Messrs. Hill & Bundy, shared the same fate. Whatever may have been the comparative merits of the two processes of these rival inventors, in the course of a few years both were relinquished and forgotten. Various other ingenious mechanical arrangements have been devised, but hitherto they have had very little success.

Schenck's process, for which he obtained a patent in 1846, is undoubtedly a very important improvement. It consists merely in steeping the flax stems in warm water, heated artificially to the temperature best suited to fermentation. In this simple way the operation is rendered rapid and certain, all uncertainty from fluctuation in temperature and weather is avoided, and the whole process is entirely under the command of the manufacturer. The temperature best suited for this purpose is about 80°, or from 80° to nearly 90°. Above this point the process proceeds too rapidly, and the fibre is almost sure to be more or less injured. The time required is from about 70 to 90 hours. It appears to be generally admitted that the warm-water steeping increases the percentage of fibre obtained from the flax stem over that obtained by the old modes of retting by nearly one fifth; and that, while the fineness and spinning qualities of the fibre are increased, the strength is in no way weakened or diminished, unless the process be permitted to proceed too far—an accident that need never happen, from the complete control over it which the manufacturer has throughout. Although there is no doubt as to the practical value of the use of warm water in flax retting, yet the introduction of Schenck's process is far from removing all the difficulties of the flax manufacturer; much still remains to be effected; and it is by no means improbable that ere long a yet more perfect process may be devised.

It is interesting to observe, that the use of warm water in the preparation of vegetable fibre is not altogether new, it having been employed by the Malays, and by the natives of Rungpoor, in Bengal. The process adopted at Bencoolen is stated by Dr. Campbell to consist of steeping the stems of the hemp in warm water, in which it is allowed to remain for two days and nights. The old German process, called "Molkenröst," sometimes used in preparing the finer sorts of flax, is also, to some extent, an application of the same principle. In this mode of retting, the flax was steeped for four or five days in a warm mixture of milk and water, and thus the desired degree of fermentation in the flax stems was produced. This operation must be distinguished from the more modern one, in which sour milk was used in order to give a good color to linen—a process introduced by the Dutch toward the middle of the last century. The linen was boiled in a weak alkaline lye, and subsequently treated with sour butter-milk, for the purpose of aiding in removing the alkali, and dissolving the earthy impurities present in the fibre. Occasionally, also, salt of sorrel was used for the same purpose; and in 1775 Reuss states that sulphuric and muriatic acids might be used for the same end; but that being too costly, they had not as yet come into general use. Of course all processes in which boiling, or even hot, water is used, are quite different in their mode of action from those in which only warm water is employed. When boiling water is used, it is with a view of dissolving and removing the useless matters which incrust the fibrous parts of the plant; while, on the other hand, warm water is used to soften them, and to aid in their putrefaction or decomposition, through the agency of fermentation. In 1787, much interest was excited in Ireland by the publication of a plan for improving the retting of flax by the action of hot water. In this scheme it was proposed to scald the flax-stems in boiling water to soften them, and to remove a portion of the extraneous vegetable matters which they contain; and it was conceived that after this treatment the subsequent retting of the flax would be more rapid, certain, and manageable; so that time would be saved, the noisome process of pond-retting be obviated, and the result be to yield a stronger and whiter fibre. The minute and careful experiments of Hermbstaedt on the chemical principles involved in the retting of flax (made about the beginning of the present century) threw much light on the whole subject, and, to some extent, indicated the influence of temperature on the success of the operation.

Flax-cotton is a material prepared from flax, hemp, and other vegetable fibres, and which very nearly resembles the fibre of the *Gossypium* or cotton-plant. M. Claussen's ingenious process for making flax-cotton (patented August, 1850) consists essentially in boiling the cut and crushed stems of the flax, hemp, or other plant, in a dilute solution of caustic soda, containing about 1-2000th part of alkali. The fibrous matter is then removed, and plunged into a bath of dilute sulphuric acid, containing 1-500th part of acid, in which it is boiled for about an hour. It is next transferred into a solution containing about 10 per cent. of carbonate of soda; and, lastly, when it has remained in the latter for an hour, it is plunged into a weak solution of sulphuric acid, consisting of one part of acid to 200 or 500 parts of water; in this it is left for about half an hour, and the process is completed. The effect of these several processes is "to divide and split up" the fibre in a most remarkable manner, so as completely to alter its character. Flax thus treated is converted into a substance very nearly resembling cotton. It is probable that flax-cotton can be advantageously used in the manufacture of mixed fabrics, as it appears capable of being spun with wool, silk, and other fibres; it may, therefore, perhaps hereafter lead to several new and important practical applications.

The idea of modifying the fibre of the flax and hemp, so as to convert it into a kind of cotton, is by no means new. In 1747, Lilljikreuzes and Palmquist described a mode of converting flax into "cotton," by boiling it for some time in a solution of caustic potash, and subsequently washing it with soap. In 1775, considerable quantities of refuse flax and hemp were converted into "flax-cotton" by Lady Moira, with the aid of T. B. Bailey, of Hope, near Manchester. The full details of the process employed do not appear to have been published; but from Lady Moira's letters in the *Transactions of the Society of Arts* for 1775, it appears that the fibre was boiled in an alkaline lye, or a solution of kelp, containing carbonate of soda, and subsequently scoured. The result of this was that "the fibres seem to be set at liberty from each other," after which it may be "carded on cotton cards." It appears that at this time flax-cotton "was made and sold at 3d. per pound;" and Lady Moira states, that she believes that it takes colors better than flax. It is curious to observe the fate of Lady Moira's scheme: she says: "I have no reason to be vain of the samples I have sent you: they merely show that the material of flax-cotton, in able hands, will bear manufacturing, though it is my ill fortune to have it discredited by the artizans who work for me. I had, in Dublin, with great difficulty, a gown wove, and three waistcoats; but had not the person who employed a weaver for me particularly wished to oblige me, I could not have got it accomplished."

Subsequently to this, several attempts were made in Germany to convert flax into a fibre resembling cotton. In 1777, Baron Meidinger proposed to convert flax into a sort of cotton, by the action of alkaline solutions, etc. In 1780, a factory was established at Berchtoldsdorf, near Vienna, for the practical working of this process; and similar plans were subsequently brought forward by Kreutzer in 1801, Stadler and Haupfner in 1811, by Sokou in 1816, and by several others. At the factory at Berchtoldsdorf, not only was flax converted into cotton, but also a useful cotton-like fibre was prepared from tow and refuse flax; and the same is said to have been done by Hagg, near Presburg, in 1788, by Göbell in 1803, and Segalla in 1811. Whether these various plans failed from the effects of jealousy and opposition, like that which prevented Lady Moira from introducing her "flax-cotton," is unknown; but it does not appear that any of them were long persevered in. It is probable that in most cases the neighboring manufacturers set themselves against the introduction of flax-cotton; for Beckman, who speaks of its manufacture near Brunswick, states that the work-people determined not to use the new material, though at the same time he observes, that excellent fustians were made, which could not be distinguished from those manufactured with ordinary cotton. The extreme similarity of flax-cotton to ordinary cotton is also remarked by Des Charmes (1799), who states, that if the staple be cut before it is carded, it is not possible to distinguish it from cotton, either in its raw state or when manufactured. The matter was subsequently investigated by Berthollet, by Gay Lussac, and by Giobert, who employed alternately steepings in hot solutions of soap, alkali, and sulphuric or muriatic acid. Berthollet observes, that equally fine cotton is obtained from the commonest refuse tow as from the best flax.

For some valuable information on fibrous materials, the produce of India, which may be cheaply and usefully substituted for Russian hemp and flax, see "The Fibrous Plants of India fitted for Cordage, Clothing, and Paper," by J. Forbes Royle, M. D., F.R.S.: London, 1855; and also an article entitled "Indian Substitutes for Russian Produce," in the *Edinburg Review* for July, 1855.

In 1816, M. Girard found means to apply machinery and to substitute the spindle in the spinning of flax. To France, then, belongs the honor of the discovery, but England was the first to profit by it and put it in practice, and her example was followed, at the interval of some years, by France, Belgium, and Germany, in the order indicated. The progress of this industry was rapid, and the following table presents its present position (July, 1856):

	Spindles.
Great Britain and Ireland	1,480,000
France	540,000
Germany (including Austria)	171,000
Belgium	132,000
Russia	60,000
Other European States	46,000
United States of America	31,000
Total	2,460,000

While the progress of machine-spinning in Great Britain, Germany, and Switzerland, independent of all kinds of protection, except in the case of Prussia, certain premiums paid by the government to those who have established factories, its extension in France and Belgium, and more especially in the former, is due to legislative interference. Let us, then, direct our attention to France, where an extreme import duty exists. Although the duty was made high in 1826, the import of English yarn was progressive, but slow, until 1836, when the rate was considerably reduced. Immediately afterward the quantity increased rapidly. In 1830 France received but 7,500 lbs. of linen yarn from England. In 1835, in spite of a high tariff, the import had increased to 11,700,000 lbs. Under the reduced duties it went on augmenting until, in 1842, it reached 24,750,000 lbs. Then came the establishment of the present excessively protective scale of duty; its consequences are manifest in the rapid extension of flax-spinning in France. In 1840 there were 90,000 spindles; in 1845, the number was 127,000; in 1850, 275,000; in 1855, 490,000. In the mean time the import of yarns from all countries fell from 24,750,000 lbs. to 1,693,000 lbs. If we had only to do with the establishment of a great spinning-trade in France, and the monopoly of the supply of yarn at home, these figures would be triumphant. But unfortunately for the consumer, as well as for the wealth and resources of the nation, the operation of the tariff has been a costly affair. While the capitalists who had placed their money in the spinning-factories rejoiced at the results detailed, and in the large profits which their government had given them a legalized right to derive from the mass of consumers, we may inquire whether every one was equally satisfied with such a system of political economy.—*Report to the Reform Congress of Brussels*, by Mr. J. MACADAM, *of Belfast*, 1856.

Mr. Macadam's conclusions were as follows: I. In all cases I would advocate the free entry of the raw materials, flax and tow. Where natural and social facilities exist for the cultivation of flax, no protection is required, as it only renders the growers careless of improvement. Where these elements of success are wanting, it is evident that the culture should be abandoned. A nation should never be subjected to a tax simply to supply itself with a material which it can have better and cheaper from elsewhere.

II. I would urge a moderate fixed *ad valorem* duty for the exorbitant ones now levied in many States, and fix it for 10 per cent. on the present value of English yarns. If to this rate of duty be added the cost of packing, transport, commission and other charges, the rate of protection would really amount to 15 per cent. French and Belgian spinners may, perhaps, say that this duty would be inadequate to protect them, but I can not admit this. It is true that the cost of fuel is higher in France and Belgium than in the United Kingdom. But, on the other hand, I can prove that in Ireland we pay more in proportion, as compared with Great Britain, than France or Belgium does, as compared with us. For example, while at Leeds coals cost 4s. 8d. per ton, and at Dundee 8s., they cost in Belfast 10s. to 11s. 6d. per ton, making a difference in favor of the English spinners of 140 per cent., and of the Scotch of 30 per cent. At Ghent, coals cost at present 14s., and have been much cheaper. At Lille they cost 15s. 6d.; the difference, therefore, in favor of the Irish spinners, as compared with the French or Belgian, is 50 per cent. We might, consequently, at Belfast, just as well demand protection from the English and Scotch spinners, as the French and Belgians ask it against us. As to the cost of labor, the factories of Ghent and Lille are in a better position than ours. On what, then, do the spinners of France and Belgium base their claim to protection? On the superiority of English machinery? But these machines may enter Belgium free of duty; and lately, in France, great advantages have been accorded in their import. Or is it on the great capital of England, and the smaller rate of interest of money? As well might we, in poor Ireland, ask protection against these, and yet in the face of them, we have progressed more rapidly than either England or Scotland. Further, how does it happen that Prussia and Austria have progressed to such an extent in their spinning without this immediate protection? The first named had, in 1846, but 47,000 spindles, and has now 96,000. The second, which, in 1845, had but 21,000, now numbers 82,000. And 10 per cent. duty, I repeat, is abundantly sufficient to protect the Belgian and French spinners, while it would prove of great benefit to the manufacturers of linen in those countries.

III. A duty of 20 per cent. on unbleached linens might be proposed. When it is remembered that, in almost all parts of the Continent, weaving at present costs less than in the United Kingdom, it will be recognized that the linen manufacturers of the Continent have an advantage over ours. There was a time when weaving cost as little in Ireland as in any other country, and less than in many. But the thinning of the population by the disastrous years of famine which followed the potato disease; the large emigration which subsequently took place; the recruitment of able-bodied men for the army; and other causes, have led to different results.

In the United States of America, where the manufacture of linen is on an extremely small scale, and the whole Union only contains 30,000 spindles, a duty of 20 per cent. existed on yarns and linens up to July, 1857. The annual import reaches £1,600,000, so that the nation pays a tax of £320,000 on its yearly consumption. Originally at 5 per cent., the duty was raised to 37½ per cent. in 1812. In 1832 it was abolished, but in 1842 was re-established at 25 per cent., and reduced, in 1846, to 20 per cent. In 1853, the revenue of the United States had so much increased, and the cash in the Treasury was of so great an amount, that Mr. Guthrie, the Secretary of the Treasury, issued a circular to merchants, in which he proposed to reduce or abolish the duties on many articles, and he requested their opinion as to those on which such a change might most beneficially take place, specifying that it should be on such articles as were generally consumed by all classes of the population, and yet not leading items of native manufacture, and the remission of the duty on which would tend to lighten the labors of the custom-house. Now, there could scarcely be an article more fully answering to these requirements than linen; largely consumed by all classes, the native manufacture was quite insignificant, while the disputes as to value, in levying the duties, between the custom-house and the importers, gave endless trouble.

The following table shows the number of bushels of flax-seeds, and the number of pounds of flax produced, in the United States in the year 1850:

States and Territories.	Flaxseed.	Flax.
	Bushels.	Pounds.
Alabama	69	3,900
Arkansas	321	12,200
Connecticut	703	17,900
Delaware	904	11,100
Georgia	622	5,300
Illinois	10,787	160,000
Indiana	36,888	584,400
Iowa	1,959	62,600
Kentucky	75,801	2,100,100
Maine	580	17,000
Maryland	2,446	35,600
Massachusetts	72	1,100
Michigan	519	7,100
Mississippi	26	600
Missouri	13,696	627,100
New Hampshire	189	7,600
New Jersey	16,525	182,900
New York	57,963	940,500
North Carolina	38,196	593,700
Ohio	188,880	446,900
Pennsylvania	41,728	530,300
South Carolina	55	300
Tennessee	18,904	368,100
Texas	26	1,000
Vermont	939	20,800
Virginia	52,818	1,000,400
Wisconsin	1,191	68,300
Total	562,307	7,806,809

We have also compiled the comparative imports of flax and linen goods into the United States from foreign ports during the last three years:

	1854.	1855.	1856.
Flax	$250,391	$286,809	$182,461
Linens, blechd. & unblechd.	9,487,846	7,552,865	9,849,600
Hosiery and articles made on frames	2,263	1,409	4,921
Laces, thread & insertings.	368,309	318,511	410,591
Articles tamboured or embroidered	59,624	92,749	164,358
Linens not specified	1,363,803	1,062,891	1,334,942
Total	$11,482,236	$9,815,234	$11,896,868

Flax-seed, or **Linseed** (Fr. *Lin*, *Graine de Lin*; Ger. *Leinsaat*; Du. *Lynzaad*; It. *Linseme*; Sp. *Linaza*; Port. *Linhaca*; Pol. *Siemie*, *Iniane*; Rus. *Semja len-*

janoe; Lat. *Lini semen*), the seed of flax. It contains a great deal of oil, which it yields by expression; and is cultivated either that it may be used in sowing, or sent to the crushing-mills to be converted into oil. As the quality of the crop depends much on the seed employed, a good deal of care is requisite in selecting the best. Generally speaking, it should be chosen of a bright, brownish color, oily to the feel, heavy, and quite fresh. Dutch seed is in the highest estimation for sowing; it not only ripens sooner than any other that is imported, but produces larger crops, and of the quality that best suits our principal manufactures. American seed produces fine flax, but the produce is not so large as from Dutch seed. British flax-seed is sometimes used instead of Dutch; but the risk of the crop misgiving is so much greater, "that those only who are ignorant of the consequences, or who are compelled from necessity, are chargeable with this act of ill-judged parsimony."—*Loudon's Enc. of Agriculture.* Crushing-seed is principally imported from Russia, but considerable quantities are also brought from India, Italy, and Egypt.

Fleece, the covering of wool shorn from a sheep. See Wool.

Fleet, a navy or a squadron of ships of war; or a number of ships in company, whether ships of war or of commerce.

Flint, silicious mineral. It consists of 98 silica, 0·50 lime, 0·25 alumina, 0·25 oxyd of iron, and 1·0 loss. This mineral occurs of various colors, but generally yellowish or dark gray, and usually in a compact amorphous body, of various shapes. It is widely dispersed over the world, occurring chiefly in the chalk formations, but especially in limestone. Its principal use is for gun-flints, and for striking light with steel; and it also forms, when reduced to powder, an ingredient in porcelain and glass. The manufacture of gun-flints is very simple, and is performed with an iron mallet and chisel. A dexterous workman will make 1000 in a day.

Flint-Glass, or **Crystal**, a species of glass which derives its name from flint, because that substance was formerly employed in its manufacture. It is very extensively used for domestic purposes; but is chiefly interesting to the philosopher on account of the property which it possesses of causing a greater dispersion of the rays of light which pass through a prism or lens formed of it than any other of the vitreous compounds. This property renders it invaluable in the manufacture of the object-glasses of telescopes and microscopes; for, by combining a concave lens of flint-glass with one or two convex lenses of *crown-glass*, which possesses a much less dispersive power, a compound lens is formed, in which the prismatic colors arising from a simple refraction are destroyed, and the lens rendered achromatic. This construction of object-glasses was first discovered by a Mr. Hall, a country gentleman in Worcestershire, about 1729; but the discovery was forgotten, and no further notice taken of it for nearly 30 years, when it was again brought to light by John Dollond, after a long-continued course of experiments undertaken for the purpose of perfecting the telescope. It is, however, very difficult to prepare flint-glass fit for the purposes of achromatic telescopes. This difficulty arises not from the want of sufficient dispersive power in the substance, but from the want of purity or homogeneity; the slightest impurity or inequality of composition of the glass giving rise to a streaked or imperfect image by reason of the unequal refraction of the rays. The composition of pure flint-glass long remained a secret in the family of the Dollonds, and its manufacture formed a very profitable article of exportation; for, till about the beginning of the present century, no flint-glass of good quality was made on the Continent. Of late years, however, a great change has taken place in this respect, and glass of the best quality has been manufactured, both in France and Germany, in much larger masses than English artists have yet succeeded in obtaining. This result has been mainly produced by the experimental researches of D'Artigues, Fraunhofer, Cauchoix, Guinand, and Korner. Formerly, an object-glass exceeding five inches in diameter could scarcely be produced. Fraunhofer succeeded in making them of 9, and even 11 inches. The object-glass of the large parallactic telescope belonging to Sir James South, at Campden Hill, was manufactured by Cauchoix; it exceeds 12 inches, and is throughout of the utmost purity. The exact proportion of the ingredients which enter into these choice specimens is not known, and probably their excellence depends in part on some accidental circumstances in the preparation. Korner produced some of his best specimens by employing the following ingredients: 100 parts of quartz, first treated with muriatic acid; 80 parts of litharge, or red lead; and 30 parts of the bitartrate of potash. Flint-glass for common purposes is usually made of 120 parts of fine white sand, 40 parts of well-purified pearlash, 35 parts litharge or minium, 13 parts nitre, and a small quantity of the black oxyd of manganese—the latter ingredient being used to correct the green color occasioned by the presence of oxyd of iron in the sand. The principal difference between this and the glass used for optical purposes consists in the much greater quantity of lead in the latter, and which is introduced for the purpose of increasing its dispersive power. There is a valuable paper on the manufacture of glass for optical purposes, containing the results of an extensive series of experiments upon the subject, made in the laboratory of the Royal Institution, by Mr. Faraday, in the *Philosophical Transactions* for the year 1830, vol. cxx. See Glass.

Floating Breakwater. This marine contrivance may consist of a series of square frames of timber, connected by mooring-chains, or cables attached to anchors or blocks of marble. The framework may be made of logs of yellow pine, from 30 to 50 feet long, and from 18 to 20 inches square, bolted together very firmly, and increased in height as the situation may be boisterous, in order to break the violence of violent waves, and to allow the vessels riding within these quadrangular basins more safety and protection. Such *breakwaters* are admirably adapted to bathing-places and swimming-stations, since they will always produce smooth water, and protect the machines.

Flogging. According to an act of Congress passed September 28th, 1850, it is provided, "That flogging in the navy, and on board vessels of commerce, is hereby abolished from and after the passage of this act."

Floor Cloth. This useful and ornamental manufacture originated in Great Britain about the year 1740, when a manufactory of it was established at Knightsbridge, near London, by Mr. Smith. It was originally made of narrow canvas sewn together like sail-cloth, to which successive coats of paint were applied; but the seams proving inconvenient, a canvas was wove for the purpose, about four yards wide; it was then extended to seven yards in width, and afterward to nine, which is the widest at present made. The manufactory at Knightsbridge, now carried on by Mr. Baber, is the largest establishment of the kind—the common dimensions of the oil cloths produced there being 20 yards by 8, and 30 yards by 7, giving therefore entire pieces of 160 and 210 square yards without seams. These canvases are stretched upon frames, and accessible over their whole surface by stages erected for the purpose: these are the circumstances which render the large dimensions of the manufactory requisite. The canvas being duly strained, is rubbed over with pumice-stone, which renders its surface smooth and even, and then brushed over with a weak solution of size; when this is dry, the first coat of oil color is laid on, not with brushes, but with trowels, something in the manner of plastering; when this is dry a second coat follows it; and in this way seven coats of paint are usually applied in succession, three on the back and four on the front. When the cloth in this state, and of one color, is sufficiently dry, it is removed from its frame upon a large roller, and carried to the upper part of the building to be *printed*, that is, to receive its pattern. This was originally effected by a process of penciling; but in the year 1780, Mr. Smith introduced the great improvement of *block-printing*, by which the colors are more correctly laid on, and in greater body and variety. The printing-table, which is about 30 feet long, 4 wide, and 2 feet 6 inches high, is very firmly constructed of deal timbers laid edgeways, and clamped together, the surface being truly planed; the roll of painted cloth is placed underneath it, and as it is unrolled it gradually passes over the table, where it is printed, and is then drawn forward so as to hang perfectly free while drying, the height of the building being such as conveniently to admit of this, without rolling, doubling, or folding the material, which in these stages would of course injure it. The colors, which are the usual oil colors very carefully prepared, are put on in succession with wooden blocks, which are made of pear-tree, box, or holly-wood, and on which the patterns are cut in relief; they are about 18 inches square, and are applied in succession over the whole of the surface of the cloth lying upon the printing-table. Every color is put on by a separate block, and much dexterity is required in so placing them that the patterns may correctly interlace and join each other, without in any case overlapping or interfering. To effect this, the workman is aided by guide-pins, or *pitches*, as they are termed, which direct him in placing the block. The colors are first brushed or tiered upon hard cushions, from which they are transferred to the block and thence to the cloth; and, though many are often required, it is astonishing how much effect is sometimes obtained by the judicious arrangement or mixture of two only, upon a third, which forms the ground. It will be obvious, from what has been stated, that the weight of the finished oil-cloth, as compared with the naked canvas, is no unimportant criterion of its goodness—each square yard, when finished, weighing from 3½ pounds to 4 or 4½: this distinguishes a good oil-cloth from those which are vamped up and stiffened with size and other perishable materials.

Independent of the common application of oil-cloth, it is not unfrequently advantageously employed as a roofing material, especially for covering verandas and other light structures. When used for this purpose, the canvas should be made of picked long flax, and thoroughly saturated with good oil paint; it will then stand our climate and last for 14 or 15 years.

Florida, one of the southernmost States of the United States of America, lies between 24° 32′ and 31° N. lat., and between 81° 30′ and 87° 35′ W. long. It is 385 miles long, and from 50 to 250 wide, containing 59,268 square miles. Population in 1830, was 34,723; in 1840, 54,447; and in 1850, 87,401. The State was, in 1850, divided into 28 counties.

Early History of Florida.—The name which the country to the north of Cuba had among the Indians of the Lucayan Islands was "*Cautio*," the signification of which is, as Herrera gives it, rather obscure. The Spaniards heard this country "*Cautio*" already spoken of before they saw it. They heard also of the famous and fabulous fountain of youth of which the Indians had a tradition, and which was called the fountain of Bimini. From this fountain the country to the north itself was sometimes called "*Bimini.*" On some of the first maps of the 16th century it is also called "*Terra de Cuba*" (the country of Cuba), as if there were, 1st, an *island* of Cuba, and, 2d, a *continent* of Cuba. When Ponce de Leon, in the spring of 1512, discovered this coast, he gave to it the name of "*Florida*" (the florid), from two reasons, as Herrera says: at first because the country presented a very flourishing and pleasant aspect, and then because he saw the coast at that festival-day which the Spaniards call "*Pascua Florida*, which corresponds to our Palm Sunday. This name has since that time always remained to the large peninsula which we to this day call Florida, though the name was sometimes taken in different senses, and though sometimes there have been attempts made quite to do away with it. At first, so long as Florida was supposed to be an island, the name had only a very limited application. When the Spaniards, after the year 1520, discovered, however, the continuation of the coasts on both sides of Florida, they applied this name to the whole western half of North America, from the boundaries of Mexico and from Cape of Florida, toward the north, in *indefinitum.* The so-called "*Government of Florida*" was often given to different Spanish governors within the said limits. The "*Rio de las Palmas*" (Palm River) in Mexico was the south-western boundary of this government.

We see the name of Florida on many maps, with large letters, written through the whole Mississippi valley, throughout the whole area of the United States; and even as late as the year 1723, the Spanish historian Barcia treated, in the work which he calls "*The History of Florida*," also of Canada, and even of the English expeditions for a discovery of the north-west passage. This latter passage the Spanish authors very often style "*a strait through Florida.*" Herrera, however, already remarks that the name of Florida was taken in two senses: it had a more extensive and a narrower meaning. In the latter sense the peninsula was called "*Florida par excellence.*" Some authors looked upon this peninsula only as upon a large tongue or promontory attached to the great Floridian continent, and named it the "*Promontory of Florida*" (*Promontorium Floridæ*). On many old maps we see this name cover the whole peninsula. Still other names for the whole peninsula grew out, as it were, from its root or from its southern point. At the time of the Spanish governor, Don Pedro Menendez, in the year 1566, the Spaniards discovered near the Cape of Florida an Indian village called Tequesta, or Teguesta, also written Tegesta. This often-spoken-of village the map-makers put down on their maps, and changed it to a "*Provincio de Tegesta*" (a province of Tegeste). Some authors applied this name to the whole peninsula of Florida: thus, for instance, did Laët, in his work as well as on his maps (A.D. 1633).

When the French discovered and settled the Mississippi valley, and named it Louisiana, they extended this name and their pretensions as far as possible; and on one French map by Nic. de Fer, of the year 1713, we see the name "*Peninsule de Louisiane*" even given to our peninsula of Florida. This was, however, only a single and unfortunate attempt, which had no further consequences, either in geography or politics. The Spaniards, on their side, gave not up their pretensions to claim, under the name of Florida, much more than their neighbors, the British, to the north, and the French, to the west, would allow them. But the Spaniards extended, before 1763, their actual possession and government in Florida, toward the east, not further than Mobile Bay and River, and to the north not further than the St. Mary's River. When, in the year 1763, the Floridas were ceded to Great Britain, and also all the French dominions east of the Mississippi, then the boundaries of the name Florida were extended again. Great Britain established two provinces of Florida, "*East and West Florida.*" The first extended as far north as the St. Mary's River, or about the 31st degree of north latitude, and the latter as far west as the Mississippi Delta, to the Lakes Pontchartrain and Maurepas. In the year 1783 Great Britain retroceded the Floridas to Spain, and Spain at the same time received the possession of the whole of French Louisiana to the west of the Mississippi. Now, for the first time, Spain held in actual possession all the shores of the Mexican Gulf, and all the countries lying around it. Spain adopted the English division in Eastern and Western Florida—*Florida Oriental and Occidental*—and retained also the extension of this name as far as the Mississippi Delta. The 31st degree of north latitude, which runs not much further than 40 miles from the northern shores of the Mexican Gulf, and is parallel to it, was agreed upon as the northern boundary of "*the Floridas*" toward the United States. So, since the year 1763, the name of Florida extended again over half the circuit of the shores of the Mexican Gulf. But soon after the cession of Louisiana to the United States Florida was curtailed again. The United States claimed the western part of it as far east as Perdido River, received the possession of it in the year 1811, and joined it to their "*Territory of Mississippi*," and afterward of "*Alabama.*" Since this time (1811) the dominion of the name of Florida has not changed, though the so-called country changed, till 1821, its masters, when Spain ceded it to the United States. It was then at first called "*the Territory of Florida*," and since 1845, "*the State of Florida.*" But the limits remained (with some slight exceptions) unchanged—Perdido River in the west, and St. Mary's River and the 31st degree north latitude, in the north. The division into East and West Florida disappeared under the American government.—KOHL.

Physical Features, etc.—The face of the country is uneven, but nowhere elevated over 300 feet above the sea. The whole extent of the coast is indented with bays and lagoons. A large portion of the country is covered with pine forests, the trees of which standing at a considerable distance from each other, without brush or underwood, afford an opportunity for the grass and flowers to spread with luxuriance over the surface of the earth during the whole year. The borders of the streams are usually skirted by hammocks of hard timber entangled with grape and other vines. A large portion of Florida consists of what are usually denominated "pine barrens," and much of it is sterile, though there are extensive tracts of table land, hammock, and swamp of the richest soil, and well adapted to the cultivation of sugar, rice, cotton, Indian corn, tobacco, and fruits. A considerable portion of the pine land is equally rich, and even the barrens afford extensive ranges of growing land, usually intersected with streams of pure water. Many parts of the State abound in yellow pine and live oak timber. The sea coast is generally healthy, and in parts remarkably so, and the interior is equally healthy, unless it be in the neighborhood of extensive marshes. The peninsula, which is the southern portion of the State, presents a singular alternation of savannahs, hammocks, and lagoons, called collectively the Everglades, which extend into the heart of the country for 200 miles north of Cape Sable. They are drained on the north by the St. John River, and on the west by Macao or Charlotte River.

There were in this State in 1850, 349,049 acres of land improved, and 1,246,240 unimproved in farms. Cash value of farms $6,323,109, and the value of implements and machinery $658,795.

Live stock, etc.—Horses, 10,848; asses and mules, 5002; milch cows, 72,876; working oxen, 5794; other cattle, 182,415; sheep, 23,311; swine; 209,453. Value of live stock, $2,880,058; of slaughtered animals, 514,685.

Agricultural Products, etc.—Wheat, 1027 bushels; rye, 1152; Indian corn, 1,996,809; oats, 66,586; buckwheat, 55; peas and beans, 135,359; potatoes, 7828; sweet potatoes, 757,226; rice, 1,075,090 pounds. Value of products of the orchard, $1280; produce of market gardens, $8721. Pounds of butter made, 371,498; of cheese, 18,015; sugar, hhds., 2750; molasses, 352,893 gallons; beeswax and honey, 18,971 pounds; wool, pounds produced, 23,247; cotton, 45,131; flax, 50; silk cocoons, 6; hops, 14 pounds; tobacco, 998,614; hay, tons of, 2510; and were made 10 gallons of wine. Value of home-made manufactures, $75,582.

Rivers, Bays, etc.—There are many bays on the western side of the peninsula, some of which form good harbors. They are Perdido, Pensacola, Choctawhatchee, St. Andrew, St. Joseph, Apalachicola, Appalachee, Tampa, Carlos, and Gallivains. On the east coast of the peninsula, the inlets afford harbors for coasting vessels. The St. John is the principal river on the eastern coast; it often spreads from three to five miles in width, and at other places it is not more than one fourth of a mile wide. It is exceedingly winding, and flows through a beautiful and healthy country. St. Mary's River rises in Okefinoke Swamp, Georgia, and enters the Atlantic between Cumberland and Amelia Islands. Of the rivers which enter the Gulf of Mexico, the Apalachicola is the principal. It is formed by the junction of Chattahoochee and Flint Rivers, about 100 miles from the Gulf of Mexico. The Chattahoochee branch of this river is navigable for steamboats 280 miles to Columbus, Georgia. The other principal rivers are Escambia, Suwanee, Withlacoochee, Oscilla, Oclockony, and Choctawhatchee. Perdido River forms the western boundary between Florida and Alabama. It is navigable about seven miles above the bay, is a fine mill stream, and its banks are covered with superior yellow pine timber. There are in this State several streams of limpid water which sink into the earth and disappear, and several which rise suddenly from the earth: one in particular (the Wakulla) is navigable from its very source. The quantity of lumber shipped from the St. John River annually is estimated at 50,000,000 feet. Total tonnage of the State in 1853 amounted to 12,124.25 tons.

The principal places in the State are Tallahassee, the capital, Key West, St. Augustine, Jacksonville, Pensacola, and Apalachicola. On the 1st of January, 1856, there were 26 miles of railroad in operation. May, 1856, Congress granted to railroads lands amounting to over 1,000,000 acres, which, if rightly managed, will build all necessary railroads.

Manufactures, etc.—There were in the State in 1850, 1 cotton factory, with a capital of $80,000, employing 28 males and 67 females, producing 624,000 yards of sheeting, etc., valued at $49,920; 8 flouring and grist mills, 48 saw-mills, 4 tanneries, 10 printing-offices, 1 semi-weekly, and 9 weekly newspapers published. Capital invested in manufactures, $547,140; value of manufactured articles, $668,435.

Principal Ports.—Key West is built on an island of the same name, sixty miles south-west of Cape Sable, lat. 24° 32′, and long. 81° 52′ W. It is a port of entry, and one of the few populous towns in the State. Its position commands the Florida Pass, and hence it is important also as a naval station; but the principal occupation of the people at the present time is "wrecking," and here is located a special court for the adjudication of salvages. From fifty to sixty vessels are wrecked in the vicinity every year, and upward of $250,000 are paid on salvages. Salt and sponges are the principal exports, but there is a large import trade for the supply of the military stationed here. Steamers plying between the Atlantic ports and Havana generally call here. The town contains about 4000 inhabitants. The tonnage of the port in 1856 was 3668 tons.

Pensacola is a town and port on the west side of Pensacola Bay, ten miles from the Gulf, and has a fine harbor. The United States' government has here a first-rate naval station and a marine hospital. The trade of Pensacola is principally in cotton. The tonnage of the port in 1856 was 1960 tons. A railroad from Pensacola to Mobile is in course of construction.

Foreign Commerce of the State of Florida, from October 1, 1820, to July 1, 1856.

Years ending.	Exports.			Imports.	Tonnage Cleared.		District Tonnage.	
	Domestic.	Foreign.	Total.	Total.	American.	Foreign.	Registered.	Enrolled and Licensed.
Sept. 30, 1821.......	....	....	....	$13,270	190	....	280	356
1822.......	$1,777	....	$1,777	6,877	933	....	....	....
1823.......	1,510	....	1,510	4,808	563	52	....	....
1824.......	216	....	216	6,986	177	30	....	....
1825.......	2,865	....	2,865	8,218	323	....	....	....
1826.......	209	....	209	16,590	195	....	....	....
1827.......	24,115	$33,371	57,486	257,994	11,010	2,117	....	....
1828.......	60,321	....	60,321	168,292	7,357	1,248	....	....
1829.......	38,163	17,923	56,086	153,642	6,059	7,043	....	....
1830.......	7,570	....	7,570	32,689	1,366	205	....	....
Total....	$136,746	$51,294	$188,040	$664,366	28,173	10,695	....	....
Sept. 30, 1831.......	$28,493	$2,002	30,495	115,710	5,163	610	546	1,840
1832.......	62,636	3,080	65,716	107,787	6,344	901	....	....
1833.......	64,613	192	64,805	85,386	3,915	345	....	....
1834.......	190,185	38,640	228,825	135,798	7,983	1,289	....	....
1835.......	49,009	12,701	61,710	98,173	10,225	1,025	....	....
1836.......	62,076	9,586	71,662	121,745	9,289	645	....	....
1837.......	74,373	28,304	102,677	490,784	8,096	1,520	....	....
1838.......	71,983	50,549	122,532	168,690	6,525	2,721	....	....
1839.......	291,094	43,712	334,806	279,893	12,422	1,239	....	....
1840.......	1,850,709	8,141	1,858,850	190,728	11,163	1,345	....	....
Total....	$2,745,171	$196,907	$2,942,078	$1,794,694	81,125	11,640	....	....
Sept. 30, 1841.......	$33,828	$2,801	$36,629	$145,181	8,829	2,731	2,661	3,333
1842.......	32,606	778	33,384	176,980	6,255	1,063	....	....
9 mos., 1843*......	760,335	353	760,688	158,632	3,497	2,509	....	....
June 30, 1844.......	991,657	19,759	1,011,416	155,695	10,247	6,099	....	....
1845.......	1,502,867	11,878	1,514,745	107,868	19,885	6,722	....	....
1846.......	137,539	38,909	176,448	140,584	8,159	1,413	....	....
1847.......	1,808,177	2,361	1,810,538	143,298	10,950	9,594	....	....
1848.......	1,896,683	....	1,896,683	64,267	18,206	7,548	....	....
1849.......	2,518,027	....	2,518,027	63,211	20,507	10,922	....	....
1850.......	2,607,968	15,656	2,623,624	95,709	10,022	12,134	....	....
Total....	$12,289,687	$92,495	$12,382,182	$1,251,425	116,557	60,735	....	....
June 30, 1851.......	$3,939,910	$262	$3,940,172	$94,997	20,254	9,049	3,754	5,610
1852.......	2,511,976	....	2,511,976	30,713	24,170	11,508	....	....
1853.......	1,698,206	....	1,698,206	65,434	15,347	10,311	....	....
1854.......	3,964,697	....	3,964,697	28,969	12,895	9,488	....	....
1855.......	1,403,594	....	1,403,594	45,998	41,938	7,385	....	....
1856.......	1,976,323	....	1,976,323	86,014	55,204	10,520	....	....

* Nine months to June 30, and the fiscal year from this time begins July 1.

Florin, a coin first made by the Florentines. A *floren* was issued by Edward III., which was current in England at the value of 6s. in 1337.—Camden. This English coin was called floren after the Florentine coin, because the latter was of the best gold.—Ashe. The florin of Germany is in value 2s. 4d.; that of Spain 4s. 4½d.; that of Palermo and Sicily 2s. 6d.; that of Holland 2s.—Aylaffe. By mint valuation the florin of the southern states of Germany is worth 40 cents. The florin of Austria and the city of Augsburg, 48½ cents.

A new English coin, by the name of florin, was authorized by acts of Parliament, 1849–1851, of the value of two shillings, or one tenth of the sovereign or pound sterling. This is the first practical attempt at a decimal currency in Great Britain. Up to this time (1857) few of the coins have been issued or put in circulation, and there seems some doubt of its becoming one of general use. The obverse of the new florin has an exquisitely graceful bust of Queen Victoria in left profile—the favorite side in all the coins of the present reign. Unlike all the previous coins of this reign, however, the effigy is crowned—the coronal "round and top of sovereignty" of the kingdom being faithfully copied, with its borders of jewels, its rim of *fleurs-de-lis* and Maltese crosses. The legend, in bold, broad capitals, is "Victoria Regina, 1849."

Floss-Silk (*Filoselle, Bourre de soie*, or *fleuret*, Fr.), is the name given to the portions of raveled silk broken off in the filature of the cocoons, which is carded like cotton or wool, and spun into a soft coarse yarn or thread, for making bands, shawls, socks, and other common silk fabrics. The floss or fleuret, as first obtained, must be steeped in water, and then subjected to pressure, in order to extract the gummy matter, which renders it too harsh and short for the spinning-wheel. After being dried it is made still more pliant by working a little oil into it with the hands. It is now ready to be submitted to the carding engine. See Cotton Manufacture. It is spun upon the flax-wheel. The female peasants of Lombardy generally wear clothes of homespun floss-silk. Of late years, by improved processes, pretty fine fabrics of this material have been produced, both in England and France. M. Ajac, of Lyons, presented at one of the French national exhibitions of the objects of industry, a great variety of scarfs and square shawls of *bourre de soie*, closely resembling those of *cachemire*.

Flota, a name given by the Spaniards to the ships that formerly sailed together, or under convoy, from Cadiz and the other ports of the Peninsula authorized to trade directly with the transatlantic possessions of Spain.

Flotilla (Sp.), literally a little fleet; in which sense, however, it is seldom used, being applied almost invariably to a fleet, how large soever, composed of small vessels. Thus the term flotilla was given to the immense naval force with which Napoleon meditated the invasion of Great Britain, and which consisted of 2,365 vessels of every description, was manned by about 17,000 sailors, and carried 160,000 soldiers, and 10,000 horses. In Spain the name flotilla is given to a number of vessels appointed to announce to the home government the departure and nature of the cargo of the flota or mercantile ships from foreign ports on their homeward voyage.

Flotsam, Jetsam, and **Lagan.** In order to constitute a legal wreck, the goods must come to land. If they continue at sea, the law distinguishes them by the foregoing uncouth and barbarous appellations: *flotsam* is when the goods continue swimming on the surface of the waves; *jetsam* is when they are sunk under the surface of the water; and *lagan* is when they are sunk, but tied to a cork or buoy to be found again.—(Blackstone, book i., c. viii.)

Flour (Ger. *Feines mehl, Semmelmehl;* Du. *Bloem;* Fr. *Fleur de Farine;* It. *Fiore;* Sp. *Flor*), the meal of wheat corn, finely ground and sifted.

The imports of breadstuffs into Great Britain, our best customer, is fully shown by the following table. It will be observed that three fourths of the flour imported into England were obtained from the United States, in addition to three fifths of the quantity of Indian corn, and more than a fourth of the quantity of wheat.

IMPORTS OF BREADSTUFFS INTO ENGLAND FOR THE YEAR 1856.

Countries whence imported.	Wheat.	Flour.	Indian corn.
	Quarters.*	Cwts.†	Quarters.
Russia, Northern	467,617	24,850	61,386
Russia, Southern	291,842	639	....
Sweden	10,708	....	....
Norway	4,483	....	....
Denmark	177,216	8,014	....
Prussia	222,681	256	....
Mecklenburg-Schwerin	62,625	190	....
Hanover	8,917	2	872
Hanseatic Towns	187,326	133,014	16
Holland	28,179	2,918	2,191
Belgium	24,938	2,470	1,522
France	10,007	69,872	27,658
Portugal	14,809	6,753	1,417
Spain	49,719	460,823	....
Tuscany	2,165	12,850	4,467
Papal Territories	47,974	....	....
Naples and Sicily	21,600	67	....
Austrian Territories	86,634	1,001	80,776
Greece	98,134	....	210,427
Turkey Proper	112,825	5,819	62,711
Wallachia and Moldavia	124,671	....	196,706
Syria and Palestine	36,195	6,293	100
Egypt	534,603	441	9,159
Morocco	4,569	26	61,257
British East Indies	90,963	239	....
British North America	111,819	309,326	23,317
United States	1,279,150	2,902,707	1,000,871
Chili	1,034	36,525	....
Other parts	9,480	11,272	32,960
Total	4,072,833	3,991,367	1,777,818

* Quarters = 8 measured bushels. † Cwts. = 112 lbs.

Breadstuffs.—The following official statement exhibits the aggregate value of breadstuffs and provisions exported annually from the United States, for each fiscal year, from 1821 to 1856:

	Amount.		Amount.
1821	$12,341,901	1840	$19,067,535
1822	13,886,856	1841	17,196,102
1823	13,767,847	1842	16,902,876
1824	15,059,484	1843	11,204,123
1825	11,634,449	1844	17,970,135
1826	11,303,496	1845	16,743,421
1827	11,685,556	1846	27,701,121
1828	11,461,144	1847	68,701,921
1829	13,131,858	1848	37,472,751
1830	12,075,430	1849	38,155,507
1831	17,538,227	1850	26,051,373
1832	12,424,703	1851	21,948,651
1833	14,209,128	1852	25,857,027
1834	11,524,024	1853	32,985,322
1835	12,009,399	1854	65,941,323
1836	10,614,130	1855	38,895,348
1837	9,588,359	1856	77,187,301
1838	9,636,650		
1839	14,147,779	Total	$798,022,257

EXPORTS OF BREADSTUFFS FROM THE UNITED STATES TO GREAT BRITAIN AND IRELAND, FROM SEPTEMBER 1, 1855 TO AUGUST 31, 1856.

From	Flour.	Meal.	Wheat.	Corn.
	Barrels.	Barrels.	Bushels.	Bushels.
New York	1,106,058	508	6,307,374	3,139,399
New Orleans	95,366	....	688,591	2,429,512
Philadelphia	199,258	4,195	478,633	593,478
Baltimore	198,238	1,100	374,582	423,841
Boston	20,882	1,013	....	20,469
Other ports	21,463	....	107,226	115,862
Total 1856	1,641,265	6,816	7,956,406	6,731,161
" 1855	176,209	4,768	324,727	6,679,138
" 1854	1,846,920	41,746	6,033,403	6,049,371
" 1853	1,600,449	100	4,823,519	1,452,378
" 1852	1,427,442	1,680	2,728,442	1,487,398
" 1851	1,559,584	5,620	1,496,355	2,205,601
" 1850	474,757	6,411	461,276	4,753,358
" 1849	1,137,556	82,940	140,194	12,685,260
" 1848	184,583	108,534	241,309	4,399,228
" 1847	3,155,844	844,187	4,000,359	17,157,659
Total 10 years	13,201,609	1,102,742	29,210,290	63,564,450

FLOUR EXPORTED FROM THE UNITED STATES TO SOUTH AMERICAN PORTS, FOR THE PAST NINE YEARS.

Destination.	1856.	1855.	1854.	1853.	1852.	1851.	1850.	1849.	1848.
Rio Janeiro	283,104	211,278	155,560	251,275	218,674	249,230	146,806	156,683	216,872
Pernambuco	82,028	46,562	43,024	72,207	68,212	68,442	55,137	68,265	65,277
Bahia	26,869	26,431	25,415	27,337	23,452	18,138	28,095	28,159	26,118
Rio Grande	44,835	31,465	35,823	46,378	28,882	32,316	31,526	28,054	37,314
River Plate	113,620	22,715	22,855	66,465	40,784	25,699	8,490	8,948	25,909
Total	550,456	338,751	283,677	463,762	380,004	393,825	270,054	290,109	371,517

STATEMENT SHOWING THE ANNUAL AVERAGE EXPORT PRICE OF FLOUR FROM THE UNITED STATES, FROM 1840 TILL JUNE 30TH, 1855.

	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.
Export price	$5 37	$5 20	$6 00	$4 50	$4 75	$4 51	$5 18	$5 95	$6 22	$5 35	$5 00	$4 77	$4 24	$5 60	$7 88	$10 10
Boston	5 51	5 77	5 67	4 87	5 13	5 32	5 53	7 17	6 43	6 00	6 00	5 25	5 20	6 27	9 25	10 25
New York	5 17	5 89	5 67	5 07	4 61	5 00	5 19	6 80	5 71	4 96	4 86	4 19	4 96	5 51	8 02	9 06
Philadelphia	5 22	5 34	5 47	4 60	4 34	4 69	4 79	6 02	5 67	4 84	4 97	4 38	4 23	5 47	8 14	9 62
Baltimore	5 00	5 31	5 20	4 36	4 31	4 63	4 53	6 21	5 52	4 83	4 89	4 18	4 26	5 39	8 13	9 57
New Orleans	4 93	5 33	4 54	4 18	4 44	4 83	4 38	5 54	4 76	4 61	5 31	4 00	4 10	5 48	7 60	9 36
St. Louis	4 93	4 75	4 56	3 75	4 50	4 93	4 50	4 93	5 25	5 43	6 25	4 88	5 23	5 08	6 09	7 83

The exports of flour from the United States, during the year ending June 30th, 1856, were as follows:

	Barrels.	Value.
New York	1,649,471	$13,692,941
Baltimore	587,993	4,776,175
Philadelphia	314,846	2,496,968
New Orleans	251,501	1,907,872
Boston	175,503	1,555,937
Richmond, Va	150,821	1,526,032
San Francisco	114,572	1,070,121
Other ports	266,318	2,249,602
Total	3,510,626	$29,275,148

Flour of Wheat, adulterations of, to detect.—The first method is by specific gravity. If potato flour be added, which is frequently done in France, since a vessel which contains one pound of wheat flour will contain one pound and a half of the fecula, the proportion of this adulteration may be easily estimated. If gypsum or ground bones be mixed with the flour, they will not only increase its density still more, but they will remain after burning away the meal.

The second method is by ascertaining the quantity of gluten which the suspected sample will afford, by the process prescribed under the article BREAD. The two following chemical criteria may also be employed:

1st. Nitric acid has the property of coloring wheat flour of a fine orange yellow, whereas it affects the color neither of fecula nor starch. 2d. Pure muriatic acid colors good wheat flour of a deep violet, but dissolves fecula or starch, and forms with it a light, colorless, viscous fluid, decomposable by alkalies. It may also be observed, that as fecula absorbs less water than flour, this affords a ready means of detection. The adulteration with bean or pea flour may be detected by pouring boiling water upon it, which develops the peculiar smell of these two substances.

TABLE SHOWING THE PRICE OF FLOUR, MONTHLY, IN PHILADELPHIA, FROM 1785 TO 1856, EMBRACING A PERIOD OF SEVENTY-TWO YEARS.

Year.	January.	February.	March.	April.	May.	June.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1785	45 0	45 0	45 0	43 0	45 0	45 0
1786	....	42 0	41 6	40 6	40 0	43 0
1787	40 0	40 0	40 0	40 0	40 0	42 6
1788	....	....	35 0	36 0	37 0	37 0
1789	35 0	34 0	35 0	35 0	40 0	42 6
1790	44 6	....	....	....	....	....
1791	45 0	45 0	40 0	38 0	40 0	40 0
1792	37 6	37 6	37 6	37 6	37 6	37 6
1793	45 0	45 0	....	....	....	45 0
1794	....	45 0	48 2	....	50 0	50 0
1795	....	....	....	75 0	82 6	86 3
1796	$12 00	$13 50	$15 00*	$14 00	$14 00	$12 50
1797	10 00	10 00	10 00 — 9 25	9 00 — 8 50	9 00	8 50
1798	8 50	8 50	8 50	8 50 — 7 50	7 00	6 75
1799	9 50	9 50	9 25	9 25	9 50	9 50
1800	....	....	....	9 50	9 75	10 00
1801	11 50	11 25	11 50 — 9 50	11 00	11 50	11 50
1802	7 00	7 00	7 00	7 00	7 00	7 00
1803	6 50	6 50	6 50	6 00	6 00	6 00 — 6 50
1804	7 50	7 50	7 00	7 00	6 50	6 50 — 7 75
1805	11 00	....	12 00 —13 00	12 00	11 75	11 00
1806	7 50	7 00	7 00 — 6 75	6 50 — 7 00	7 00 — 8 00	8 00
1807	7 50	7 50	7 25	7 25	7 25	7 25 — 7 00
1808	6 00	5 75	5 75	5 18¾	5 00	5 00
1809	5 50	7 00	7 00	6 25	7 00	6 50 — 7 00
1810	7 75	8 00	8 25	8 25	9 00	9 00
1811	11 00	10 50	10 50	10 50	10 25	10 12
1812	....	10 12	9 75 — 9 25	9 00 — 7 00	7 25 — 8 50	8 50
1813	11 00	10 50	9 50	9 75 —10 00	8 50 — 7 25	8 00 — 8 50
1814	....	....	....	....	7 50 — 7 00	6 75
1815	8 00	8 00	7 75	7 75	8 50	8 50 — 9 00
1816	9 00	9 00	8 00	7 75	7 87	8 75 —10 50
1817	13 50	13 75	14 00 —14 75	14 00 —14 25	14 50 —14 00	11 50 —11 00
1818	9 25 —10 00	10 50 —10 75	10 50	10 00	10 00	10 25
1819	9 00	8 75	8 00	7 25	6 37	6 00
1820	6 00 — 5 37½	5 50 — 5 12½	5 00 — 4 75	4 75	4 37 — 4 87	4 50 — 4 75
1821	4 00	4 00	†3 62 — 3 75	4 00	4 00	4 00
1822	6 25	6 25	6 25	6 50	7 12	6 75 — 7 00
1823	6 50 — 7 00	6 50 — 7 00	7 00	7 25	7 37	7 50
1824	6 00	6 00	6 00 — 6 50	6 12	6 00	6 00 — 5 75
1825	4 87½	5 12	5 12	5 00	6 00	5 50 — 5 00
1826	4 75	4 62	4 50	4 25	4 25	4 25 — 4 75
1827	5 25 — 6 00	6 00 — 5 75	5 75 — 5 12	5 12 — 5 00	5 00	5 00
1828	5 00 — 4 75	4 87½— 4 75	4 75	4 75	4 75	4 50
1829	8 25	8 25 — 8 00	8 00 — 7 50	7 50 — 6 75	6 50 — 6 75	6 75 — 6 25
1830	4 62½— 4 50	4 50	4 50	4 50 — 5 00	4 75	4 75 — 4 50
1831	6 25 — 6 00	6 00	6 25 — 7 00	6 37 — 7 00	6 50 — 5 50	5 75 — 5 25
1832	5 50	5 50	5 25 — 5 00	5 25 — 5 50	5 50	5 75 — 6 25
1833	5 75	5 00 — 5 19	5 25	5 25	5 50	5 50 — 5 75
1834	5 25	4 87	4 62	4 75 — 5 25	5 25 — 5 50	5 50
1835	4 93¾	5 00	5 00	5 18¾	6 00	6 25
1836	6 62½	6 75	7 00	6 81¼	6 50	6 81¼
1837	11 00 —11 25	10 50 —11 00	10 50 —10 75	9 31¾	9 00	9 00 — 9 37
1838	8 12½— 8 62½	7 50 — 8 06¼	7 50 — 8 00	7 50 — 8 00	7 71 — 7 90	7 50 — 7 75
1839	8 25 — 8 50	8 50	7 50 — 7 62	7 37 — 7 50	7 00 — 7 50	6 12 — 6 32
1840	5 75	5 50	5 00	4 87	4 62	4 75
1841	4 65 — 5 25	4 59 — 5 06¼	4 50 — 4 93	4 62 — 5 00	4 65 — 5 00	5 00
1842	6 06¼	5 90 — 6 12½	5 62 — 5 81	5 62 — 5 80	5 75	5 50 — 5 62
1843	3 98	3 75 — 3 92	3 79 — 3 91	4 22	4 25 — 4 40	5 00 — 5 12
1844	4 50	4 80	4 75	4 68	4 37 — 4 57	4 10 — 4 30
1845	4 15	4 31¼	4 31¼	5 38	4 45	4 25 — 4 40
1846	5 31¼	4 90	4 83	4 81	4 31	3 91
1847	4 83½	6 17	5 93¾	6 87	7 90	8 25 — 8 40
1848	6 06¼	5 87½	6 06¼	5 93¾	5 87	5 44
1849	5 21	5 00	4 75 — 5 12	4 50	4 68	4 55
1850	5 00	4 78	4 79	5 00	6 18	5 27
1851	4 66	4 25 — 4 56¼	4 42	4 50	4 26	4 25
1852	4 25	4 50	4 18¾	4 06¼	4 20	4 20
1853	5 37½	5 20	4 93¼	4 90	4 68	4 62
1854	7 50	8 12	7 45	8 08	8 69	8 72 — 8 90
1855	9 18¾	8 94	9 06¼	10 25	10 75	10 52
1856	8 33	7 31	7 00	6 57½	6 06¼	5 94

* Highest price.

† Lowest price—2,000 barrels sold.

The grain of wheat has for a very long time constituted an important article of food, and has, for about three centuries, been the staple grain. The kind usually cultivated is the *triticum sativum*. A bushel of it should weigh, if very good, about 64 pounds. Wheat in the form of flour is sometimes manufactured as macaroni and vermicelli; but its almost universal use is as bread. (See BAKING.) The following is the composition of first-class wheaten flour: Water, 14·0; albuminous compounds, 14·6; oil, 1·2; saccharine compounds, 66·9; cellulose, 1·7; ash, 1·6. The greater part of the ash is made up of phosphorus, potassium, and magnesia. The bran contains much less saccharine matter, but absolutely more oil and more albuminous matter; and "seconds" in this respect stand intermediate between fine flour and bran. The cheaper price of seconds and bran, therefore, appears to be somewhat arbitrary and improper, and brown bread is probably more economical than that made from fine flour. The objection to it is probably that bran does not leaven particularly well. 2. Oats (*Avena sativa*). In Scotland, the climate and soil of which seem particularly adapted to its cultivation, this cereal has long constituted the staple article of diet. This is also the case in the high-lying land in the West Riding of Yorkshire and the adjacent parts of Lancashire. A bushel of good oats weighs about 45 pounds. Oats are made into flour or meal, and before being submitted to the mill they are always kiln-dried, to facilitate the separation of the husks. The proportion of husk

TABLE SHOWING THE PRICE OF FLOUR, MONTHLY, IN PHILADELPHIA, FROM 1785 TO 1856, EMBRACING A PERIOD OF SEVENTY-TWO YEARS.—*Continued.*

Year.	July.	August.	September.	October.	November.	December.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1785............	44 0	44 0	43 6	43 6	43 0	42 0
1786............	43 0	43 0	42 6	42 6	42 0	40 0
1787............	42 6	36 6	33 0	33 0	....	....
1788............	35 0	35 0	35 0	34 6	34 0	35 0
1789............	38 8	41 0	42 0	42 6	40 0	42 6
1790............	....	58 6	45 0	43 3	46 0	46 0
1791............	40 0	35 0	36 0	36 0	37 6	37 6
1792............	37 6	37 6	39 0	38 6	38 6	38 6
1793............	....	48 6	47 6	47 6	47 6	47 6
1794............	54 0	58 0	52 6	56 0	59 0	69 0
1795............	86 8	90 0	90 6	$13 00	$13 00	$13 75
1796............	$11 75	$11 00	$12 00	12 00	12 00 —11 50	11 50 —10 50
1797............	8 50	8 50	8 50	8 50	8 50	8 50
1798............	6 75	8 00 — 8 50	8 50	8 50	8 50 — 9 50	9 50 —10 00
1799............	10 00 — 9 50	9 50	9 50	9 50 —10 00	10 50 —11 00	10 00
1800............	10 25	10 75	10 50 — 9 75	9 50	10 50	11 00
1801............	11 50 —11 00	11 00	10 00 — 9 50	9 25	9 00	8 00 — 6 50
1802............	7 25	7 25	7 00 — 6 50	6 50	6 50	6 50
1803............	7 00	7 00 — 7 75	7 75 — 7 50	7 50	7 50	7 50
1804............	7 75	8 00	9 75 —10 00	9 00	10 00 —10 50	11 00
1805............	10 75 — 9 00	9 00 — 8 00	8 00	8 00	8 00 — 9 50	8 25
1806............	8 00	7 50 — 6 75	7 00	6 75	7 00 — 7 50	7 50
1807............	6 75	6 75	7 12 — 7 50	7 25 — 6 75	7 00	6 75
1808............	5 00 — 5 75	5 25	5 00 — 6 00	6 00	6 00 — 5 50	5 50 — 6 00
1809............	6 12 — 7 00	6 75	6 75 — 7 25	7 25	7 50 — 8 00	7 50
1810............	10 00 —11 00	11 00 —12 00	11 00 —10 75	10 75 —11 50	10 25	11 25
1811............	10 00 —11 00	10 75 —10 00	9 00	8 50	9 50	10 00
1812............	8 50	8 25 — 9 00	9 00 —10 00	10 25 —10 00	11 50 —10 50	10 25
1813............	7 50	7 00 — 8 00	8 25 — 8 75	9 25 — 8 25	8 50 —10 00	10 00 — 7 50
1814............	7 00 — 7 25	7 25 — 8 50	8 50	8 75	8 75	8 00
1815............	9 25 — 8 75	8 62	8 75	9 00	9 50	9 25
1816............	11 00	10 75 — 9 50	9 75	10 00 —11 00	11 50 —12 50	12 50 —13 50
1817............	10 50 —11 50	11 50 —10 00	9 50	9 00	9 50 —10 00	9 75 — 9 00
1818............	10 25	10 50 —10 75	9 75	9 75	9 25	9 00
1819............	6 00	6 00 — 6 25	6 50	6 50	6 12	6 00 — 6 25
1820............	4 50 — 4 75	4 50	4 50	4 25	4 25	4 50
1821............	4 00 — 4 50	4 62 — 5 00	5 25 — 5 50	5 50 — 7 50	7 00 — 6 00	6 00 — 6 50
1822............	6 75 — 6 25	6 25 — 7 00	7 00	6 62	6 50	6 50
1823............	7 00	6 50	6 50	6 75	6 62	6 25 — 6 00
1824............	5 25	5 25	5 12 — 5 50	5 12	5 50 — 5 00	4 75 — 5 00
1825............	5 50 — 4 50	5 00	5 00	5 00 — 5 12	5 12 — 5 00	4 87
1826............	4 87 — 4 50	4 50	4 50 — 5 00	5 00 — 5 25	5 50	5 27
1827............	5 00	5 00	5 00 — 5 25	5 25	5 25 — 5 50	5 00
1828............	4 50 — 4 75	5 00 — 5 50	5 50 — 7 00	6 25 — 7 00	7 25 — 9 00	7 75 — 8 25
1829............	6 00 — 5 00	5 00 — 5 50	5 50 — 5 75	5 25 — 5 00	5 00 — 5 25	5 25 — 4 62
1830............	4 50 — 5 25	5 25 — 5 75	5 50 — 5 25	5 25 — 5 00	5 00	5 00 — 5 62
1831............	5 37 — 4 75	4 75	5 25 — 5 50	5 50	5 50 — 5 25	5 25
1832............	6 00	6 37 — 6 25	6 37 — 5 50	5 50 — 6 00	6 25 — 6 12	5 75 — 5 50
1833............	6 00 — 6 50	6 12 — 6 00	6 00	5 87 — 5 75	5 75	5 50 — 5 25
1834............	5 25 — 5 50	5 50	5 50 — 5 25	5 25	5 25 — 5 12	5 00 — 4 80
1835............	6 81	6 06¼	6 12	6 06¼	6 37	6 75
1836............	7 00	8 37	9 37	9 31	10 62	11 00
1837............	9 50 — 9 95	9 00 — 8 53	8 00 — 8 50	8 25 — 9 00	9 31 — 9 81	9 50 — 9 75
1838............	6 43 — 7 12	6 12 — 7 12	6 90 — 8 45	8 25 — 8 40	8 00 — 8 12	8 31 — 8 50
1839............	5 59 — 6 12	5 75 — 6 12	5 87 — 6 12	5 87 — 6 00	6 25	5 56¼— 5 90
1840............	5 25	5 00	5 00	5 00	5 00	4 75 — 5 25
1841............	5 25 — 5 50	6 06 — 6 34	6 62 — 6 87	6 12 — 6 30	6 46¾— 6 96	6 42
1842............	5 50 — 5 37	5 25 — 5 45	4 56¼	4 49	4 12 — 4 37	4 37 — 4 62
1843............	5 25 — 5 37	4 75 — 5 06	4 44	4 25 — 4 50	4 25 — 4 37	4 25 — 4 50
1844............	4 00 — 4 37	3 91 — 4 19	3 89 — 4 33	4 00 — 4 50	4 37	4 29
1845............	4 21¾— 4 62	4 18¾	4 60	5 06¼	5 91	6 06¼
1846............	3 84	3 83	3 82 — 4 12	5 18	5 10	4 76
1847............	5 91	6 03	5 50	6 45	6 31	6 49
1848............	5 25	5 22	5 67	5 42	5 25	5 14
1849............	4 56¼	4 87 — 5 12	5 02	5 10	5 06¼	4 87
1850............	5 06¼	5 12 — 5 37	5 00	4 83	4 85	4 71
1851............	4 25	3 97	3 96	4 12	3 91	4 15
1852............	4 12	4 20	4 44	4 48	4 90	5 16
1853............	5 00	5 33	5 70	6 61	6 90 — 7 45	6 71¾— 7 00
1854............	8 06 — 8 29	8 13 — 8 53	8 59 — 8 81	8 33 — 8 58	8 68 — 8 90	9 12½— 9 25
1855............	9 31	8 81	7 47	8 37	9 31	8 84
1856............	6 56¼	6 52½	6 49	6 69	6 62	6 50

is perhaps about a quarter per cent. When the husk is separated, but before the grain is ground, the seeds receive the name of groats. When ground, the dust constitutes oatmeal, and it is found in practice that oats afford about half their original weight of meal, the loss being the water expelled by the kiln-drying, the husk, and the chaff. The following is Norton's analysis (the arrangement being altered) of oats that had been dried to 212°. Perhaps in this drying the loss of water would be about 20 per cent. Albuminous compounds, 19·91; saccharine do., 68·68; oleaginous do., 7·33; husk, 2·28; ash, 2·60. The proportion of ash, principally phosphates and sulphates of lime, potassa, and magnesia, is sometimes in much larger quantity. Oatmeal, therefore, contains considerably more nutritious matter than the same weight of wheat flour. The husks consist mainly of cellulose, and are almost never used as human food. 3. Rye (*Secale cereale*) has been cultivated from time immemorial, and was for a long time much used for bread-making in this country, as it still is (constituting the staple) in Russia, many parts of Germany, etc. A bushel of rye weighs about 54 pounds. Rye grain is very coarsely powdered, and the mixture of flour and bran made into fermented bread, which is distinguished from other bread by its black color. The following is an analysis of rye flour, the water having been previously expelled: Albuminous compounds, 10·5; saccharine do., 78·0; oil, 3·5; salts, 6·0, principally phosphates of potassa, soda, and magnesia; loss, 2·0=100·0. These three cereal grains constitute the basis of the food of the modern European nations.

Flowers (*Fleurs*, Fr.; *Blumen*, Ger.) of benzoin, of sulphur, of zinc, etc., is the appellation given by the older chemists to such substances as were obtained in a pulverulent or rather minutely crystalline form by the process of sublimation.

Flowers, Artificial, Manufacture of. The art of representing by flowers, leaves, plants, etc., vegetable nature in her ornamental productions, constitutes the business of the artificial florist. The Italians appear to have been the first people in Europe who excelled in the art of making artificial flowers; but of late years the French have been most ingenious in this branch of industry. Ribbons folded in different forms, and of different colors, were originally employed for imitating flowers by being attached to wire stems. This imitation soon gave way to that by feathers, which are more delicate in texture, and more capable of assuming a variety of flower-like figures. But a great difficulty was encountered in dyeing them with due vivacity. The savages of South America manufacture perfect feather flowers, derived from the brilliant plumage of their birds, which closely resemble the products of vegetation. The blossoms and leaves are admirable, while the colors never fade. The Italians employ frequently the cocoons of the silk-worm for this purpose; these take a brilliant dye, preserve their color, and possess a transparent velvety appearance, suitable for petals. Of late years, the French have adopted the finest cambric for making petals, and the taffeta of Florence for the leaves. M. de Bernardiere employs whalebone in very thin leaves for artificial flowers; and by bleaching and dyeing them of various hues, he has succeeded in making his imitations of nature to be very remarkable.

The coloring matters used in flower dyeing are the following: For red; carmine dissolved in a solution of carbonate of potash. For blue; indigo dissolved in sulphuric acid, diluted and neutralized in part by Spanish whitening. For bright yellow; a solution of turmeric in spirit of wine. Cream of tartar brightens all these colors. For violet; archil, and a blue bath. For lilac; archil. Some petals are made of velvet, and are colored merely by the application of the finger dipped in the dye.

Flute, a wind-instrument of great antiquity, the older varieties of which are described by Père Mersenne in his *Harmonie Universelle*, Paris, 1636. The *Flute-à-bec* (disused for more than a century) was of various dimensions. The largest was a bass-flute, with a compass from F in the bass-clef, below the first line, up to D below the first line of the treble clef. The next, a tenor-flute, extended from B flat on the second line of the bass clef up to G on the second line of the treble clef; and each of these large flutes was sounded through a bent tube, like the S of a bassoon. The alto-flute reached from F on the fourth line of the bass clef up to D on the fourth line of the treble clef. The treble-flute extended from F in the first space of the treble clef up to F two octaves above. These two had *beaks*, like the bill of a cock. But all these flutes gave way, early in the last century, to the German flute, which, however, was then very imperfect in its intonation, having only one finger-key. By the addition of various finger-keys, for semitones, the German flute has been much improved in the present century. Like the fife, it is blown by an oval side-hole. It consists of four separable tubes, and has a compass of nearly three octaves, from the lowest C in the treble clef upward. Smaller flutes of this kind are called third, fourth, and octave flutes. The octave flute is the *peccolo*, used in modern orchestras and in military music.

Fluke is applied in navigation to the broad part of the anchor which takes hold of the ground.

Flux (Eng. and Fr.; *Fluss*, Ger.), signifies any substance capable of promoting the fusion of earths or metallic ores by heat. White flux is the residuum of the deflagration in a red hot crucible, of a mixture of two parts of nitre, and one of cream of tartar. It is in fact merely a carbonate of potash. Black flux is obtained when equal parts of nitre and tartar are deflagrated. It owes its color to the carbonaceous matter of the tartaric acid, which remains unconsumed; the quantity of nitre being too small for that purpose. The presence of the charcoal renders this preparation a convenient flux for reducing calcined or oxydized ores to the metallic state. Limestone, fluor-spar, borax, and several earthy or metallic oxyds are employed as fluxes in metallurgy.

Flying Fish, a name given to several speces of fishes which, by means of long fins, can sustain themselves for some time in the air. The common flying fish of the Mediterranean is thus able to raise itself so far above the surface of the sea as frequently to throw itself upon the deck of a ship; but the extreme limit of its flight is confined to an arch extending about 120 feet, when the drying of its fins necessitates its return to its proper element. See index to ICHTHYOLOGY, in *Ency. Brit.*, 1856-7.

Fodder (Ger. *futter*), in agriculture, the food given to quadrupeds, which consists of the stems and leaves of plants, such as the culmiferous stems of the grasses, the haulm of legumes, potatoes, etc.; or, in short, whatever is given as the ordinary food is designated fodder; whereas corn, beans, and other articles, which present nourishment in a more concentrated form, are not included under the term fodder, but rather known as solid food.

Fodder is the name of a weight formerly used in the weighing of lead: it was of various magnitudes, but most commonly amounted to about 2400 lbs.

Fog (Dan. *fog*), in meteorology, a dense vapor near the surface of the land or water. Fogs, in general, are the consequence of the nocturnal cooling of the atmosphere. The air, by its rapid cooling, becomes surcharged with moisture; a part of which being precipitated in the form of a cloud, gives rise to the ordinary fog. During the day the heat of the sun generally disperses the fog, because the quantity of moisture which the air is capable of holding becomes more considerable in proportion as its temperature is increased.

In calm weather, the surfaces of rivers, lakes, etc., are frequently in the morning covered with fog. The reason is this. During the night the air is colder than the water; the strata of air in contact with the water are consequently heated, and become saturated with moisture. The mixture of the vapor with the air, together with its elevation of temperature, renders the air specifically lighter. It rises in consequence, and mixing with the cold air in the superior strata, is cooled, and precipitates its moisture. The cloud or fog resulting from this precipitation can only rise to a small height, because the uniformity of temperature is soon restored. Hence, it is easy to see how winds, or a great agitation of the air, prevent the formation of fogs over the surface of water. In the equinoctial regions, fogs sometimes continue during a considerable part of the year. Humboldt relates that Lima is often covered with a fog half the year, especially in the mornings and evenings; and that along the whole of that coast fogs supply the place of rain, which is extremely rare. In the polar seas thick fogs often prevail, even during the warmest months; and they are so dense that objects frequently can not be distinguished at the distance of a few yards.

Sometimes, though rarely, fogs occur of which the cause is not very well understood. In 1783, the whole of Europe was covered with a dense fog during nearly two months. On the 23d of May, 1822, about five o'clock in the afternoon, a fog covered Paris and the neighborhood, which had the odor of nitrous gas; it continued about an hour. Dry fogs, or those in which no moisture is present, are supposed to be the vapors and ashes ejected by volcanoes, and diffused in the atmosphere by the winds.

Foil (Fr. feuille, or Lat. folium, *a leaf*). This term is generally applied to varnished metal. Common foil is manufactured as follows: a copper plate, covered with a thin layer of silver, is rolled out into sheets under the flatting mill; the silver surface is then highly polished or covered with a colorless varnish. The *colored foils* are similarly prepared with colored varnishes.

Fold (Sax. *fealde*), a temporary inclosure for keeping cattle or other agricultural animals together, either for the purpose of protection during night, or jointly for protection and feeding. Sometimes, also, sheep are folded for the purpose of manuring. The barrier of which folds are constructed is commonly wooden hurdles; but sometimes, when the fold is only to contain ewes and lambs, netting stretched between posts is made use of, there being a strong rope fixed to the lower parts of the posts close to the ground, to which the under edge of the netting is attached, while its upper edge is attached to a rope stretched along the tops of the same posts. The practice of folding sheep on naked fallows, with a view to manuring them, is still common in several parts of England; but the more improved sheep farmers consider that it deteriorates the wool, and impedes the fattening of the sheep, by keeping them for the greater part of the night wholly without food.

Folio (It. *a leaf*), in account-books, signifies page. Thus folio 7—written abridgedly fo. 7—denotes the seventh page; Folio recto, or F° R°, signifies the first page; Folio verso, or F° V°, the second page of a leaf. A book in folio, or simply a folio, is that where the sheet is only folded in two, each leaf making half a sheet.

Foo-Chow, Fou Tchow Fou, or **Fuhchau Fu,** a city of China, capital of the province of Fo-kien, and one of the five ports recently opened for commerce, stands on the north side of the Min River, 34 miles from its mouth, and 9 miles from Pagoda Island, where ships anchor. North lat. 26° 5′, east long. 119° 20′. The walled city is about three miles from the river, but extensive suburbs stretch along both its banks. They are connected with each other, and with a small islet in the river by a stone bridge 420 paces long, lined with shops, and resting on solid stone piers, 40 on the northern, and 9 on the southern side. Several lookout houses are placed over the streets, or upon the roofs of buildings, one of which immediately attracts the attention of the visitor from its height, and its clock-dial with Roman characters. Few vacant spaces occur within the walls of the city, which is everywhere equally well-built. Serpentine canals divide the country around into plats of greater or less extent, and help to drain the city, as well as provide channels for boats to come up from the river. These parts of the landscape are dotted with hamlets and cottages, or, where the ground is higher, with graves and tombstones. The maritime commerce of the city is very considerable, and its manufactures of cotton goods and porcelain ware are extensive. The population of Fou Tchow Fou and suburbs, is estimated at about 600,000.

This port has no direct trade with foreign countries. Vessels enter at other ports, pay duties, and receive a permit to land goods at Foo-Chow. The arrivals and departures of foreign vessels during the year 1855 were over 100, showing a large increase over the year immediately preceding—including, however, coasting vessels in the opium trade, all of which were under the British flag. The trade of the port is said to be rapidly increasing, bidding fair to render it the second port in China as regards foreign trade, Shanghai being the first. It already surpasses Canton in commerce with the United States. The number of American vessels arriving at Foo-Chow during the last six months of 1855 was 13, with an aggregate tonnage of 10,540 tons; clearances 20, with a tonnage of 18,026 tons, and with 15,106,070 lbs. of tea; of which, 7,674,300 lbs. were for New York, 523,200 lbs. for Boston, and 6,908,570 lbs. for London.

A correspondent residing at Foo-Chow writes to the State Department, U. S., that the tea exported in American ships visiting this port during the last quarter, amounted to 4,824,198 lbs., valued at $715,000. "The entire number of American ships which arrived in 1856 was 34, and one ship-of-war, the United States' ship *Levant*. To give an idea of the increase of foreign trade at this port, I would remark that in the year 1853 (the year the port was opened for trade) there were only 6 American ships; in 1854, there were 12 American ships; in 1855, 27; and in 1856, 34. The whole number of foreign ships which entered this port in 1853, was 14; in 1854 there were 50; in 1855, 117; and in 1856, 175. There is very little done in the way of imports, except in opium. In this article there is an immense trade, a single firm selling in one month more than $200,000 worth. Nearly every firm in the port import opium with the full sanction of the Chinese authorities. There is scarcely a day, and never a week in the year, when opium is not landed in open day, within 10 feet of the door of the custom-house, and of course in full view of the officers. There is, I believe, an understanding between the importers of this article and the officials, that the latter are to receive $10 on each chest landed, which amount goes to the custom-house officers, and is divided among them from the collector down to the custom-house boatmen, each receiving according to his rank."

Food. All substances susceptible of digestion and assimilation may come under the denomination of *food;* but the proximate principles of organic bodies on which their nutritive powers depend are comparatively few. Hence, although the articles employed in different countries for the support of animal life are almost infinitely various, their sustaining powers may be referred to certain substances capable of being separated and identified by chemical analyses and tests. Among the proximate elements of vegetable food gluten and its modifications, starch, gum, sugar, and lignin or woody fibre, are by far the most important; and among those of animal food, albumen, gelatin, and their modifications, together with fats and oils, which are common to both kingdoms of nature.

To illustrate the actual simplicity of our food as compared with its apparent multifariousness and complexity, it may suffice to state, that wheat and almost all the esculent grains consist principally of starch and gluten; that the same ingredients are found in many fruits and roots; that sugar, gum, or a relation of gum which is called vegetable jelly, together with minute traces of aromatic principles which give flavor, and more or less abundance of water, and of vegetable acids, are the chief component parts of apples, pears, peaches, currants, gooseberries, and all analogous tribes of fruits; a very few also, contain oil. Then, as regards *animal* food, the muscular fibres of various animals closely resemble each other in composition and nutritive power; in some cases texture merely, and in others minute additions of foreign matters, confer upon them their relative digestibilities, and their different aspects and flavors: albumen or fibrin, and gelatin, small proportions of saline bodies, and a large quantity of water are found in them all.

It often happens that the truly nutritious part of food is so combined with, or protected by indigestible matters, as to escape the solvent powers of the stomach, unless previously prepared and modified by various chemical and mechanical agents. Indurated woody fibre, for instance, or *lignin*, as chemists call it, will often resist the joint action of the stomach and bowels, and pass through the alimentary canal with scarcely any alteration. The husks of many seeds and fruits are composed almost exclusively of this material. This is the case with the kernels of the apple, pear, etc.; the seeds of the currant, gooseberry, melon, and so on; the skin, or husk of peas, beans, etc., and of wheat, barley, and oats; so that unless the woody part is either broken down by the teeth, or previously removed, the food which it envelops is protected from the solvent action of the secretions of the stomach. This is in some respects a wise and curious provision in nature; for birds in this way become the carriers of seeds, which pass through them not only undigested, but even retaining their vegetative powers; and in this way, uninhabited and sterile portions of the globe may gradually become clothed with verdure, and shrubs, and trees. Bones are highly nutritive; but unless broken into very small fragments by the masticatory powers of the animals which eat them, they too, would elude digestion. In reference, however, to the food of man, much of its digestibility and nutritious power is referable to the important chemical operations preparatory to its use which are carried on in the kitchen: in other words, cookery is essentially a chemical art; and substances totally unfit, in their raw state, for reception into the stomach, are rendered palatable, digestible, and nutritious by the skill of the cook. And here salt, and a variety of *condiments*, as they are called, and which are aromatic and stimulant substances, chiefly of vegetable origin, play an important part; nor must the mere effect of heat be overlooked, for it is most important. Meat, by boiling and roasting, is not only softened in its fibre, but new substances are generated in it. Among these a peculiar extractive matter, and *osmazome*, or the principle which gives an agreeable flavor and odor to dressed meat, are especially recognized. Nor are the changes which vegetables suffer under the influence of heat less obvious.

There is another important point in the history of our food, namely, its *ultimate composition*. We have spoken of starch, sugar, gum, albumen, and other substances as the *proximate* principles upon which we live; but what is the *ultimate* constitution of these secondary products, what are their true *elements?* It is curious that four *elements* only are principally concerned in the production of our food. These are carbon, hydrogen, oxygen, and nitrogen. Among vegetable substances, gluten (including vegetable albumen) is the only one which abounds in nitrogen; gum, sugar, starch, and the rest are constituted of carbon, hydrogen, and oxygen only; and what is very remarkable is, that in all these important principles, and also in lignin, the oxygen and hydrogen bear to each other the same relative proportions as in water, so that they may be figuratively described as compounds of *charcoal* and *water*. Now there are two very curious points in reference to that part of the chemical history of our food, which has been adverted to: the one is, that no animal can subsist for any length of time upon food which is destitute of nitrogen; and the other, that a certain mixture of different kinds of food is absolutely essential. An animal fed *exclusively* on starch, or sugar, or albumen, or jelly, soon begins to suffer in health; peculiar diseases make their appearance, and his existence is painful and brief; but mix these together, and occasionally modify their proportions, and he then thrives and fattens. Magendie's experiments on this subject, together with those of Tiedemann and Gmelin, well illustrate this fact. Thus, geese fed upon gum, died on the 16th day, those fed upon starch on the 24th, and those fed on boiled white of egg on the 46th; in all these cases they dwindled away and died as if of starvation.

Habit, as is well known, will do much in accustoming the stomach to particular descriptions of food; many persons live exclusively, or almost so, on vegetable, others on animal matters, and particular kinds of diet are forced on the inhabitants of many regions of the globe; but, as far as we are concerned, a due mixture of vegetable and animal matter is not only most palatable, but most conducive to health. Nothing is fit for food which has not already undergone organization, and *water*, though an essential part of the food of all animals, is obviously not in itself nutritious, though it performs the extremely important function of dissolving nutritive matter, so as to render it conveyable by the lacteals and other absorbents into the blood. No compound, then, of nitrogen, hydrogen, carbon, and oxygen, which can be formed artificially, can constitute food. Air, water, and charcoal, though involving the *elements* of our nutriment, are themselves unfit for our support; and it is only by passing through the hidden processes which are carried on in the vessels of living things, that they are so recombined and modified as to be rendered capable of supporting animal life. It is the vegetable world which commences this wonderful operation. Plants absorb their nutriment from the air and from the soil; they assimilate inorganic as well as organic matter; they become the food of the graminivorous tribes, and from these man derives the great bulk of his animal food.

In speaking of the composition of food, that of *milk*, the most important of all food, must not be forgotten; in it nature has wonderfully provided a mixture which, though secreted by an animal, partakes also of the nature of vegetable food, and it presents a perfect analogy to that combination of vegetable and animal matter which has been mentioned as most congenial to the palate and stomach. The albumen or *curd* of milk is a highly elaborated animal principle, abounding in nitrogen, yet, from its attenuated and soluble state, easy of digestion. A second principle of milk is what is termed *sugar of milk;* in composition and properties it resembles a vegetable product, and is intermediate between gum and sugar. The third component of milk is *butter*, partaking of the nature of vegetable oil and animal fat; there are certain saline and acid substances in small proportion: and all these matters are either dissolved or suspended in a large relative proportion of water.

I. Table showing the average Quantity of Nutritive Matter in 1,000 Parts of several Varieties of Animal and Vegetable Food.

Blood	215	Carrots	98
Beef	260	Turnips	42
Veal	250	Cabbage	73
Mutton	290	Beet-root	148
Pork	240	Strawberries	100
Brain	200	Pears	160
Chicken	270	Apples	170
Cod	210	Gooseberries	190
Haddock	180	Cherries	250
Sole	210	Plums	290
Bones	510	Apricots	260
Milk	72	Peaches	200
White of egg	140	Grapes	270
Wheat	950	Melon	30
Rice	880	Cucumber	25
Barley	920	Tamarind	340
Rye	792	Almonds	650
Oats	742	Morels	896
Potatoes	260		

The above table represents the relative proportion of solid digestible matter contained in 1000 parts of the different articles of food which are enumerated. When blood, for instance, is evaporated to dryness, at a temperature not exceeding 212°, the residue amounts to 215 parts in 1000, and may be regarded as almost entirely composed of digestible matters; it consists of albumen and coloring matter, with small proportions of saline substances. The different kinds of meat were dried in the same way. The loss of weight during their desiccation is almost wholly referable to water; and the dry residue composed of albumen or fibrin, with some gelatin, and perhaps traces of fat and saline matters, represents the true nutritive value. Upon an average, therefore, the nutritive matter in a pound of meat is not more than four ounces. This, however, only applies to raw meat; for when dressed, a considerable portion of its constituent water is often dissipated. The nutritive matter of wheat is chiefly starch and gluten, and in this species of grain the gluten is in much greater relative proportion to the starch, than in barley, oats, or rye. In rice there is little else than starch. There can be little doubt that the great value of wheat as an article of food, depends upon this excess of gluten, which is a nitrogenous substance, and has not inaptly been termed the vegeto-animal principle. In the esculent roots, such as carrots etc., but especially turnips, sugar is the leading nutritive matter; and the common fruits contain sugar, gum, albuminous matter, and acids, together with a highly attenuated form of woody fibre, or lignin, which, in that state, is probably digestible.

The following table shows the ultimate composition of those proximate principles which have been above adverted to as constituting the nutritive part of food.

II. TABLE SHOWING THE ULTIMATE ELEMENTARY COMPOSITION OF 1,000 PARTS OF THE FOLLOWING PROXIMATE PRINCIPLES OF ANIMAL AND VEGETABLE FOOD.

	Carbon.	Hydrogen.	Oxygen.	Nitrogen.
Albumen.....	516	76	258	150
Gelatin.......	483	80	276	161
Fat...........	780	122	98	....
Curd of Milk..	609	73	116	208
Sugar of Milk.	454	61	485	....
Starch........	557	78	220	143
Gluten	438	62	500	....
Gum..........	419	68	513	....
Sugar.........	444	62	494	....
Lignin........	500	56	444	....

Yearly Food of One Man.—From the army and navy diet scales of France and England, which, of course, are based upon the recognized necessities of large numbers of men in active life, it is inferred that about 2¼ pounds avoirdupois of dry food, per day, are required for each individual; of this about three fourths are vegetable, and the rest animal. At the close of an entire year the amount is upward of 800 pounds. Enumerating under the title of water all the various drinks—coffee, tea, alcohol, wine, etc.—its estimated quantity is about 1500 pounds per annum. That for the air received by breathing may be taken at 800 pounds. With these figures before us, says the *Medical World*, we are able to see how the case stands. The food, water, and air, which a man receives, amount, in the aggregate, to more than 3000 pounds a-year; that is, to about 1½ tons, or more than 20 times his weight. This enormous quantity may well attract our attention to the expenditure of material required for supporting life. A living being is the result and representation of change on a prodigious scale.

Food, Adulterations of.—It has long been known that very fraudulent, and sometimes very unwholesome, adulterations of food are extensively practiced; but until lately it was not easy in all cases to pronounce decidedly on the nature of the fraud that had been committed. Now, however, by means of the microscope and the chemist's test-tube, there is little difficulty in so doing, and many important disclosures have by their use been made. The proprietors of the London *Lancet* employed Dr. Hassall (one of the most accomplished of the microscopical observers of our day) to thoroughly investigate the subject, and his reports have appeared from time to time in that periodical. As he published the names of the different trades-people from whom he bought spurious or adulterated articles of food, and as none of them have succeeded in disproving (and, indeed, very few have ventured to contradict) any of the statements, the thorough accuracy of the report may be relied upon, and the facts in this article are based upon it. Although Dr. Hassall purchased the articles of food that he examined from London shop-keepers, there can be no doubt that the same adulterations will be found in the provinces. Indeed, the great adulterators are the wholesale houses, who supply indiscriminately London and country shop-keepers.

I. ADULTERATIONS OF ARTICLES OF FOOD NOT AVOWEDLY OF A MANUFACTURED NATURE.—Milk, usually supposed to be much adulterated, is comparatively little so. In towns, water is generally added to it, and a portion of the cream is likewise abstracted; but chalk, gum, etc., are very rarely employed (as has often been alleged) to give the appearance of greater strength. Salted butter is frequently melted, and when in that state has water added to it. In this manner 50 per cent of water may, it is said, be incorporated. Lard is mixed up with water, potato flour, and refuse mutton fat, and the amount of the potato starch has sometimes been known to amount to 20 per cent. Oatmeal, in London, and perhaps elsewhere, is extensively mixed with barley meal; the latter, as it contains so much more water, only selling for about half the price of the former; but wheat flour, unless it contains alum, as it perhaps does, seems quite pure. Arrowroot is adulterated to a large extent. Of 50 samples bought from London shops, Dr. Hassall found 22 to be impure; of these, 10 scarcely contained any arrowroot at all, but were made up of sago, tapioca, and potato starch; while in the others there was a considerable admixture of these cheaper articles. Raw sugar has many impurities, among which the immense number of acari with which it swarms are the most disgusting; but it is also extensively mixed with flour, apparently to make impure dark sugar appear like purer and lighter-colored, and perhaps with other foreign ingredients. Loaf-sugar seems sufficiently pure. Tea is in a lamentable state, for it is meddled with by both the Chinese and those through whose hands it passes here. With regard to black tea, Dickson maintains that the Chinese mix with their exportations of tea to this country many millions of pounds of leaves of other plants, which they mix with genuine tea plants. In other respects, however, and even perhaps in this, the Chinese do not adulterate the common black teas, as Congou, Souchong, and ordinary Pekoe; but other descriptions, as scented Orange Pekoe and Caper, are, almost without an exception, impure; the former by being glazed with black-lead, and the Caper by being extensively mixed with Paddy and Lie tea, *i. e.*, an imitation of tea leaves obtained from other plants; or by not containing any tea leaves at all, but altogether other leaves sprinkled with tea dust, and made up into little masses by means of gum, and which masses are glazed with plumbago, turmeric or Prussian-blue, and the whole sprinkled over with mica, etc. But the imitation black teas are also entirely made up of the leaves of indigenous plants of this country, as those of sycamore and horse-chestnut, broken down, sprinkled with catechu (to communicate tannin), dried, and coated with gum. But a still more common imposition is to purchase exhausted tea leaves, which are sold at about 3d. a lb., from hotel-keepers and the like, and attempt to imitate fresh tea by admixture with catechu, gum, sulphate of iron, to strike a dark color with the catechu, Prussian-blue, logwood, black-lead, talc, etc. Some of these adulterations, as the Prussian-blue, for example, are calculated to have serious effects upon the health. Green teas are more adulterated than black ones, a really unadulterated specimen being very rarely to be met with. They are mixed in China with leaves of other plants, and are subsequently glazed with gum, Prussian-blue, turmeric, and various other substances, some of which are very unwholesome. Imitation green teas of home manufacture are also occasionally, perhaps even often, exposed for sale. Coffee, until the government interfered to prohibit the sale of a mixture of coffee and chicory as "coffee," almost invariably contained a large, and sometimes an amazingly large, admixture of chicory. Several contained, in addition, roasted corn, beans, potatoes, sometimes red ferruginous earths, and other impurities. Ground chicory itself, so much employed to secretly mix with coffee, is itself an article extremely adulterated. Nearly a half of the specimens examined were largely so, the substances employed for the purpose being roasted wheat, ground acorns, mangel-wurtzel, carrots, mahogany sawdust, and ferruginous earths, the two latter for the purpose of communicating color. Cocoa and chocolate are no better, the great majority of samples of them being largely mixed with sugar, and with potato, and other starch; but a worse adulteration is, that they also contain coloring, earthy matter, usually, probably, of a ferruginous nature, but which sometimes, perhaps, have for ingredients red lead and vermilion, two very dangerous ingredients, and tallow and other fats seem to be sometimes mixed with them. The acknowledged substitutes for tea, coffee, and cocoa, as *Revalenta*, *Semola*, *Prince of Wales's Food*, etc., etc., are very familiar substances. Du Barry's much vaunted "Revalenta" is a mixture of pounded lentils and barley meal, and the syrup that accompanies it is treacle. Bullock's "Semola" is the gluten of wheat with a little starch; and "the Prince of Wales's Food" is potato flour.

Ground ginger is very commonly, and very largely adulterated. Dr. Hassall found three fifths of his samples to be so, the substances admixed being sago-meal, potato flour, common flour, ground rice, cayenne pepper, and mustard husks, and these generally constituting the greater part of the bulk of the powder. Mustard, *i. e.*, ground, is almost invariably adulterated, the articles employed for the purpose being flour and turmeric, and these sometimes constitute nearly the whole of the article. Pepper is likewise very frequently mixed with linseed meal, pea meal, powdered mustard, and other substances cheaper than itself. Cayenne pepper is scarcely ever sold pure; and as the adulterations employed are bisulphuret of mercury, red lead, and other mineral coloring-matter, cayenne pepper is often a pretty active poison. In like manner, curry-powder, of which four samples out of five were found to be adulterated, frequently contains red lead, and is, therefore, very deleterious. Of the other spices, cinnamon and mixed spices are often impure; but pimento, mace, cloves, and turmeric, are almost always pure. Vinegar was found by Dr. Hassall to vary a good deal in strength, and also in the quantity of sulphuric acid that most of it contains; many samples containing more of this than was formerly allowed when the vinegar-makers were under the control of the excise; but some specimens, and these very good vinegars, were found to contain none of it, and this is a satisfactory proof that the addition of sulphuric acid is by no means necessary to vinegar.

II. ADULTERATIONS OF ARTICLES OF FOOD AVOWEDLY OF A MANUFACTURED NATURE.—Although some of the above adulterations communicate poisonous properties, yet most of them are frauds merely; some of which, however, must press very severely upon the artisan, to whom a nominally cheap article is almost irresistible. But the adulterations now to be noticed are all of a deleterious nature, and probably produce an immense amount of chronic disease, and sometimes, indeed, speedy death. Every sample of bread—49 in number—examined by Dr. Hassall, contained alum. Indeed, the sale of "stuff," which is a mixture of alum and salt, to the bakers, is carried on on a very large scale. The object of the baker in using it is to take advantage of the affinity that it has for water, and thereby make the bread retain more water than it otherwise would, and thus give his loaves an artificial weight, and also to whiten bad and discolored flour, and make it pass for that of superior quality. Each four-pound loaf contains on an average 82 grains, and a person consuming two such loaves a week, introduces into his system in that period 2 drachms and 44 grains of alum—a quantity which, as alum is a powerful astringent, must be very injurious, and which probably produces a great deal of the dyspepsia of large towns. The unnecessary quantity of salt employed by bakers is also for the purpose of retaining water among the bread in unnecessary abundance. The pickles sold in bottles in the shops are very bad indeed. In the first place, few of them, if we take the definition of pickle as given in the article FOOD, are pickles at all. The vegetables are greened with copper, preserved with salt and water, and packed into bottles, into which some very weak vinegar and diluted sulphuric acid are poured. Even the vegetables are not always genuine, and white cabbage is dyed to pass for red, slices of turnips made to look like cucumbers, etc. Of 20 specimens examined by Dr. Hassall, the supposed vinegar never contained the proper amount of acetic acid, and in general only about half. All contained oil of vitriol, and, which is still worse, all (16 were tested for this purpose) salts of copper—two in small quantities only, eight in much, one in considerable, three in very considerable, one in highly deleterious, and two in immediately poisonous amount. Of the extremely injurious effects upon the health of those who daily eat these pickles thus contaminated with copper, there can be no doubt. Among the symptoms produced by the continued use of cupreous preparations in small doses, are paralysis, chronic inflammation of the respiratory and digestive apparatus, slow fever, and wasting of the body. The store sauces are extensively adulterated. Of 28 samples of anchovy sauce, 23 contained Armenian bole, a ferruginous earth of a full red color. All the samples of soy were found to consist of treacle and salt, or at least nearly so. Six out of seven bottles of tomato sauce contained coloring matter, in all cases save one Armenian bole; and a very extensively-used fish-sauce contains acetate of lime and chips of charred wood. None of the sauces, however, were found to contain lead or copper. This, however, is not the case with preserves and jams, and 33 of these out of 35 that were tested, were found to be adulterated with copper, and some of them in very large amount. Fruits preserved in bottles, too, nearly all had copper, and French olives in particular contained a large amount. As in preparing bottled fruits no copper utensils are employed, the poison must be deliberately added. This, too, must often be the case with preserves. Articles of sugar confectionery are perhaps most deleterious of all. Besides often containing sulphate of lime, which is not wholesome, the greater proportion of the colors employed are virulent poisons. Among these may be mentioned red oxyd of lead, carbonate of lead, and the chromate of lead, carbonate of copper, arsenite of copper, and bisulphuret of mercury. Accordingly, from time to time, cases of virulent poisoning follow the use of these colored articles of sugar confectionery.—E. B.

It is probably generally understood that organic substances, that is, those of vegetable or animal derivation, can not be distinguished from each other by chemical analysis, as mineral substances can be. They are composed of few elements, carbon, hydrogen, nitrogen, and oxygen; but these combine together in complicated forms among themselves, producing substances of very different properties, even when the elements in the aggregate continue the same. Moreover, some subtle essence, that chemical skill can not detect, often gives peculiar characters to organic substances. But Nature does not leave herself without witnesses in the organic, any more than in the mineral world; and if these are not brought out by chemical researches, they must be by some other. But what these could be has been so little suspected, that as, lately as the year 1850, when repeated remonstrances were addressed to the British government to prohibit the adulteration of coffee with chicory, the chancellor of the exchequer urged in the House of Commons non-interference with the matter, on the ground that neither by chemistry, nor by any other means, could the adulteration be detected. And this plea, sustained by the report of three of the most distinguished chemists of the day, was successful. But Dr. Hassall finds, by the application of powerful microscopes, that the identity of organic substances can be detected, and that even when these are ground up and mixed together, as different kinds of flour, for example, each kind can be recognized with absolute certainty by the peculiar structure of the fine particles. The principle was known before, and was applied in fossil botany, especially to the determination of genera and species of plants. Even when converted into stone, the delicate organization still remains, and what is more wonderful than all, when fossil organic substances, like anthracite, are consumed, the ashes reveal to the microscope the peculiar forms of the family of plants which produced the coal. Thus faithfully and indelibly does Nature record and preserve the evidences of her operations in the remotest geological epochs. By the investigations of Dr. Hassall, the microscope has become a most convenient and efficient aid to organic analysis, and while greatly adding to its precision, wonderfully simplifies and reduces the cost and labor of the process. Illustrating the completeness and accuracy of his investigation, we find throughout the book numerous diagrams representing the appearance under the microscope of the various substances submitted to his examination. We see the genuine ground coffee and the genuine chicory root, and the mixture of these and roasted wheat, beans, and potatoes, plainly exposed in samples, that had been purchased with such high-sounding names as "*Delicious Family Coffee*"—really one fourth coffee and three fourths chicory; "*Coffee as in France*"—principally chicory; "*Fine Ceylon Coffee*"—very little coffee, a great deal of chicory with some roasted corn (wheat?) "*Celebrated Jamaica*"—very little coffee; principally chicory. "*Fine Java Coffee*"—much chicory and some roasted potato; very little coffee. And so through the various articles of diet, as tea, cocoa, sugar, milk, flour and bread, butter, arrowroot, condiments, pickles, confectionery, bottled fruits, liquors, and drugs. In many of them the results of chemical as well as microscopic examinations are given, each serving to aid the other, and together leaving little to be desired in the thoroughness and exactness of the researches.

Coffee.—Thirty-four samples of this were examined by Dr. Hassall, of which thirty-one were adulterated—all of the thirty-one with chicory—twelve with roasted wheat in addition; one of them contained bean and one potato flour. In many instances the coffee was present in very small quantities; in some it amounted to one fifth, one third, and so on. But coffee is also adulterated with other substances. In 1851 there were offered for sale, at about two cents a pound, by a Scotch house, eighty tons of "*coffina*," a substance imported expressly for the adulteration of coffee, and described as the highly nutritious seed of a Turkish plant. It proved on examination to consist of the roasted seeds of some leguminous plant, probably a lentil, and was no doubt prepared from an importation of 100 tons of lupine seeds, which arrived a little before at Glasgow from Egypt. The same firm, it appears, was offered, about the same time, 500 tons of foreign acorns, at about a cent per lb. for the same purpose, no doubt, of adulterating coffee. Oak bark tan and exhausted tan are also used, and the baked livers of horses and cattle. Horse liver appears to be preferred for coffee to ox liver, and brings a higher price. In London, there are men whose business is to bake and grind these articles. It is stated that these animal mixtures make the coffee go further, and thus increase its value. Chicory is a harmless sort of mixture, unless it operates to produce diarrhea; it is the root of a plant of the dandelion family, contains no active element like that of coffee, and no doubt greatly diminishes the evil effects attributed to the free use of coffee. Perhaps for this reason its use ought to be encouraged; but as it is worth only one fifth or a quarter as much as coffee, the purchaser would naturally prefer to buy the articles separately, and mix them to suit himself. Sir Charles Wood, the chancellor already referred to, appears to have a high opinion of its nutritive properties; but the value of his opinion is somewhat lessened from the question having been raised, whether he was not largely interested in the great crops of chicory grown in Yorkshire, as well as from his zealous efforts to sustain the practice of this adulteration. But Professor Beer, an eminent oculist of Vienna, is of opinion that the continual use of chicory seriously affects the nervous system, and gives rise to blindness from amaurosis. In this city there are many like Sir Charles Wood, who rather prefer chicory; but it is not so extensively used for adulterating coffee as a small variety of dried pea. In the great coffee-roasting establishments this may be seen in large quantities, openly exposed, just as if the mixing a cheap and inferior article with one of considerable value, to sell at nearly the cost of the latter, was an honest business. It is a singular fact that chiccory, used to adulterate coffee, is itself adulterated with still cheaper materials. It is sold in powder, and this is found to consist in part of other matters used for adulterating coffee, not excepting the baked livers. Carrots, beets, parsnips, and mangel wurtzel are roasted and ground for the same purpose. One witness before the Parliamentary committee testified to having manufactured in one year 700 tons of carrots into chicory. Burned sugar and Venetian red are used to give the proper color of coffee.

Tea.—Tea is extensively adulterated in China, inferior qualities being made to resemble closely the most valuable, by mixtures of highly deleterious ingredients, and foreign substances introduced, as leaves of trees of various kinds, to take the place of genuine tea leaves. Some of these are candidly sold by the Chinese with the name of "Lie Teas," or when mixed with other teas, the proportion is stated of each. The Souchongs and Congous imported into England are said to be rarely adulterated; but the black Gunpowders, Capers or Chulons and scented Orange Pekoe, are rarely otherwise than adulterated. In detecting the strange leaves and determining ther names, the microscope is particularly useful. The green color of the Twankay, Hyson-skin, Young Hyson, Hyson, Imperial, and Gunpowder imported into England, is stated to be imparted without exception by artificial coloring matters, such as ferrocyanide of iron, Prussian blue, turmeric, and China clay. Indigo and sulphate of lime are also used, the last for fixing the color. The Chinese exhibit great skill in the mixture of the coloring matters to produce the desired shade, and also a remarkable readiness to execute the orders for any tea required, though it amounts to many times the quantity of all this tea grown. It must be admitted also that they are not much more restrained by any conscientious scruples as to the consequences that may result from their poisonous coloring mixture, than those "outside barbarians" who practice similar arts in Christian countries. In England, besides the poisonous prussiates, it appears, from some seizures that have been made by the excise officers, that for the *facing* of tea, or giving the outside gloss to the leaves, the highly-poisonous substances, carbonate and arsenite of copper, and chromate of lead are used. Of the teas purchased in London and examined, it is found that some are made up of exhausted tea-leaves by the use of gum, and these are artificially glazed and colored; that the coloring matters are more injurious than those used by the Chinese, and that it is not uncommon for tea, both black and green, to be fabricated from British leaves, which possess none of the properties of tea leaves. The detection of the adulterations of tea is not very difficult, some being made by the microscope, and some by chemical processes. Sand, which is added to the Lie tea, is detected by the increased weight of the ashes. These should amount to only from five to six per cent. of the whole weight of the tea, but they are found, in some impure articles, to weigh nearly one half of the whole.

Sugar.—Sugars are very little adulterated, even with sand, as is supposed to be the case. This is easily detected by dissolving the sugar in water, which will also expose any other insoluble foreign substance. But though not mixed with other matters, the brown sugars of commerce are stated to be in general unfit for human consumption, from the numerous acari, or small mites, which infest them. The magnified representations of these upon the pages of Dr. Hassall's book, are pictures of an animal that can be called extremely hideous and disgusting; and our impressions of it do not become any more favorable, when we learn that this *acarus sacchari* is of the same family as the *acarus scabei*, or itch insect, only larger and possessed of a more formidable organization than his brother; and further, as those grocers, who are employed in "handling" sugars, are said to be subject to a peculiar affection of the skin, a disease that is consequently called the "grocer's itch," it is to be feared that the family traits run through all the members, and the appearance of the sugar-loving acarus does not belie his qualities. Sugar would seem to be thickly populated with them, for it is stated that they may "be seen of all sizes, that is, in all the stages of their growth, and in every condition; some alive, others dead; some entire and others broken into fragments; bodies here, legs there." Happily, in the process of refining these sugars and the more impure molasses, such substances, if they do not all turn to sugar, are removed with the scum, and not a trace of their existence is detected in the pure white article.

Milk.—The adulterations of milk are of a more serious character than any of those we have noticed; and there are few, but those who profit by the sinful practice of contaminating the food given to infants and invalids, that will not welcome any new method of detecting and exposing the imposture. It is now some years since public attention in this city was directed to this subject, and a general hope was entertained, that by the hydrometers and lactometers then introduced, the adulterations might be exposed and prevented: but from the difference in the composition and specific gravity of natural milk in its different conditions, the subject was found to be attended with serious difficulties, and we believe the use of the instruments was given up; at least we have heard nothing of the subject for a long time, and the public appear to have relapsed into a state of hopeless indifference and submission to the evil, which appears irremediable. And this when, if we were to judge from the quality of milk served to us at some of the eating-houses of respectable reputation—stuff of thin, bluish consistency, that sends a sickly scum over the surface of the tea or coffee it is poured upon—we might well doubt whether we are in any better condition than the inhabitants of London, when it was estimated that all the cows supplying it with milk were insufficient to give to each person more than about a table-spoonful per day. For if this is noticed in houses of respectable reputation, how is it likely to be in those of the poorer class? and what sort of milk do the children of the poor probably get, that is bought by their parents at those corner groceries where it can be had the cheapest?

The difficulty of detecting the degrees of adulteration in milk is owing to its complex nature and the different properties it possesses, as its ingredients change their condition or are removed, as the cream, for instance, is taken off when it rises to the surface, and the skim-milk is left proportionally heavier than when this lighter substance was mixed with it. If water, which is as heavy as or heavier than the cream, be now made to replace it, the substitution can not be detected by any difference of specific gravity. This test must therefore be employed with another to determine the quantity of cream. This is effected by the use of a graduated tube called a lactometer, in which the cream, by standing some time, collects in the upper end, and its proportion is at once seen to the milk at the lower end. Good milk should show about 9-100ths by measure of cream, and tested by the hydrometer should indicate from 1026 to 1030 specific gravity, water being 1000. To these tests and the more complicated ones of chemical analysis, are now added those of the microscope, by which an idea may be formed of the relative richness of different samples by comparison. Cream is seen to be full of globular fatty bodies, which are of large size and closely collected together; good milk has similar globules, but smaller and not so closely united; while in adulterated milk they are scattered like the stars in a clear night. Foreign substances, as sheep's brains, are indicated by appearances like nebulæ among the stars, intermixed with a multitude of comets. But to follow out this subject, one should turn to the book itself, in which it is fully treated. The result of the examination of twenty-six samples of London milk was that *twelve* were genuine, but of these two showed a deficiency of cream; and that *fourteen* were adulterated, principally with water, which ranged from 10 to 50 per cent. It would be curious to have a series of such examinations of New York milk to compare with this of the London. We are strongly inclined to the opinion that Yankee ingenuity would be found as far ahead of the British in this respect as the British were ahead of the Chinese in adulterating tea. Certainly, we need such an investigation, and we hope it will be had.

Flour.—Flour is probably much more adulterated in England than it is in this country. In this article we are more likely to suffer by short weight than by substitutes of inferior ingredients. It is possible that damaged flour may, however, be mixed with good, or by adulterations with various matters be made to assume the appearance of good flour. The unwise preference, so universal, for flour extremely white, leads to the mixture of alum for the purpose of improving the appearance; and the baker frequently, ignorant that the miller had anticipated his worthy object, adds a second dose of alum to improve the appearance of the loaf. The effect of alum is to make the bread indigestible, causing acidity and dyspepsia—besides, it enables the baker to add other articles, which are themselves cheap substitutes for flour, and cause the bread to take up more water, thus adding to its weight. Liebig remarks upon the indigestible quality of London bread; and he noticed, when in the alum works at Glasgow, quantities of finely-ground alum prepared for the London bakers. Aware of its injurious effects, he recommended a substitute of lime water, which would produce the useful without the injurious effects; and his recommendation has been to some extent adopted. We know nothing of the practices of our bakers in these matters, but the thing might be easily investigated. In the country, particularly in New England, where the bread is almost universally bad, the greatest evil is probably in the free use of carbonate of potash or saleratus. Fifty-three samples of London bread were examined by Dr. Hassall, all of which contained alum. Fraud was detected almost as universally in the weight of the loaves. In Edinburg an excellent police act prevails, requiring the bakers to stamp the weight upon all the loaves they sell. The magnified representations in Dr. Hassall's work of the different flours and their adulterated mixtures, as they appear under the microscope, are highly interesting and instructive.

Various preparations of farinaceous articles for the food of invalids have been largely introduced into the

English market of late years, and many of them have found their way to this country, with the high-sounding names they were christened with there. The most famous and highly esteemed of these are *Wharton's Ervalenta*, and *Du Barry's Revalenta Arabica*. They sold in England at 2s. 9d. per pound, or about 67 cents. These, examined under the microscope, prove—the former to be a mixture of the French or German lentil, which is almost precisely the same thing as the common pea, and the remainder a substance resembling Indian-corn meal, but possibly the meal of the Sorghum. The latter was composed of the red, or Arabian lentil, and barley-flour. Another sample of it showed some sugar, and a third some salt, and also appeared to be flavored with celery seed. Edwards Brothers' *Arabian Revalenta*, at 1s. (24 cents) per pound, was ascertained to consist of lentil powder—probably of the red and yellow lentil mixed. Lentils, it seems, being somewhat cheaper than peas, are supplied to the work-houses for the preparation of soup for the paupers. It is certainly a much more profitable operation to convert them into *Revalenta*, and sell them at 67 cents per pound, or export them in this form to this country, where, we believe, by our own experience, when acting, some time since, under medical advice, they cost half a dollar for a small paper, possibly weighing half a pound. In London, where these valuable lentils can be easily procured at 8 cents per quart, the preparation may be made by mixing to a uniform powder red or Arabian lentil flour, 2 pounds; barley flour, 1 pound; salt, 3 ounces. This preparation will contain all the valuable properties of the *Revalenta*, and cost *four cents* per pound. Unfortunately, we have no Arabian lentils; but Dr. Hassall has given another recipe, equally good, designed for such contingences, and of which we can easily avail ourselves, viz.: Pea flour, 2 lbs.; Indian-corn flour, 1 lb.; salt, 3 oz. Mix as before. We do not know whether such choice preparations as *Prince Arthur's Farinaceous Food* and the *Prince of Wales's Food*, would ever be allowed to come to this country to nourish republican babies; but, by great good luck, we possess the materials of this royal diet, as Dr. Hassall's microscope proves the one to be composed entirely of *baked wheat flour*, and the other of *potato flour*. *Maidman's Nutritious Farina* consists entirely of potato flour, artificially colored of a rosy tint.

Spices.—Cayenne pepper is very generally adulterated, and frequently with red lead, in considerable quantity. Vermilion, or the sulphuret of mercury, is sometimes used for the same purpose. As mineral poisons are apt to accumulate in the system, and finally produce very serious consequences, if taken frequently, even in small quantities, this adulteration, as the similar treatment of colored confectionery, is one of the most reprehensible forms of this vile system. Instances of poisoning from these causes are known, and also from cheese poisoned by red lead, which was introduced into the annotto used to color the cheese. This coloring ingredient in cheese and butter is an entirely useless addition to these articles, possessing no good properties of its own; but being frequently made the vehicle of introducing its different adulterating mixtures, its use ought to be abandoned.

Spices are to a considerable extent adulterated, and probably as much so in this country as in England. Of 21 samples of ginger, 15 were thus impure, the mixtures consisting of the meal of sago, tapioca, potatoes, wheat, rice; also, Cayenne pepper, mustard husks, and turmeric powder, which, in the majority of the cases, constituted the principal part of the article. Every one has noticed in cinnamon the hard, tasteless bark, thicker than that which has the genuine flavor, but otherwise much resembling it. This is the bark of the cassia, a tree of the same genus as that which produces the cinnamon bark, but of very inferior quality. It is largely mixed with cinnamon, but, even in the ground state, is easily detected by the microscope. Of 12 samples of whole cinnamon examined, seven proved genuine, and five were nothing but cassia; and of 19 samples of the ground article, only six were genuine—three consisted entirely of cassia, three of cassia adulterated, and seven of cinnamon adulterated. The adulterating mixtures were baked wheat flour, sago, meal, potato-flour, and arrowroot. In his examination of the nutmeg, Dr. Hassall does not appear to have found any of the famous wooden imitations; but a French author he quotes, states, that "nutmegs are sometimes mixed with riddled nuts, eaten by insects, and become brittle; the small apertures are then closed with a kind of cement, formed of flour, oil, and the powder of nutmegs. This paste has even served to fabricate false nutmegs, inodorous and insipid." These qualities without doubt, characterize the Connecticut article also, and will enable any one to detect it. Dr. Hassall's advice to soak them in water, when, of course, they would readily break down, would not apply to these.

To present this subject in its most revolting features, it would be necessary to carry out this description through the long list of liquors and drugs; and the data for this might easily be furnished to considerable extent from materials already at hand of our own operations, without drawing upon those so abundantly provided in the book before us. But enough has already been said to convince the most incredulous (if there be anywhere incredulity on this subject), that whatever we purchase to eat or to drink, or to administer as medicine, we have no security that we obtain the article we ask and pay for. The chance is decidedly against us in all articles, which skillful ingenuity can imitate successfully, even if it be necessary to resort to dangerous poisonous substances. The laws afford little protection, though they recognize the existence of the evil.

But besides the repugnance we naturally feel to being cheated and poisoned, there are evils of greater consequence brought upon the community by the toleration of these practices, that should rouse a higher indignation. These are, that loose state of morals the system encourages, and the lowering of the respect which should attach to the mercantile profession. The encouragement, too, of the unscrupulous trader, by the advantages of profit it gives him over the honest; thus driving the latter out of a business in which competition is not open to him. Then, again, its evil effects upon the poor, who, ignorant of these frauds, fall helplessly into the snares of those who sell at the lowest rates. Judging from the qualities of articles sold by "respectable" traders, it is probable we have little idea of what is palmed off upon the great bulk of the population of a city like this, in the cheap shops frequented by the poorer classes. Our newspapers make frequent mention of the more prominent frauds committed upon unsuspicious strangers by the emigrant runners; but of this under-current, which is filching without cessation the hard earnings of the multitudes, poisoning health and morals alike, reducing the standard of mercantile integrity, and taking from the mouths of the sick and of the infants those most nutritious foods nature has kindly provided for their benefit—of this we hear little mention. The disease lies too deep and works too insidiously for its eradication to be hoped for. But this is not so. There is a cure for it; and this cure is the one adopted by Dr. Hassall. Let those who have the skill, and the time, and the taste for such pursuits, adopt the course he followed. Let purchases of articles likely to be adulterated be made in various places, and the results of their examination be exposed, together with the names of the tradesmen selling them. There is no fear but one would be sustained in this. All honest dealers would encourage it; for it would restore them to their rightful position. The dishonest could not help themselves. Such a course, steadily pursued by a few individuals, would, we believe, soon produce as marked a change in this city as it has done in London. If one would undertake it, others would be likely to follow. The field is large, and will accommodate many laborers. We wish a commencement might soon be made upon *milk.* —See ADULTERATIONS DETECTED; *or, Plain Instructions for the Discovery of Frauds in Food and Medicine.* By ARTHUR HILL HASSALL, M. D.: London, 1857. H. Bailliere, New York.

Foot, a measure of length derived from the length of the human foot, and consisting of 12 linear inches. For its length in different countries, see WEIGHTS AND MEASURES.

Fore. The sea term for the part of the ship near the head.

Fore and Aft implies lying in the direction of the head and stern; also, the whole of the vessel generally.

Forecastle, that part of the upper deck of a ship forward of the foremast; also, in merchant vessels, the forward part of the ship, under the deck, where the sailors live.

Foreigner, the natural-born subject of a foreign state.

Forelock, in nautical language, a flat wedge of iron, driven through the end of a bolt to prevent its drawing.

Foremast, the forward mast of all vessels.

Forestalling, in *law*, is described to be the buying or contracting for any merchandise or victual coming in the way to market; or dissuading persons from bringing their goods or provisions there; or persuading them to enhance the price when there. This, as well as *engrossing*, which is the buying up of large quantities of corn, or other dead victuals, with intent to sell them again, and *regrating*, the buying up of such commodities in any market, and selling them again in the same market, or within four miles of it, was looked upon as injurious to the public, by unnecessarily tending to raise the price of provisions; and accordingly several statutes were passed in Great Britain prohibiting forestalling under severe penalties. Statute 31st Edw. I. enacted that "no forestaller shall be suffered to dwell in any town who manifestly is an oppressor of the poore, a publike enemie of the whole cominaltie and countrie, who meeting grain, fish, herring, and other things coming by land or by water to bee solde, doeth make haste to buy them before other, thirsting after wicked gaine, oppressing the poore, and deceiving the rich." In Great Britain, by the statute of Edw. VI., it was enacted that whoever should buy any corn or grain with intent to sell it again, should, for the first offense, suffer two months' imprisonment, for the second, six months' imprisonment, and forfeit double its value, and for the third, be set in the pillory, suffer imprisonment during the king's pleasure, and forfeit all his goods and chattels. This statute further enacted, that no one could transport corn from one part to another without a license, ascertaining his qualifications as a man of probity and fair dealing.

The very imperfect knowledge of political economy that then prevailed led to the belief that the intervention of a third party between the producer and consumer tended to raise the price of provisions; and that corn would be bought from the farmer cheaper than from the corn-merchant. It may seem somewhat strange that though the law thus compelled the farmer to deal directly with the consumer, yet it in many cases prohibited the manufacturer from selling his own wares by retail, in order that the shopkeepers might not be undersold. The farmer was thus forced to carry on two trades; and part of the capital which should have been employed in the improvement and cultivation of the land, was obliged to be kept in his granaries and stock-yard; whereas the corn-merchant, by affording a ready market for the farmer's produce, enables him to employ his whole capital in cultivation; and the existence of a free competition obliges the corn-merchant to sell his corn as cheap as the farmer could afford to do. The principle here is the same as in manual labor. The workman who is wholly employed in one operation accomplishes a greater quantity of work, and can afford to do it at a cheaper rate, than one who has to carry on several operations; and, in the same way, the dealer whose whole stock is employed in a single branch of business acquires so easy and ready a method of transacting business that, with the same capital, he can carry on a much larger business, and so dispose of his goods cheaper than if his capital and attention were employed in a greater variety of objects. "If," says Adam Smith, "a merchant ever buys up corn, either going to a particular market, or in a particular market, in order to sell it again soon after in the same market, it must be because he judges that the market can not be so liberally supplied through the whole season as upon that particular occasion, and that the price must, therefore, soon rise."—E. B.

Fore-tackle; tackle on the foremast, and also tackle used for stowing the anchor.

Foretop-men; men stationed in the foretop, in readiness to set or take in the smaller sails, and to keep the upper rigging in order.

Forge, a furnace where wrought iron or other metal is hammered and fashioned with the aid of heat. This is called a smith's forge. In ships a very convenient kind is the portable truck forge. Forge is also applied to the blast furnace, in which iron ore is smelted; also, where the production of the blast furnace is fused, and afterwards beaten with enormous hammers, or drawn through cylinders of different diameters, in order to render the metal soft, pure, and more malleable and ductile. Such great workshops are otherwise called *shingling mills.* See IRON-MAKING.

An ordinary smith's forge consists of the hearth or fireplace, which is merely a cavity in masonry or brickwork, lined with fire-clay or brick, and containing ignited fuel, upon which a powerful blast of air is driven through the nozzle of a double-bellows, worked by a hand-lever. There are also portable forges, of small dimensions, but answering all the ordinary purposes of a smith's forge. Such are the traveling forges of armies, those used on board ships, etc.

Forgery (from the French *forger*, signifying *accudere fabricare*, to beat on an anvil, forge, or form) may be defined at common law to be the fraudulent making or alteration of a writing or seal, to the prejudice of another man's right; or it is the crime of imitating the subscription of another, adhibiting it to a deed, and putting that deed to use by acting under it, receiving property in virtue of it, founding on it as a title to sue or to defend, or transferring it to another. In considering forgery, it is necessary to attend, first, to the mode of proof by which the crime is established: and secondly, to the punishment which is inflicted on the perpetrator thereof.

The proof of forgery is either direct or indirect. The direct proof consists in the examination of the writer of the deed, and of the witnesses who sign the deed and attest the subscription. As the subscription of witnesses is an attestation to which the law gives effect to the extent of receiving it on their death as evidence of the regularity of the deed, and as weight is given to the subscription of a witness, even where he does not recollect having adhibited it; so, to cut down a deed regularly attested, the instrumentary witnesses, as they are called in Scotland, must be brought to swear to circumstances of sufficient force to invalidate the evidence given by their subscriptions; a species of proof which the law does not and indeed can not reject. The indirect mode of proof consists in an investigation of all the circumstances from which it may be inferred that the person by whom a deed is said to be executed actually did not subscribe; as, for instance, an error in the date, an *alibi*, the stamp, the contexture of, or date impressed upon the paper, or a *comparatio literarum*. The comparison of the handwriting is made with genuine subscriptions of the same date as that alleged to have been forged; and where the real subscriptions differ materially from the one founded on, the forgery of the latter may be pronounced on with a considerable degree of certainty. It is an established rule, however, that the proof of forgery by a mere comparison of handwriting is not admissible.

Forgery in England.—The forging of, or giving in evidence forged deeds, etc., made punishable by fine, by standing in the pillory, having both ears cut off, the nostrils slit up and seared, the forfeiture of land, and perpetual imprisonment.—5 ELIZABETH, 1562. Forgery was first punished by death in 1634.

Forgery, Remarkable Executions for.—The unfortunate Daniel and Robert Perreau, brothers and wine-merchants, were hanged at Tyburn, January 17, 1776. The Rev. Dr. Dodd was found guilty of forging a bond, in the name of Lord Chesterfield, for £4200: the greatest interest was made, and the highest influence was exerted to save him, but when the case came before the council, the minister of the day said to George III., "If your majesty pardon Dr. Dodd, you will have murdered the Perreaus;" and he was hanged accordingly, June 27, 1777. Mr. Henry Fountleroy, a London banker, was hanged November 30, 1824. Joseph Hunton, a Quaker merchant, suffered death, December 8, 1828. The last criminal hanged for forgery at the Old Bailey, was Thomas Maynard, December 31, 1829.

Forgery of Sea-Letters.—Congress enacted the following law, March 2, 1803:—"That if any person shall knowingly make, utter, or publish any false sea-letter, Mediterranean passport, or certificate of registry, or shall knowingly avail himself of any such Mediterranean passport, sea-letter, or certificate of registry, he shall forfeit and pay a sum not exceeding $5000 to be recovered by action of debt, in the name of the United States, in any court of competent jurisdiction, and if an officer of the United States, he shall ever thereafter be rendered incapable of holding any office of trust or profit under the authority of the United States."

Fork, a well-known instrument, consisting of a handle and a shaft terminating in two or more points or prongs. The *table-fork* did not come into use in England till the reign of James I., as we learn from a remarkable passage in Coryat, who thus solemnly relates the history of its introduction:—"Here I will mention a thing that might have been spoken of before in discourse of the first Italian townes. I observed a custom in all those Italian cities and townes through the which I passed, that is not used in any other country that I saw in my travels, neither do I think any other nation in Christendome doth use it, but only Italy. The Italians, and also most strangers that are commorant in Italy, doe always at their meals use a little forke when they eat their meate; for while with their knife, which they hold in one hand, they cut the meate out of the dish, they fasten the forke, which they hold in the other hand, upon the same dish, so that whatsoever he be that sitting in the company of any others at meale shall unadvisedly touch the dish of meate with his fingers from which all the table doe cut, he will give occasion of offence unto the company as having transgressed the lawes of good manners, insomuch that for his error he shall be at least browbeaten, if not reprehended in wordes. This form of feeding, I understand, is generally used in all parts of Italy, their forks for the most part being made of yronn, steele, and some of silver, but those are used only by gentlemen. The reason of this their curiosity is, because the Italian can not by any means indure to have his dish touched with fingers, seeing all men's fingers are not alike cleane. Hereupon I myself thought good to imitate the Italian fashion by this forked cutting of meate, not only while I was in Italy, but also in Germany, and often times in England since I came home: being once quipped for that frequently using my fork, by a certain learned gentleman, a familiar friend of mine, Mr. Lawrence Whitaker, who in his merry humor doubted not to call me a table *furcifer*, only by using a forke at feeding, but for no other cause."—E. B.

Formosa (Chinese, *Taewan*, i. e., *Terrace Beach*), an island lying about 90 miles off the coast of China, from which it is separated by the channel of Fo-kien. It is about 250 miles in length from north to south, and 80 in breadth, lying between north lat. 22° and 25° 30′ and east long. 120° 30′ and 122°. A volcanic mountain chain, rising to the height of upward of 12,000 feet, traverses the centre of the island from north to south, and separates the Chinese portion of it on the west from the independent portion on the east. Some parts of the coast present bold headlands; but all the west shore is flat and surrounded with rocks and quicksands, presenting no good harbors, with the exception of Kélung at its northern extremity. The Chinese portion of it is fertile and well watered, and possesses a very salubrious climate. Almost all grains and fruits may be produced on some part of the island, which is familiarly known as the granary of the maritime provinces of China. The rice-trade alone with these provinces employs more than 300 vessels. Among its other articles of trade, are maize, tobacco, sugar, fruits, timber, salt, sulphur, camphor, cotton, hemp, silk, etc. Of the eastern portion of the island little is known; the inhabitants bear no resemblance to the Chinese, but are apparently allied to the Malay or Polynesian tribes. They are of a slender form, olive complexion, wear long hair, and blacken their teeth. They have no written language, and their religion seems to be confined to a superstitious belief in demons and sorcerers. Many of the aboriginal inhabitants are still to be found on the western portion of the island, living in independent villages; others, however, have become incorporated with the Chinese settlers, or live in villages of their own, under the general supervision of Chinese officers.

Formosa was unknown to the Chinese till about 1403. About 1634 the Dutch established themselves here, and built Fort Zealand on a small island commanding the harbor of the capital Taewan. After retaining possession of it for 28 years, they were expelled by the famous Chinese rebel Coxinga, whose successors ruled in the island till 1683, when it was taken by the Chinese. Taewan, the capital, stands on the west coast in north lat. 23°, east long. 120° 32′; but the entrance of its harbor is now choked up. The population of Formosa is estimated at from 2,000,000 to 3,000,000.

Fort, a small fortified place, environed with a ditch, rampart, and parapet. The use of forts is to secure some high ground, or the passage of a river, to make good an advantageous post; to defend the lines and quarters of a siege, and the like. Forts are built of different figures and dimensions, according to the exigences of the case. Some are provided with bastions, others with demi-bastions; some are of a square form, others pentagonal, and others again are stellated, having five or seven angles.

Forth, one of the largest rivers in Scotland. It is first formed of several small streams rising on the north of Ben Lomond, or flowing from Loch Katrine and the other lakes in the adjacent country. It proceeds easterly in a direct course for above 100 miles, receiving in its progress the tributary waters of the Goodie, the Teith, and the Allan above Stirling, and below it the Devon, the Carron, the Avon, the Almond, the Leith, the Esk, the Leven, the Tyne, and others; and it discharges itself into the German Ocean in about 56° 10′ of north latitude.

The Forth, like other streams connected with the ocean, ebbs and flows twice in 24 hours, but the flood and ebb run about two hours longer in the middle than at the shore. The tide flows 4½ miles above Stirling shore. At this harbor spring-tides rise 7 feet 9 inches, and at Alloa, 19½ feet.

It was high water, according to Captain Thomas's observations in 1815, at

	H. M.	Spring Tides rise	Neap Tides rise
Elie Harbor........	2 11 p. m.	14 feet.	6 feet.
Leith & Burntisland	2 15 "	16½ "	7 "
Hopetoun House...	2 30 "	17 "	6½ "

The tides at Leith and Kinghorn rise sometimes as high as 19 feet above low-water mark, the average being 17½ feet.

There are in the Forth, as elsewhere in similar rivers and arms of the sea, particular currents. Among the most remarkable are those known by the name of *Leakies* above the Queensferry, which are particularly observed from Culross to Alloa. These consist in an intermission of the tide at certain places during the flood, and before high water the sea ebbs. On the contrary, while the sea ebbs, and before low water, the ebb intermits, and a flow commencing, continues some time; after which the ebbing is resumed until low water. This is seen during two hours, and the irregularity occupies more or less of the river according as it is spring or neap tide.

The principal obstructions to the navigation of the Forth between Alloa and Stirling, have hitherto arisen in a great measure from the two fords of the river, the one called the Town Ford and the other the Abbey Ford, and from the channel being rendered shallow partly by large boulders and partly by accumulations of peat. The peat accumulations have arisen chiefly from the proprietors above Stirling clearing several thousand acres of their lands for cultivation, by removing the peat which covers them, and moving it into the river in order to be carried away by the current to the sea. This practice has been followed since 1732. The moss covering the soil varies in depth from 14 to 4 or 5 feet, but the greater proportion is 10 feet. Mr. Drummond, of Blair-Drummond, from 1783 to 1839, floated away upward of 1,600 acres of this substance.

The principal sand-banks which obstruct the navigation further down the firth are the Drum-sands, near Cramond, and the Sand-end, on the east of Burntisland harbor. The principal rocks which require to be avoided by the mariner are the South Carr Reef, lying N.N.W. from Dunbar, the North Carr, about a mile and a quarter east of Fifeness, the Blae to the west of Kinghorn Ness, the Commons to the west of Burntisland, Craig Waugh S. E. one half E. of Inchkeith, and the Gunnet Rock, Pallas Rock, Long Craig, Briggs, and Harwit in its neighborhood; and several miles further west, and nearer Inchcolm, the Oxcares, Carcraig, and Mickry Stone. Many of these rocks are seen at the lowest ebbs; their position, together with the different land-marks, which are necessary to point them out to the mariner, are delineated on the admiralty charts, and the sailing directions for the Firth of Forth, contained in the *Coaster's Assistant*, which is published in Leith. To show their position still better, floating buoys have been placed upon Craig Waugh, the Gunnet, the Harwit, and the Pallas Rocks; and beacons have been erected on the Oxcares, the North Carr, and on the Long Craig, and on most of the other dangerous rocks, and on several shoals and sand-banks. Besides the provisions for aiding the navigation, there are two light-houses on the isle of May, one on the island of Inchkeith, and various other light-housee are now erected on all the harbors and landing-places of importance in the firth.

The anchorage of the Firth of Forth is excellent. Mr. Osborne, in a report to the Lords of the Admiralty on 2d May, 1853, says of it: "Between the Humber and the Frith of Cromarty there is no other harbor or anchorage into which large ships of war can safely run for shelter or rendezvous other than the Frith of Forth, and more particularly in the reach above the Queensferry, where the shelter is complete. But as the Frith of Cromarty is away from all important interests, the Frith of Forth must be considered the only war port north of the Humber, and therefore a most fitting place for a naval arsenal." But besides the great and important anchorage at St. Margaret's Hope, in the reach above the Queensferry, which is more particularly referred to in this Admiralty report, Leith Roads to the west of Inchkeith is another, which is capable of holding a large fleet of ships of war of any size. The minor anchorages in the firth, which are also very good, are at Aberlady Bay, the western part of Largo Bay, Burntisland, St. Davids, Limekilns, etc.

The landing-places or harbors in the Forth are, on the south side the harbors of Dunbar, North Berwick, Port Seton, Morrison's Haven, Fisherrow, Leith, Newhaven, Trinity, Granton, South Queensferry, Borrowstowness, Grangemouth, and Stirling Shore, and on the north side, Crail, Anstruther, Elie, Pittenweem, Leven, Methel, West Wemyss, Dysart, Kirkcaldy, Kinghorn, Pettycur, Burntisland, Starleyburn, Aberdour, St. Davids, Inverkeithing, North Queensferry, Charleston, Crombie Point, Culross, Kincardine, and Alloa. Great improvements and new erections have lately been made at most of these harbors which are of any note; and in particular, the Duke of Buccleuch's magnificent harbor in progress of formation at Granton, and the extension of Leith Pier into deep water, may be referred to. Of less magnitude is the deepening of the channel of the Forth between Alloa and Stirling by commissioners acting under the act of Parliament 6th and 7th Victoria, cap. 47. Since the passing of this act in 1843, a channel of about 500 yards in length has been formed through the Abbey Ford, giving about 3 feet 6 inches greater depth of water than formerly. A channel about 1,000 yards in length has also been formed through the Town Ford, which is not yet fully completed as regards its depth of water. In these operations many thousands of large boulder-stones and the peat accumulations which formed obstructions to the navigation have been removed, and no doubt is entertained by the inspectors, who have reported to government on this subject, but a depth of 16 or 17 feet at spring-tides will be obtained up to Stirling when the works in progress are completed. Upward of £9,000, including the expense of the act and of erecting a quay at Stirling, have already been expended by the Harbor Commissioners on these operations, and £7,000 more is about to be expended upon them. This sum is to be paid to the commissioners by the Town Council of Glasgow for damage likely to arise to the improvements in progress on the Forth, from the liberty obtained by the city of Glasgow to draw a large quantity of water from Loch Katrine. In addition to these sums, the revenue of the Forth Commissioners, which is considerable, will enable them still further to extend their works.

Further, the low-water ferry landing-place at Burntisland, belonging to the Edinburg, Perth, and Dundee Railway Company, is a great improvement at that port; and at Kirkcaldy, Buckhaven, and other harbors, extensive works are in progress under Harbor Commissioners.

The coasting and foreign trade of the Forth is carried on in vessels varying in size from 18 to 500 tons. The principal port to which they belong is Leith; but there are several whalers and large vessels engaged in the Australian, American, Mediterranean, and Baltic trades, which belong to other ports in the Forth.

The traffic in goods and passengers between the ports in the Forth and London, Greenock, Glasgow, Liverpool, Hull, Newcastle, Dundee, Perth, Aberdeen, Inverness, Peterhead, and almost every considerable sea-port in Scotland, is conducted chiefly by vessels of joint-stock companies, which vessels sail periodically. Joint-stock companies are also engaged in the Leith trade with Hamburg and Rotterdam. The Glasgow, Greenock, and Liverpool trade, is chiefly conducted through the Forth and Clyde canal.

The number and tonnage of the vessels belonging to the ports in the Forth in 1855 are as follows:

At Alloa, including the creeks of Kincardine and Stirling, 74 vessels, with a tonnnge of	12,402
At Borrowstownness, including the creeks of Charleston and Limekilns, 47 vessels, with a tonnage of..............................	3,781
At Grangemouth, 54 vessels, with a tonnage of	9,233
At Inverkeithing, 23 vessels, with a tonnage of	2,361
At Kirkcaldy, including the creeks of Largo, Leven, Wemyss, Dysart, Kinghorn, Burntisland, and Aberdour, 60 vessels, with a tonnage of............................	7,687
At Leith, including the creeks of Granton, Fisherrow, Cockenzie, and Dunbar, 176 vessels, with a tonnage of...............	25,404
Total 434 vessels, with a total tonnage of	60,868

E. B.

Fortified Island, an island in the India seas, lying off the coast of Canara, about a mile from the land, a little way north from the entrance to Lake Onore. The island abounds in cocoa-nut, palm, and plantain-trees, and has plenty of fresh water. It produces the best kind of cari, which is used by the natives in painting their houses. Its name is derived from its fortifications, which were greatly strengthened by Tippoo Saib, from whom it was taken in 1792 by three British frigates. It is upward of a mile in circuit. Long. 74° 27′ E.; lat. 14° 16′ N.

Fothering, a peculiar method of endeavoring to stop a leak in the bottom of a ship while she is afloat, either at sea or at anchor, which is performed by fastening a sail at the four corners, letting it down under the ship's bottom, and then putting a quantity of chopped rope-yarn, oakum, wool, cotton, etc., between it and the ship's side. By repeating the latter part of this operation several times, the leak generally sucks in a portion of the loose stuff, and thereby becomes partly and sometimes wholly stopped. Some persons prefer thrumming the sail, instead of letting down the loose stuff; but in this mode the sail is soon chafed through by the hole if the leak is considerable, without affording sufficient substance to stop it.

Foul, a sea phrase that is used in distinction from clear, and implies entangled, embarrassed. Hence, foul anchor, when the cable is twisted round the stock and flukes; foul bottom, when a bay is covered with weeds, grass, shells, filth, and rocks. Foul hawse means that the cables are turned round each other by the ship having swung the wrong way when moored. Foul rope, a rope entangled and unfit for immediate use. Foul water, is water troubled, and rendered turbid by the ship's bottom rubbing on the ground. Foul wind, is used to express that the wind is unfavorable, or contrary to the ship's course, as opposed to large or fair.

Foundery, or **Foundry**, the art of melting and casting metals. See Copper; Iron.

Foundery of Small Works, or Casting in Sand.—The sand commonly used for casting small works is at first of a pretty soft, yellowish, and clammy nature; but it being necessary to strew charcoal dust in the mold, it at length becomes of a quite black color. The sand is worked over and over, on a board, with a roller and a kind of knife; and is placed over a trough to receive it, after it has by these means been sufficiently prepared.

This being done, the workmen take a wooden board of a length and breadth proportional to the things to be cast, and putting a ledge round it, they fill it with sand a little moistened, to make it duly cohere. They then take either wood or metal models of what they intend to cast, and apply them to the mold, and press them into the sand so as to leave their impression there. Along the middle of the mold is laid half a small brass cylinder, as the chief canal for the metal to run through, when melted, into the models or patterns; and from this chief canal are placed several others, which extend collaterally to each model or pattern placed in the frame. After this frame is finished, they take out the patterns, by first loosening them all round, that the sand may not give way; then they proceed to work the other half of the mold with the same patterns in just such another frame, only that it has pins, which entering into holes corresponding to it in the other, make the two cavities of the pattern fall exactly on each other. The frame, thus molded, is carried to the melter, who, after extending the chief canal of the counterpart, and adding the cross canals to the several models in both, and strewing mill-dust over them, dries them in a kind of oven prepared for the purpose. Both parts of the mold being dry, they are joined together by means of the pins; and to prevent them giving way, by reason of the melted metal passing through the chief cylindrical canal, they are screwed or wedged up as in a press. While the molds are thus preparing, the metal is fusing in a crucible of a size proportional to the quantity of metal intended to be cast. When the molds have cooled, the frames are unscrewed or unwedged, and the cast work is taken out of the sand, which sand is worked over again for another casting.

Foundery of Statues.—The casting of statues depends on the due preparation of the pit, the core, the wax, the outer mold, the inferior furnace to melt off the wax, and the upper to fuse the metal. The pit is a hole dug in a dry place, somewhat deeper than the intended figure, and made according to the prominence of certain parts of it. The inside of the pit is commonly lined with stone or brick; but when the figure is very large, they sometimes work on the ground, and raise a proper fence to resist the impulsion of the melted metal. The inner mold, or core, is a rude mass, to which is given the intended attitude and contours. It is raised on an iron grating strong enough to sustain it, and is strengthened within by several bars of iron. It is generally made either of potters' clay mixed with cow-hair, or of plaster of Paris mixed with brick-dust. The use of the core is to support the wax and the shell, and lessen the weight of the metal. The iron bars and the core are taken out of the brass figure through an aperture left in it for that purpose, which is soldered up afterward. It is necessary to leave some of the iron bars of the core, which contribute to the steadiness of the projecting part, within the brass figure. The wax is a representation of the intended statue. If it be a piece of sculpture, the wax should be all from the hand of the sculptor himself, who usually forms it on the core; though it may be wrought separately in cavities, molded on a model, and afterward arranged on the ribs of iron over the grating, filling the vacant space in the middle with liquid plaster and brick-dust, by which means the inner core is proportioned as the sculptor carries on the wax. When the wax, which is of the intended thickness of the metal, is finished, small waxen tubes, perpendicular to it from top to bottom, are filled, to serve both as canals for the conveyance of the metal to all parts of the work, and as vent-holes to give passage to the air, which would otherwise occasion great disorder when the hot metal came to encompass it.

The work being brought thus far, must be covered with its shell, which is a kind of crust laid over the wax, and which being of a soft matter, easily receives the impression of every part, which is afterward communicated to the metal upon its taking the place of the wax, between the shell and the mold. The matter of this outer mold is varied according as different layers are applied. The first is generally a composition of clay and old white crucibles well ground and sifted, and mixed up with water to the consistence of a color fit for painting; and it is applied with a brush, by means of which it is laid on seven or eight times successively. For the second impression horse-dung and natural earth are added to the former composition; but for the third impression only horse-dung and earth are used. Lastly, the shell is finished by laying on several more impressions of this last matter, made very thick, with the hand. The shell, thus finished, is secured by several iron girths bound round it, at about half a foot distant from each other, and fastened at the bottom to the grating under the statue, and at top to a circle of iron where they all terminate.

If the statue be so large that it would not be easy to move the molds with safety, these must be wrought on the spot where it is to be cast. This is performed in two ways. In the first place, a square hole is dug in the ground, much larger than the mold to be made therein, and its inside is lined with walls of freestone or brick. At the bottom is made a hole of the same materials, with a kind of furnace, having its aperture outward; and in this a fire is made, to dry the mold, and afterward melt the wax. Over this furnace is placed the grating, and upon this the mold, formed as above. Lastly, at one of the edges of the square pit is made another large furnace, to melt the metal. In the other way, it is sufficient to work the mold above ground, but with the precaution of a furnace and grating underneath. When finished, four walls are run around it, and by its side a melting furnace is prepared. For the rest, the method is the same in both cases. The mold being finished, and inclosed as described, whether below ground or above it, a moderate fire is lighted in the furnace under it, and the whole covered with planks, that the wax may melt gently down, and run out at pipes, contrived for that purpose, at the foot of the mold, which are afterward exactly closed with earth, as soon as the wax is all carried off. When this is done, the whole is filled up with bricks thrown in at random, and the fire in the furnace augmented, until both bricks and mold become red-hot. The fire is then extinguished, and every thing being cold again, the bricks are taken out, and their place filled up with earth, moistened, and beaten a little at the top of the mold, in order to render it the firmer. These preparatory measures being duly taken, there remains nothing but to melt the metal, and run it into the mold. This is done by means of the furnace above described, which is commonly made in the form of an oven, with three apertures, one to put in the wood, another for a vent, and a third to run the metal out at. From this last aperture, which is kept very close while the metal is in fusion, a small tube is laid, by which the molten metal is conveyed into a large earthen basin, over the mold, into the bottom of which all the large branches of the jets or casts, which are to convey the metal into the different parts of the mold are inserted.

Foundery of Bells.—The metal for casting bells, it is to be observed, is different from that employed for casting statues; there being no tin in the statue metal, whereas in the bell metal there is a fifth or more.

The dimensions of the core and the wax for bells, especially a chime, are not left to chance, but must be measured upon a scale, or diapason, which gives the height, the aperture, and the thickness necessary for the several tones required. It is on the wax that the several moldings and other ornaments and inscriptions, to be represented in relief on the outside of the bell, are to be formed. The clapper or tongue is not properly part of the bell, but is furnished from other hands. In Europe it is usually of iron, with a large knob at the extremity; and is suspended in the middle of the bell. In China a wooden mallet is used, which is struck by the hand against the bell; and hence the Chinese bells can have comparatively little resonance. The Chinese have a method of increasing the sound of their bells, by leaving a hole under the cannon; but this our bell-founders would reckon a defect.

The proportions of our bells differ very much from those of the Chinese. In ours, the modern proportions are, to make the diameter fifteen times the thickness of the brim, and the height twelve times. The parts of a bell are, first, the sounding bow, terminated by an inferior circle, which grows thinner and thinner; secondly, the brim, or that part of a bell whereon the clapper strikes, and which is thicker than the rest; thirdly, the outward sinking of the middle of the bell, or the point under which it grows wider to the brim; fourthly, the waist or furniture, and the part that grows wider and thicker quite to the brim; fifthly, the upper vase, or that part which is above the waist; sixthly, the pallet, which supports the staple of the clapper within; and, seventhly, the bent and hollowed branches of metal uniting with the cannons, to receive the iron keys, by which the bell is hung up to the beam, and which forms its support and counterpoise when rung out.

Fountain-tree, or **Til-tree**, a very extraordinary tree said to have existed formerly in the island of Hierro, one of the Canaries, and to have distilled water from its leaves in such abundance as to satisfy the requirements of those who lived near it. Whether such a tree ever existed is questionable; yet various writers have mentioned the fountain-tree of Hierro in apparently good faith. Glasse, in his *History of the Canary Islands*, published at London in 1764, alludes to it in the following terms:—"Many writers have made mention of this famous tree, some in such a manner as to make it appear miraculous; others, again, deny the existence of any such tree, among whom is Father Feyjoo, a modern Spanish author, in his *Teatro Critico*. But he, and those who agree with him in this matter, are as much mistaken as those who would make it appear to be miraculous. This is the only island of all the Canaries which I have not been in; but I have sailed with natives of Hierro, who, when questioned about the existence of this tree, answered in the affirmative."

Frankincense, or **Olibanum tree** (*Boswellia serrala*) is indigenous to the mountains of central India, where it is known under the name of *Sali*, and as producing the olibanum of commerce, or the gum frankincense of the ancients. It is a lofty tree, with the foliage crowded at the extremity of the branches, and is frequent in the forests between the Sone and Nangpur, from which circumstance it may be inferred that it would be adapted to the soil and climate, in favorable locations, in some of our southern States.

Olibanum distills from incisions made in the bark of the tree during the summer months, occurring in the form of semi-transparent masses, or tears, of a pale-yellowish or pink color, solid, hard, and brittle. It has a bitterish acrid taste, and, when chewed, sticks to the teeth, and renders the saliva milky. When heated, it burns brilliantly, and diffuses an agreeable odor, in consequence of which, in the early ages, it was much used as incense in the sacrifices, and, in modern times, the Greek and Roman Catholic churches still retain the use of frankincense, in some of their ceremonies. It is seldom employed for other puposes, except as a perfume in the rooms of the sick, although other gums bearing that name are in more general use, and are by many regarded as identical with it; for instance, Lamarck designates the gum of the Amyris gileadensis by this name; Forskal and Sprengel, that of the Amyris kataf; while Linnæus erroneously thus denominates the resin of the Juniperus lycia.—*Patent Office Report*, 1855.

Franc, a French coin of the value of 18 cents and six mills, by mint valuation.

France. This important part of continental Europe extends from the 43d to the 51st degree of north lat., and from long. 8° 25′ east, to long. 4° 43′ west. The greatest length of France, exceeding 665 miles, is from east to west—from Alsace to Brittany, which projects into the Atlantic like a wedge, and without which France would approach in form to a square. Its breadth from north to south is about 576 miles; and its superficial extent, as stated in the *Statistique de la France*, is 52,768,618 hectares, equal to 204,355 square miles, or 130,787,160 English acres—nearly twice the total area of the British Isles.

Though in point of extent of coast and ready access from the interior to the sea, France is far inferior to Great Britain and Ireland, she is, on the other hand, more fortunate in these respects than the vast inland territories of Austria and Russia. She has the advantage over these countries likewise in strength of natural barriers, the Pyrenees forming a great bulwark on the south-west, the Alps on the south-east, and the Jura and the Vosges Mountains on the east. The Belgian is the only open part of the frontier.

France enjoys, upon the whole, greater natural advantages than any other country in Europe. Her territory is above a half larger than that of Great Britain and Ireland, and both her soil and climate are better—the climate being less equable indeed, but there being a greater amount of summer heat to bring the fruits of the earth to perfection. She has a greater proportion of arable land than any of her neighbors; the natural means of communication throughout her provinces are abundant and easy; she is well provided with all the useful metals except tin; and is better supplied with coal than any other country of Europe, but Britain. Even during the distractions of her great Revolution, though her foreign trade was annihilated, her agriculture and manufactures were extended and improved, her population was increased, and its condition ameliorated. The surface of France contains about 130,000,000 of acres. It is estimated that, of this quantity, the waste land, including roads and rivers, amounts to an eighth part; the arable land to near a half; the wood-land and pasture-land and meadows, each, to about a seventh; the vineyards to a 25th part; wild-land, quarries, buildings, orchards gardens, olive, and other plantations, making up the remainder. In addition to the vegetable productions that grow in England, the climate of France enables her to raise vines, olives, mulberries, and chestnuts. Wine and olive oil are two of her most valuable productions. The cotton trade has been for some time rapidly extending over the northern and eastern provinces; and Lyons has been long famous as the centre of the silk trade of Europe, a branch of manufacture that has been brought to great perfection in that city. The manufactures of woolen cloth, flax, hemp, and iron, are also very extensive, and have been carefully fostered under the protective system, which still prevails here, as elsewhere on the Continent, notwithstanding the example which has been set by Great Britain. Toward the end of the 17th century, the territory of France, then equal, or very nearly equal, to its present extent, appears to have contained about 20,000,000 of inhabitants. In 1791, it was found to be above 26,000,000, and in 1851 nearly 36,000,000. The government always maintains a large standing army, amounting on the peace establishment to about 350,000 men, but actually in December, 1854, to 581,000. Her armed fleet on service is about equal in number of ships to that of Britain, with 62,000 men.

Surface.—The surface of France exhibits, in general, an advantageous succession of high and low ground. Less level than Poland, the north of Germany, or the greater part of European Russia, it is, on the whole, less mountainous than Spain or Italy, and may with great propriety be compared to England, with this distinction, that while in the latter, the mountainous tracts are in the north and west, in France they are in the south and east. Passing over lofty ridges which form the frontier line of France on the side of the Pyrenees, the Alps, the Jura, and the Vosges, and confining our attention to the interior, we find throughout Flanders, Picardy, Normandy, and the countries to the north and south of the Loire, a level tract, diversified occasionally by hills, either insulated or in succession, but by none of the massy elevations entitled to the name of mountains. These we do not meet until reaching the south of Champagne and north of Burgundy, near the sources of the Meuse, the Moselle, the Saône, and the Seine. From this bleak quarter (lat. 47° and 48°), a very long range of mountains proceeds from north to south in a direction parallel to the course, first of the Saône, and subsequently of the Rhône, until, on approaching the Mediterranean, they branch off to the south-west and join the Pyrenees. Their greatest height is in Auvergne (about lat. 45°), where this chain, or more properly a lateral branch of it attains, at the mountains called Cantal and Puy-de-Dôme, an elevation of fully 6355 feet, and has its highest ridge covered with snow during the greater part of the year. Another, but a much less lofty range, extends from Bordeaux to the south-east, a distance of 150 miles, until it reaches the Pyrenees. The smaller chains are numerous in the east and south-east of the kingdom—in Lorraine, the Nivernois, Dauphiné, Provence; also in part of the interior, particularly the Limousin and Guienne. They are interspersed with extensive plains, but, on the whole, the south and east of France are rugged and elevated tracts, and may be said to be to that counry what Wales and Scotland are to Great Britain.

Rivers.—The course of the great rivers is easily connected with this view of the surface of the territory of France. The Moselle, the Meuse, the Marne, the Aube, the Seine, the Yonne, taking their rise on the northern side of the mountain chain, between lat. 47° and 48°, flow all to the north or north-west, until reaching the sea or quitting the territory of France. From the southern slope of the same range proceed the Saône, the Doubs, and the Ain. These, along with many smaller streams, are all received by the Rhône, which flows almost due south, with a full and rapid current, until it reaches the Mediterranean. The Loire has much the longest course of any river in France. It rises to the southward of lat. 45°, flows in a northerly direction above 200 miles; turns, near Orléans, to the west; is joined by the Cher, Indre, and Vienne from the south, and, after receiving the Sarthe from the north, falls into the Atlantic below Nantes. The Garonne, a river of less length of course, but of a greater volume of water, descends from the French side of the Pyrenees, flows northward, and after receiving from these mountains a number of tributary streams, of which the chief is the Arriège, turns to the westward near Montauban (lat. 44°), and falls into the Atlantic after being augmented by the waters of the Tarn, Aveyron, Lot, and finally the Dordogne—all flowing from the western face of the mountains of Auvergne.

France has very few lakes, either in the mountainous districts of the south, or in the great levels of the north and west. It contains, however a number of maritime inlets, forming inland bays, and communicating with the sea only by a channel of greater or less width. These occur partly in the south-west coast, in Gascony; but more in the south and south-east, in Languedoc and Provence. Their want of depth prevents them from serving as roadsteads for shipping, and they are useful chiefly for fishing, or for the manufacture of bay-salt.

Forests.—France has much less of artificial or ornamental plantation than England, and much more of natural forest, the total extent of ground covered by wood being computed at 17,000,000 of acres, or one eighth of the territorial surface of the kingdom. Forests are found in almost every department. Lower Normandy contains several of considerable extent. There is a large one at Fontainebleau, only 45 miles from Paris; and a larger one to the north of the Loire, in the vicinity of Orléans. Those situated in the neighborhood of the sea, or of navigable rivers, or of great works, such as glass-houses and iron-founderies, have long been subjected to an improvident consumption, which is likely to be increased by the still heavy though reduced duties imposed on foreign coal, and by the undue encouragements given to the smelting of iron by the heavy duties which were, in 1814 and in 1822, laid on the importation of foreign iron; so that at present the principal forests are at a distance inland, particularly in the east, in the department of Ardennes, and in the long mountainous tract that forms the boundary of France on the side of Switzerland.

Climate.—In a country of so great extent, and of such diversified surface as France, it is difficult to condense a description of the climate under a few comprehensive heads. The most natural division is into the north, south, and central regions. The north, comprehending Flanders, Picardy, Normandy, Brittany, and in general all that part of France which would be bounded on the south by a diagonal line from lat. 47° on the west to lat. 49° on the east frontier, bears a great resemblance, both in temperature and produce, to the south of England, rain occurring frequently, and the country being consequently fit for pasture. There, as with us, the predominant culture is wheat, barley, oats, rye, and such fruit as apples, pears, cherries; also, hemp, flax, and rapeseed. It is here only in France, that the natural pastures are rich and extensive; here, also, the species of wood, oak, ash, elm, bear a close resemblance to ours. The central region may be said to comprehend the country to the south of the Loire, or rather of the diagonal line we have mentioned, until reaching a similar line in lat. 45° on the west and 47° on the east frontier. Here, with the exception of the mountainous parts, the winter is sensibly shorter and milder. Wheat, barley, oats, and rye, are still cultivated, but maize begins to appear, and vines become general. The weather in this great inland tract is much more steady than in the north. In the summer months there is little rain, and storms, when they occur, are frequently accompanied with hail; but, on the whole, the temperature is perhaps the most pleasant in France, being exempt equally from the oppressive heat of the south and the frequent humidity of the north. The third region, comprehending the whole breadth of the French territory from lat. 45° and 46′ to lat. 43°, and in some parts to 42° 30′, approaches in climate to the heat of Spain and Italy, rendering it necessary in the summer to suspend all active exertion during the middle of the day, and to reserve it for the morning and evening. A shaded situation is here the *desideratum* for a dwelling, and a supply of water for agriculture. In this region the heat invariably produces an exuberant crop where an irrigation can be supplied; hence the frequency of wells, which are generally worked by a wheel and some rude machinery. Wheat is partially cultivated; barley, oats, and rye, only on the high grounds; maize is very general, and vines supply not only the main article of export, but the usual drink of the inhabitants. The common fruits are olives and mulberries, and, in a few very warm situations, oranges and lemons. Pasturage is good only on mountainous or irrigated tracts. To pulmonic invalids the climate may be advantageous, but in this respect, also, material distinctions occur from locality, the winter in the south-east of France being at intervals very cold, from the *vent de bise*, a piercing wind that blows from the Alps and the mountains of Auvergne. Here, notwithstanding the latitude, the cold of winter is intense. Brittany, projecting into the Atlantic, is as rainy as Ireland or Cornwall. Normandy, with part of Picardy and French Flanders, may be compared to our inland counties. In the interior of France the rains are less frequent, but far more heavy; so that there is much less difference in the quantity of rain that falls in the course of the year than in the number of rainy days. The atmosphere of France is much less cloudy than that of Britain. The most frequent wind in the north of France, as in Great Britain and Ireland, is the south-west; it prevails, also, but to a less degree, in the central part of the kingdom. In the south of France the more common winds are from the north. The difference of temperature between London and Paris is not considerable, nor is the degree of heat found to be intense along the west coast of France, until reaching or rather passing Poitou. In the interior it is much more perceptible, being strongly felt at Lyons, Bordeaux, Toulouse, and still more in the latitude of Nîmes, Aix, Marseilles, and Toulon. On the whole, the variations of climate between the north and south of France are considerably greater than between the north and south of Britain, where the effect of difference of latitude is so much modified by the vicinity of the sea, and where no such variation is known as the very material one indicated by the diagonal line from east to west, the latter being two degrees colder in consequence of the breezes and vapors of the Atlantic.

The harvest begins in the north of France between the 20th and 25th July, in the central part about the middle of that month, in the south about the end of June. September and October are the months of vintage. The great hazard to the corn of the central part of the kingdom arises from violent storms of rain and hail; in the south, from the want of rain in the spring. In the winter, the *vent de bise* often proves destructive to the olives. The great heats are in July, August, and September; a time of much annoyance in the south of France, from musquitoes, gnats, flies, and other insects; while even scorpions are found in that warm latitude.

Soil.—To exhibit a classification of the different kinds of soil is a task of difficulty in any extensive country, and in none more so than in France, where a striking difference prevails, not only in contiguous departments, but in adjacent districts of the same department. In Flanders, Picardy, Artois, Normandy, and the Pays de Beauce, a fertile tract to the south of Paris, the soil consists frequently of a loamy mold; in the central and southern parts of the kingdom it is often lighter; while the greater part of Brittany, and of the departments along the western coast, have a heathy soil, naturally unproductive, but capable of considerable improvement. But these collective estimates are liable to great deductions; and the attempts made by Arthur Young, and other statistical writers, to calculate the proportion of the different descriptions of soil, whether loam, heath, chalk, gravel, or the like, are considered by the French as far from successful; even the more systematic effort made by their own government, in the beginning of this century, to compute the value of land by *masses de culture*, that is, by classing all kindred soils under one head, proved altogether abortive. We shall forbear, therefore, all such vague calculations, and proceed to state the value of annual produce in the different departments, endeavoring to cast the latter in lots, according to their position and relative productiveness.

Harbors, Rivers, Canals, Roads, Bridges.—In this important point France is considerably inferior to England, her long tract of coast washed by the Atlantic and the Bay of Biscay being indifferently provided with sea-ports, and those on the southern shore of the Channel forming a striking contrast to the spacious maritime inlets on the English side. To begin from the north-east, Dunkirk has a small harbor, but improved in the interior of the town, approached on the Dutch plan by a canal leading from the sea. Boulogne has a roadstead—which, however, has been much deepened and improved—indebted for its celebrity under Bonaparte to the facility of giving protection, by land batteries near its entrance, to a numerous assemblage of small craft. The port of Dieppe is exposed, and of course unsuitable for winter; that of St. Malo is better; while Cherbourg, on which immense sums have been expended, is now a port and arsenal of great utility and importance to the imperial navy. On doubling the projecting part of Brittany, we find, in the south-west of that province, L'Orient. Brittany also possesses Brest, the great maritime port of the Atlantic for the navy. Proceeding further to the south, we find Rochefort, at La Rochelle, a small but secure harbor, and at Bordeaux a river nearly equal in width to the Thames at London. From this there is no sea-port until we reach Bayonne, a place of no easy access. On the Mediterranean, France has the ports of Cette and Marseilles, the latter spacious and secure, and the great maritime port, arsenal, and dockyard of Toulon, which, with Cherbourg, Brest, L'Orient, Rochefort, and Toulon, are called, in ordinary parlance, *ports militaires*.

Nantes, though a large commercial town, adjoins a shallow part of the Loire, and vessels of burden are obliged to load and unload at Paimbœuf. The great dockyards and naval stations of the kingdom are at Brest and Toulon, both excellent harbors, and at Rochefort, which is situated on the River Charente, near its mouth. In all these the accommodation for shipping is the gift of nature; but at Cherbourg the case is very different, that port containing works, of which the labor and expense (see the article BREAKWATER, *Encyclo. Brit.*) have been very great. Its roadstead, extensive but open, has a sea-wall, affording protection from the swell of the sea; and its spacious dock, excavated since the beginning of this century, at an expense of £3,000,000 sterling, is capable of containing fifty sail of the line. Le Havre de Grace, the best mercantile harbor in the north of France, has also been formed at a large expense.

Inland Navigation.—The square form of France, favorable as it is for military defense, subjects the greater part of the country to the want of those ready and economical means of transport by sea which form the great physical advantage of Great Britain and Ireland. Unluckily, this want is very imperfectly supplied by the inland waters, canals being very little extended, and the navigation of the great rivers subject to many obstructions; occurring in one part from rapidity, in another from shallowness; at one season from drought, at another from overflow. The application of steam to navigation has corrected in part this most inconvenient tardiness; but the accommodation which is afforded by the Loire in the interior, the Rhône in the south, the Seine in the north, and the Garonne, with its Canal du Languedoc in the south-west, is but a small portion of what is furnished by our numerous intersections in England, or of what is wanted for so extensive a territory as that of France. The Canal of Languedoc, or the *Canal du Midi*, as it is now generally called, begun in the reign of Louis XIV. and completed in the year 1668, was the first example in Europe of inland navigation on a great scale. It is the most stupendous undertaking of the sort that has been executed in France. Its general breadth is sixty feet, its depth six and a half feet. It has 114 locks and sluices, and in its highest part it is 600 feet above the level of the sea. As a scientific work, it did honor to an age as yet little advanced in engineering; but in a pecuniary point of view it was unproductive, the tolls never having paid the interest of the very large sum (upward of £1,200,000 sterling) expended upon it.* The canal begins at Toulouse on the Garonne, remounts the valley of the Lhers, traverses the chain of the Monts Corbières, which joins the Cevennes to the Pyrenees, descends the valley of the Aude at Carcasonne, which it leaves at Ginestas to pass by Béziers, where it traverses the Rive d'Orb. Passing through Hérault above and near Agdet, it ends at l'Étang de Thau, at the place called le Port des Onglous. The navigation is however continued to the port of Cette by the canal of Cette, and thus the Atlantic and Mediterranean are united.

The canal of Briare is of earlier date, and of much less extent. The object here was to open a navigation from the Loire on the south to the Seine on the north, by a canal running almost due north, a distance of forty miles. It then receives from the west the canal of Orléans, commenced in 1675, and proceeding also from the Loire; after which the canal is continued to the north, under the name of Canal de l'Oing, till it reaches the Seine. This canal was begun in 1605, in the reign of Henri IV., and was completed in 1642, under Louis XIII. There are, besides this great work, several other important and extensive canals in France. The Canal du Centre unites the Saône and the Loire in the upper part of the course of the latter. It is 72 English miles in length, and was completed in 1791, at an expense of £456,000. Its summit level is about 240 feet above the level of the Loire at Digoin. It has 81 locks, 5½ feet of water, 48 of breadth at the water's edge, and 30 feet at the bottom. The Canal of St. Quentin, 28 English miles in length, was completed in 1810, but the navigation was far from perfect. In 1826 the necessary expenses to render the canal perfect were estimated at 4,000,000 francs. A concession of the canal was made to a Sieur Honorez in 1827, for a period of twenty years. On the 11th of July, 1847, the state entered into full and entire possession of the line which it had conceded. It joins the Scheldt and the Somme. The Canal of Besançon is extensive. It joins the Saône, and consequently the Rhône, to the Rhine. From the Saône it stretches a little above St. Jean de Losne, by Dôle, Besançon, and Mulhausen, to Strasbourg, a distance of 200 miles, where it joins the Rhine. The canal of Burgundy joins the Rhône to the Seine. This canal was opened along its whole line in December, 1832, by way of trial, and in the past year, 1854, it was completely opened. The canal of the Ourcq was dug, not for a commercial purpose, but to convey the water of that little river to Paris for the consumption of the inhabitants. At a village called La Villette, on the north side of Paris, there was some years ago excavated, at the cost of a million sterling, a basin, approaching in size to our London docks, and adapted, when the necessary canals shall be completed, for the deposit of merchandise brought from Havre and Rouen on the one side, and Flanders and Champagne on the other. In the south of France there is a short canal proceeding from the Rhône, near Tarascon, in a south-west direction, to the Mediterranean, called, from its vicinity to a well-known annual fair, *Canal du Beaucaire*. This canal traverses a great extent of marsh, which it has had the effect of draining. This water-way was opened to supply the imperfect navigation of the lesser Rhône, and of the two canals by which the communication from the Garonne to the Rhône was formerly carried on. These are among the chief canals of France. In the year 1836 there were seventy-four canals, having a total length of 3,699,913 metres, nearly equal to 2280 English miles. But since then large sums have been allocated by the state for canalization. In the fifteen years between the 12th July, 1837, and the 28th March, 1852, M. Ernest Grangez, chief-de-bureau at the ministry of commerce and public works, tells us that, for this purpose, extraordinary credits have been taken for 241,936,361 francs. Of this sum 227,695,500 francs had been expended on 31st December, 1853. In 1854, a credit of 8,000,000 francs had been granted.

---

* The cost of the canal was 17,000,000 francs, representing, according to M. Ernest Grangez (see *Precis Historique et Statisque des voies navigables*, p. 494), according to the present value of money, a sum of 30,000,000 francs.

The canalization of the Mayenne from Laval to Mayenne, of the Vire from the Pont de Gourfaleur to Vire, of Rheims to the Marne, of Bouc to Martigues, from Caen to the sea, from the Charente to Marennes, from La Rochelle to Marans, and from Saint Thébault to the lateral canal of the Loire, is in course of execution. But it is probable that this improved mode of communication may be superseded by the still greater improvement of the railroad, which had to a considerable degree engrossed the public attention in France. There are, however, obstacles to the progress of these improvements, arising partly from the mode of management adopted, and partly also from the high price of the materials required. All great works for the benefit of the community at large, such as canals, railroads, docks, and the like, are carried on at the expense, for the benefit, and under the control of the government. Plans and estimates must be made out and laid before the minister of the interior, who refers them to other public functionaries, namely, the prefect of the department, and afterward to the *bureau des ponts et des chaussées;* and when all these persons are satisfied, a public officer is then appointed to superintend the work. The tedious official routine, through which all public undertakings have to pass, tends to discourage individual enterprise, and accounts perhaps for the comparatively few works of this description which have been undertaken in France. The high price of iron, in consequence of the tax on foreign iron, has likewise operated as a great discouragement to the construction of railroads in France; and thus we have an additional illustration of the ruinous effects of this tax in obstructing the domestic improvements of the country.

Roads.—The great roads in France are managed, not, as with us, by county commissioners, but by government *bureaux*, or boards, the chief of which are at Paris. These boards are all under the direction of the minister of public works. The extent of road under their direction is about 30,000 miles; and the annual expenditure from £1,300,000 to £1,500,000, the whole of which is defrayed without one toll or turnpike. An attempt was made under Bonaparte to levy tolls; but this excited so much clamor in a country where commercial intercourse is carried on almost wholly by land-carriage, that it was found indispensable to seek the necessary funds from another source—a tax on salt. The great roads in France are in general in tolerable condition; but no epithet can convey an idea of the wretched state of the cross roads in almost every department; full of hollows, encumbered with stones, or inundated with water, they receive hardly any repair, but are abandoned, year after year, to the effects of the weather. Notwithstanding the little done by government to favor locomotion, the traffic on roads increased tenfold in the thirty years between 1811 and 1841.

The great roads in France are much wider than in England, exhibiting frequently a long straight avenue lined on each side with chestnut or other large trees. Roads in France are classed under three categories—imperial roads 14 metres in breadth, departmental roads about 11 metres broad, and the *chemins vicinaux.* They are often paved like a street for many miles in succession; the art of road-making being as yet too little understood to prevent material injury from the heavy wagons and ill-constructed wheels, without resorting to this unpleasant alternative. Traveling is thus much less agreeable than in England, particularly as the villages want neatness and cheerfulness, while most of the towns along the road are disfigured by narrow crooked streets, in which new stone buildings are often mixed with antiquated wooden structures, such as have disappeared from our provincial towns for nearly a century past. The mails are now conveyed as with us by the railroad, but where there is no rail, in a kind of chariot called a *malle-poste.* The diligences, though somewhat improved in structure, are still clumsy and lumbering.

Railroads.—During the twenty years between 1828 and the 24th February, 1848, the railroad conceded to private companies in France amounted to 2237 miles. The revolution of February put a sudden stop to all enterprises of this kind. There was not a single concession made in 1848, 1849, or 1850. Indeed, some companies, unable to carry on the work confided to them, were either sequestrated or taken possession of by the state. The concession of the line from Paris to Rheims was made on the 16th July, 1851, of the line round Paris on the 11th December, 1851, of the line from Paris to Lyons, 5th January, 1852, of the line from Lyons to Avignon, 3d January, 1852. These and other concessions in 1852 added 2050 miles to the extent of rail. In 1853 the progress continued, and concessions to the extent of 1326 miles were granted. The year 1854 has been consecrated to the execution of the works, and more than 372 miles have been opened between the 1st January and the 31st December, 1854. At the breaking out of the February revolution, the concessions for railways amounted to 2237 miles; in 1854 they amounted to more than 6214 miles. At the end of 1855, 3728 miles additional were opened to the public. The length of lines conceded and executed have thus increased threefold in the space of a few years. About £80,000,000 have been expended on these enterprises. The credit required in the budget of 1856 for railways is equal to that of 1855—namely, 55,435,999 francs. At present (1855) the branch rail from Strasbourg to Rheims, from Bec d'Allier to Clermont, with a branch to Nevers, from St. Germain des Fossés to Roanne, from Mons to Laval, from Marseilles to Toulon, from Caen to Cherbourg, from Bordeaux to Bayonne, and from Narbonne to Perpignan, are in course of construction. Some of these lines are to be opened this year, some in 1857, and some in 1858.

RAILWAY RETURNS.

			Eng. Miles.
1853..	Value received,	32,634,856 fr.	Length, 2,478
1854..	"	40,145,632	" 2,554

Bridges.—The French have few cast-iron bridges, all their great structures of this description being of stone. Of these, the chief are the bridges over the Loire at Orléans, Tours, and Nantes; those on a smaller scale over the Seine at Paris; and those over the Saône and Rhône at Lyons. The Pont du St Esprit above Orange, over the Rhône, is a long structure of 16 arches. At no great distance from it is the Pont du Gard, one of the most entire, stupendous, and beautiful monuments of Roman architecture, composed of a triple tier of arches, erected for the purpose of conducting an aqueduct over the river Gardon. This magnificent structure is 157 feet in height, 530 feet in length at the bottom, and 872 at the top. Of the lately-erected bridges in France, the most remarkable are those over the Seine at Neuilly near Paris, and over the Oise at St. Maixent, with two of larger dimensions, viz., one over the Garonne at Bordeaux, the other over the Seine at Rouen. Bridges, as well as roads, and all other means of intercommunication are under the direction of the minister of public works; a special school for the formation of engineers of bridges and roads is established at Paris. The territory of France is divided into 16 inspectorships of *ponts et chaussées.* The telegraphic communications are principally made by means of the electric telegraph, of which the government reserves to itself a monopoly, but private persons are allowed to avail themselves of it.

Agriculture.—The agriculture of France is in a very different state from that of England or Scotland, being marked by a degree of backwardness not a little surprising in a country so far advanced in many departments of art and science. The causes of this, however, are not of difficult explanation. France enjoyed for scarcely more than 38 years, *i. e.*, from 1814 to 1848, the advantage of a representative body; and the condition of the peasantry was long far inferior to that of the same class in England. No ecclesiastical reformation had taken place to remove a valuable part of the national territory out of the hands of indolent life occupants; and the *grands seigneurs*, the other great body of landholders, devoted their attention to Paris and Versailles, without bestowing a thought on their lands or their tenantry, except to extract from them the means of defraying their expenses in the capital. To this was added a system of taxation, less heavy, indeed, than that to which we are subjected in England, but extremely crude and impolitic, as evinced in the *gabelle*, or tax on salt used in private families, and in the *corvée*, or obligation on the peasantry to labor on the high roads. To these were joined the humiliating enactments of the game-laws, and the more substantial injury of tithes; for the clerical body in France levied this pernicious assessment as in England, though possessing in property, lands of the computed rent of five millions sterling.

Another great drawback on French agriculture was the insignificant size of the occupancies, whether held as farms or as property. A French agriculturist on a small scale has little idea of selling his paternal acres, and converting the amount into a capital for a farm. He is much more likely to go on as the proprietor of eight or ten acres of land, and the cultivator of as many more. The mode of paying rent was equally singular; money rents were general only in the north or most fertile parts of France; they did not, on the whole, exist in more than a fifth or sixth of the kingdom before the Revolution. A more frequent species of tenure was by a grant made under the reservation of a fine, of a quitrent, or of certain servitudes, of which the least burdensome were sending corn to the mill, or grapes to the press, of the proprietor. But of all indications of poverty and backwardness, the most striking was the system of *métaire* (rent in kind); a practice by which a tenant, having little capital of his own, receives from the proprietor the live stock and implements necessary for cultivating his petty tenure, and divides with him its produce. This wretched method was and still is common, not indeed in the north and north-east of France, but in many of the poorer districts of the centre and south. There are, it is to be remarked, several distinctions in this system; the landholder, in some parts, providing only half the cattle and seed, and in others the whole. There is, of course, a corresponding difference in the apportionment of the produce.

Effects of the Revolution.—*La Révolution a été faite pour le cultivateur* is a common saying in France. Indeed, that great convulsion improved so much the situation of the agriculturists, by canceling, at one decisive blow, the tithes, the game-laws, the *corvée*, and other relics of feudal servitude, that, after all the horrors of Jacobinism, and all the tyranny of Bonaparte, a strong attachment to the Revolution survives among this pacific class. Further, the sale of the church lands transferred a valuable mass of property from indolent into active hands. But with this must terminate the eulogy on the Revolution, the further progress made by agriculture, having been caused less by any political change, than by the gradual effect of experience, and the diffusion of information. The degree of agricultural improvement in France since the first Revolution has certainly been less than in England and Scotland, and in one very material point that memorable convulsion has tended to retard it; we mean by the law suggested by a jealousy of the ascendency of the *noblesse*, which obliges the owner of property, whether in land or money, to make an almost equal division of it among his children. The parent of two children has the free disposal of only one third of his property, and the parent of three children of only one fourth, the residue being shared equally among all. The claim of primogeniture is thus in a manner annulled; and a law which is apparently wise and equitable, proves the source of great injury to agriculture, by multiplying the petty plots of land throughout a country where they were previously far too numerous.

The following table, taken from official documents published by M. Duchâtel, exhibits in hectares the physical and agricultural division of the French territory, which has not materially changed within the last 20 years.

	Hectares.		Hectares.
Cultivable land...	25,559,152	Ground occupied by buildings....	241,542
Meadows.........	4,834,621	Roads, paths, places, etc	1,215,115
Vineyards........	2,134,822	Rivers, lakes, and brooks.........	454,365
Woods............	7,422,314	Forests and unproductive domains	1,209,432
Orchards and gardens............	643,699	Cemeteries, churches, and public establishments..........	17,774
Willow and elm plantations, etc.	64,489		
Pools and watering places......	209,431		
Downs, pastures, and heaths.....	7,799,671		
Navigable canals.	1,631		
Diverse cultures..	951,934	Total.........	52,762,693

(Acres, 130,772,475.)

STATEMENT OF THE AREA OF FRANCE, DISTINGUISHING APPROXIMATELY THE VARIOUS KINDS OF SOIL OF WHICH THE SURFACE IS COMPOSED.

Mountainous country...............	4,268,750	Sandy soil........	5,951,377
Heathy ditto, or landes	5,676,188	Soil of clay.......	2,232,885
Soil of rich molds..	7,276,368	Marshy and swampy soil....	284,445
Soil of chalk or limestone.......	9,788,197	Soil of various kinds	7,284,242
Soil of gravel......	3,417,893		Hectares, 52,762,693
Stony soil.........	6,612,343	(Acres, 130,772,475.)	

The surprising proportion of land in France under tillage is owing to the smallness of the occupancies, the cheapness of labor, and the general use of bread instead of animal food by the humbler orders. The last is connected with another remarkable circumstance; the very slender proportion of land under pasture, of which the main cause is the dry climate of the southern and central part of the kingdom. In the proportion of poor and unproductive land France and England are nearly on a par, but the French incur a very heavy disadvantage by using wood instead of coal for fuel, and covering with forests many tracts which might be made available for either pasture or tillage. All France in 1840 gave 13·14 hectolitres per hectare. The total value of cereals in 1813 was 1,780,478,000 fr., or 9387 fr. per hectare, or 59 fr. per head. In 1840 (which was the last account) it was calculated at 2,565,238,000, at 18,900 fr. per hectare, or 77 per head, In 1840 there were 5,586,787 hectares in wheat. In England 2,130,900 hectares. The wheat product in 1840 was 6·07 for 1. In England it is 9 for 1. The total value in the United Kingdom, 978,500,000 fr. at 25 fr.; in France, 1,400,000,000 fr. at 20 fr. the hectolitre. The arable land of France in 1840 was 22,240,090 hectares. The value of the cereals, fallows, and artificial meadows in France reaches 2,351,518,907 fr., and their mean value 106 fr. per hectare. The vines in 1840 covered 1,972,340 hectares. The total return of French cultivation in agriculture reaches:

	Francs.
Cultivated ground, to the value of.....	5,092,116,220
Pasturage, etc...........................	646,794,905
Woods and forests......................	283,258,325
Total.........................	6,022,169,450

In order to present this subject more fully, we add the following condensed tables of primary and secondary crops throughout France in the year 1853:

PRIMARY CROPS IN 1853.

	Acres cultivated.	Crop, Qrs. per acre.	Value.	Total production.
Potatoes...	2,278,320	35·90	£3·462	£7,995,833·3
Wheat.....	13,805,748	4·28	3·125	43,858,333·3
Spelt......	11,696	9·89	2·709	31,948,750·0
Meslin.....	2,251,044	4·46	2·505	5,783,333·3
Buckwheat	1,609,311	4·78	1·492	2.414,583·3
Rye........	6,368,862	3·71	1·823	11,716,666·6
Barley.....	2,936,186	4·67	1·833	5,462,500·0
Oats.......	7,414,996	5·43	1·593	11,954,166·6
Maize......	1,561,089	4·02	1.799	2,850,000·0
Total....	38,237,252	....	....	£123,984,166·4

SECONDARY IMPROVED CROPS IN 1853.

Productions.	Acres.	Qrs. per acre.	Value per acre.	Total production.
Vine land......	4,873,934	2·56	£3·363	£18,960,416
Gardens........	891.332	....	6·975	6,214,583
Pulse..........	733,745	1·60	2·773	2,058,333
Mangel-wurtzel	142.493	36·18	7·957	1,147,916
Hops..........	2,043	·144	18·861	39,583
Rape..........	468,751	1·80	4·706	2,018,750
Hemp..........	435,288	1·35	7·755	1,425,000
Hemp-seed....	....			
Flax...........	242,768	1·05	9·768	2,256,250
Flax-seed......	....			
Madder........	36.262	87·60	10·080	356,250
Tobacco.......	19.658	94·84	10·913	197.916
Olives.........	312.599	24·76	2·850	870,833
Chestnuts......	1,125,326	4·08	·470	554,166
Pasture Meads.	14.277.564	18·95	1·624	25,729,166
Total........	23 561,771	....	....	£61,829,162

NETT RETURN OF LAND IN FRANCE, RECKONED BY THE ENGLISH ACRE, AND CALCULATED FROM OFFICIAL SURVEYS.

	s.	d.
Tillage (average of poor and fertile soils)......	11	0
Vines..	37	0
Meadow land..................................	37	0
Natural pasturage, chiefly mountainous.......	3	6
Woods..	7	6
Chestnut plantations.........................	7	6
Orchards.....................................	15	0
Kitchen garden...............................	45	0
Various kinds of culture, viz., nurseries, hop-grounds, olive-grounds, etc.............	18	6
General average of all France, per English acre	9	1

We proceed to add a few remarks on French agriculture, with reference to articles less known or less generally raised in England. Buckwheat is cultivated extensively in Brittany, Normandy, and the north of France, partly as green food for cattle, partly for the diet of the peasantry; it is generally sown in June and reaped in the end of September. Wheat and meslin are principally cultivated in the north, but the produce of the south, though less abundant, is generally preferred. Barley and oats are also more common in the north. Rye is raised pretty equally in all parts of France. Rape-seed is very general in French Flanders and Normandy; it supplies oil for the market and food for cattle, either when green or in cakes. Colza (coleseed) is raised for the same purposes. Tobacco would be generally cultivated in France, were it not monopolized for the benefit of the State; hence its cultivation is confined to certain licensed districts, which are chiefly in Alsace and Picardy. The quality of the article produced under the royal monopoly is greatly inferior to that produced by private cultivators abroad, while the price being 400 per cent. higher, the latter is smuggled into France in great quantities, notwithstanding all attempts to prevent it. Flax is raised very generally, not merely in French Flanders, Alsace, and Normandy, but in the provinces of the west and south, where the family of almost every peasant rears a little stock annually to be spun by his wife and daughters. Hops are almost exclusively grown in those parts of France bordering on Belgium. Hemp also is raised in many parts of France, particularly in the north. Maize is a plant of great importance, whether for the food of man or of cattle; when intended to stand for harvest, it is planted in rows with very little seed, and yields more than twice the quantity of wheat that would be produced on the same space. During its growth the leaves are stripped regularly for the food of cattle; and in some districts it is sown thick and mown merely for that purpose. Maize and millet are chiefly grown in the south and south-east. Such valuable substitutes have, as yet, prevented turnips from being generally introduced into France. Even potatoes were long very little known, and it is only during the last half century that the dislike to this tuber has disappeared. Potatoes are more cultivated in the east than in any other district. Chestnuts are most common in the central part of France, where they supply no inconsiderable portion of the food of the peasantry. In the south the fruits are chiefly olives, almonds, mulberries, figs, and prunes; oranges are partially cultivated in the south-eastern extremity of the kingdom, on the verge of Italy, but with great uncertainty, for a severe winter is fatal to these trees, and in some measure also to the olives.

Irrigation is little understood in the north of France, but in the south the want of frequent rain renders it a primary object of attention; it in fact determines the *ratio* of productiveness, since the warmth of the sun seldom fails to ripen whatever has received an adequate supply of moisture. According to M. Becquerel, there has been a progressive annual increase in the number of hectolitres produced since 1813. There has been a very decided progress in agricultural improvement in every part of France, but notably in the west and south-west. The increase in productiveness in all manner of grains is estimated at 2,141,217 hectolitres.

The culture of the vine extends more or less over fully the half of France, beginning as far north as Champagne, and spreading over the country to the south and the west. This culture is, however, very limited in Champagne, and even in Burgundy; in Provence, and the lower part of Languedoc, the climate is warmer, and the culture general, though not managed with such skill as along the banks of the Garonne, where the spirit of improvement is excited by a demand for foreign markets. As vines succeed in light and unproductive soils, their culture gives a value to much ground which would otherwise be useless; and the petty subdivisions of land are here less injurious than in the case of corn. From the great variety of soil and climate, the quality of French wines is very various. The amount produced has been considerably increased since 1790, as well from the division of many large estates, as from the quantity of waste land which has been brought into culture. It is, however, remarked by M. Moreau de Jonnès (*Statistique de l'Agriculture de France*, 1848) that the consumption of wine in France has remained stationary since 1791, and that the quantity consumed by each individual is not more than it was half a century ago. Considering the increase of wealth and population, M. Jonnès calculates that the consumption should have increased 50 per cent. It is computed that nearly 5,000,000 acres of land are planted with vines, and that the value of the annual produce is from £28,000,000 to £30,000,000, of which about a tenth or twelfth part only is exported. It is very difficult to say to what extent the vine disease and the excision of vine branches in consequence thereof, has affected the production of wine either in quantity or quality. It has unquestionably had the effect of raising the price of the finer wines from 25 to 35 per cent., and of raising the price of brandy, during the last two years, nearly 300 per cent.

QUANTITY OF WINE PRODUCED IN FRANCE DURING THE FOLLOWING SEVEN YEARS, IN IMPERIAL GALLONS.

	Imp. Galls.		Imp. Galls.
1848......	1,135,687,344	1852........	626,793,222
1849......	782,214,686	1853........	498,557,774
1850......	983,786,166	1854........	287,877,118
1851......	867,343,038		

Average annual produce before the oïdium appeared, 924,000,000 gallons, worth £22,516,220 sterling.

NUMBER OF IMPERIAL GALLONS OF WINE DISTILLED DURING THE FOLLOWING SEVEN YEARS INTO SPIRIT OF WINE AND BRANDY, THE PROPORTIONS BEING ABOUT TWO THIRDS SPIRIT OF WINE AND ONE THIRD BRANDY.

	WINE. Imp. Galls.	SPIRIT. Imp. Galls.
1848	151,800,000	19,800,000
1849	206,800,000	24,200,000
1850	178,200,000	23,100,000
1851	215,600,000	28,600,000
1852	211,200,000	27,500,000
1853	110,000,000	13,420,000
1854	92,400,000	11,990,000

The exports of wine and brandy from France for the following four years, are as follows:

	WINE. Imp. Galls.		BRANDY. Imp. Galls.
1851	50,149,078	1851	....
1852	53,991,190	1852	7,438,448
1853	44,130,438	1853	5,898,794
1854	28,808,912	1854	3,412,442

It is a curious fact that the effect of the *oïdium* or vine disease has for the last few years caused an importation of foreign wine into France for home consumption. The following is an account of the imports of foreign wine and spirits into France for the years 1852–4:

	WINE. Imp. Galls.		SPIRITS. Imp. Galls.
1852	76,494	1852	285,978
1853	98,494	1853	280,302
1854	2,670,580	1854	1,388,458

It will be observed, that the import immensely increased during the last year, owing to the large quantities used for the supply of the French army in the Crimea.

Of the spirits in the above table, 802,019 gallons were rum imported from England.

A quantity equal to about a sixth of the wine is made into brandy, for brandy is distilled wherever vines are grown; and of it also the best in quality is in the vicinity of the Garonne. This important and staple branch of French industry has been very seriously injured by the prohibitory system of custom-house laws, which were extended and increased in rigor during the reigns of Louis XVIII. and Charles X., and were not much mitigated during the 18 years' reign of Louis Philippe. Many of the leading statesmen of France still evince a most mistaken partiality to the prohibitive system. France, by excluding the produce of other nations, virtually deprives, or greatly limits, by the same laws, the reception of her own produce into foreign countries. It is clear that they must pay for the wines of France with their own produce, which, if France refuse to receive, they have no other equivalent to give her in return; they must procure an equivalent from foreign countries, and the effect of this is to restrict the trade, by raising the price of French wines. Accordingly, it appears that while France exported to England from 16,000 to 20,000 tuns of wine when the population was only 5,000,000, this supply had fallen off, partly owing to the heavy duties imposed in Great Britain, and partly to the prohibitory duties imposed in France on British produce, to 1,800 tuns, while the population of the country had in the mean time greatly increased; a melancholy illustration of the effects of that illiberal policy which pretends to improve commerce by prohibiting the free intercourse of commercial countries.

France is the largest producer of beet sugar in the world. The origin of the manufacture must be traced from the year 1807, but 40 years elapsed before the manufacturer of this article was enabled to cope successfully with colonial sugars. From France the culture spread through the different countries of Europe, even into the interior of Russia; and it is calculated that there is now produced of this kind of sugar on the Continent of Europe not less than 360,000,000 pounds, nearly one half of which is manufactured in France. In the vicinity of Lille, the average yield of the sugar is 16 tons per acre, and at Valenciennes, 19 tons; in some localities 25 tons are produced. The annual manufacture of sugar is about 40,000 tons, and the non-crystallized matter extracted from the lees and dregs, furnishes enormous quantities of sweetening matter to breweries, and also to the wine-doctors and wine-falsifiers of Cette and the Gironde. Nor is this the only use to which beet is turned, as a large quantity of spirit is distilled from it.

The minuteness of the *Cadastral* survey has led to official calculations in France of products which have not yet engaged the attention of other governments. Madder is cultivated on a small scale, partly in the north, partly in the south of France; its chief use is in dyeing woolens and cottons. Woad is used for yellow and green colors; saffron, cultivated formerly to a great extent, is now confined to one district (the Gatinois) in the south of France; hops are raised only in Picardy and French Flanders.

Subjoined are the values of the following articles produced annually in France:

Wine	£23,000,000
Raw silk	600,000
Hemp	1,200,000
Flax	800,000
Madder	200,000
Wood for fuel, and timber of all kinds	5,600,000
Olive-oil, rape-seed, and cole-seed	2,800,000
Tobacco	300,000
Chestnuts	300,000
Totals, 1854	£34,800,000

Of the pasturage ground of France, occupying one eighth of its territory, the chief part is in Normandy, Brittany, and other humid quarters of the north and west. In the south, the natural pasture is confined to particular districts, chiefly mountainous; in the low grounds, the grass, whether natural or sown, is brought forward only by means of irrigation. Clover and sainfoin are cultivated in France, but chiefly in the north and north-east; lucerne is much more general, being raised not merely in the north, but in the central and southern provinces, wherever irrigation is practicable and the soil and climate are favorable. The art of improving cattle by breeding is little understood in France, nor is there much judgment shown in gradually fattening them by a removal to richer pastures. Still the beef and mutton of the north and west are very good, more especially what is called the près sallé mutton, *i. e.*, sheep fed on the salt marshes. Their price varies from province to province, but very seldom from year to year; the general rate was 30 per cent. less than in England, but within the last four or five years the price of meat has risen much in France, and closely approximates to the price in England. Butter is made and used throughout the chief part of France, as in England, but cheese comparatively little. In the south, however, even butter is little known, and its place in cooking is supplied by olive-oil, which is largely used throughout southern Europe. One of the latest novelties in French pasturage is the introduction, in 1819, of a large flock of Cashmere goats, which were sent to browse in the eastern Pyrenees, and are said to experience but little inconvenience from the change of climate.

Horses.—In the number of horses, as well as in their size and beauty, France is greatly inferior to this country. In the performance of labor, however, the inferiority is much less conspicuous; large, old-fashioned carriages, drawn by four or six horses, are seen proceeding along a paved road much more easily than we should anticipate from the weight of the vehicle, the knotted harness, and the diminutive size of the animals. The same observation is applicable to the plows, the carts, and the wagons of France, which are awkwardly built, but all dragged on with expedition, the strength of the horses surpassing the promise of their appearance. A French diligence, in the provinces in which such carriages still run, performs only five miles an hour; but this is owing less to inferiority in the horses than to the state of the roads, and to the general want of dispatch at post-houses. Of the aggregate of horses in France, more than half belong to the northern provinces—Normandy, Brittany, Picardy, Alsace, and the Isle of France. In the central and southern departments a great proportion of the work is done by oxen, which are more suitable to petty farms and mountainous districts.

Sheep.—Sheep are reared in almost every province of France, the gentle elevations of the north and the mountains of the south being alike favorable to them. The mutton is good; but in the art of improving the fleece, the French have as yet much to learn. Merinoes were first brought from Spain in 1787, and formed into a royal flock at Rambouillet. The consumption of meat in the country then was small, and consequently the first desire was to improve the wool. The quality, originally good, has been progressively improved, and distributions of Merinoes have been successively made to proprietors of sheep pastures in all parts of the kingdom. The consequence has been, that in many districts the weight of the fleece has been nearly doubled. The sheep-farming of France appears just now to be in a transition state; its *past* history offers many points of instructive deduction, while from its future we may expect very beneficial results. These imported sheep were used for crossing with the native breeds, to which but little attention had been paid either as regarded the carcass or the fleece. As time advanced, these crossed breeds increased with varied success; in some districts the wool produce was permanently improved by continuing to introduce pure blood; in others it was found more advantageous to develop the physical organization of the animal. The result has been that, notwithstanding the laudable endeavors of the flock-masters to obtain a breed associating both weight and quality of wool with the production of meat, that end has not been satisfactorily obtained; the flocks still remain in an intermediate condition, neither producing the fine quality of wool of the Saxon, nor the weighty fleece or carcass of the English sheep. To encourage the rearing of sheep, a duty of 20 per cent. was in 1822 laid on foreign wool.

Mules.—Mules are almost as little known in the north of France as in England; but in the central and southern parts they are very generally reared. Poultry, in France, are both larger in size and more abundant than in England, more especially in Normandy and the department of La Sarthe.

VALUE OF PRODUCTIONS OF THE SOIL AT DIFFERENT EPOCHS.

Years.	Inhabitants.	Francs.	Francs per head.
1700........	19,700,000	1,500,000,000	77
1760........	21,000,000	1,526,000,000	73
1788........	24,000,000	2,031,233,000	85
1813........	30,000,000	3,336,971,000	118
1840........	35,540,000	6,022,169,000	180

with the domestic animals, 7,502,905,000 and 224.

Even in the north and north-east of France, the farms are of small extent. To occupy 200 acres, or to pay a rent of £200 a year, places one in the foremost rank of farmers. Larger possessions are common in pasture districts, that department of agriculture admitting, in France, as in England, of a greater concentration of capital and extension of business than in the case of tillage. But such districts are rare; and in by far the greater part of France the farms under tillage are of fifty, forty, thirty, and often as small as twenty, or even ten acres, there being, it is computed, no fewer than three millions of such occupancies in the kingdom. In the south of France the system of *métairie* (paying rent in kind) is still prevalent, and nearly on the same footing as in Lombardy and Tuscany. That such insignificant occupancies are adverse to all enlarged ideas of farming, is sufficiently obvious; and to their many disadvantages there can only be opposed this single benefit, that no spot of tolerable soil is neglected, even the space given by us to hedges being reserved for culture.

The beneficial effect of long leases is as little understood in France as it still unfortunately is in a great part of England. The common method is to let land for periods of three, six, or nine years. The peasantry, though illiterate, are not slow or phlegmatic. They exhibit, as Frenchmen in general do, no small share of intelligence, of sprightliness, and of activity in the individual, with very little concert or combination in the mass. They are content to hand down the family occupancy from father to son, without any idea of altering their mode of life. The dwellings of the farmers, and still more of the cottagers, are like those of our forefathers half a century ago; the outside having frequently a pool of water in its vicinity, while the inside is miserably bare of furniture. In the comparative trials that were made at the French Exhibition of 1855, the superior character of the English agricultural implements over those of France was made very evident—in none, perhaps, more, than in the plowing trials, when the dynometer showed that while it required only a force equal to 17·01 to turn over a certain quantity of earth in a certain time with the best English plow, it required a force of more than 27 to do the same with the best French one. The diet of the French peasantry is exceedingly simple. Bread and cider, with soup, peas, cabbage, or other vegetables, form its chief ingredients in the northern provinces; while in the central and southern ones the same aliments are in use, with the substitution of thin wine (*vin du pays*) for cider, and of chestnuts for the pears and apples of the north. Butcher-meat is reserved for the tables of the middle and upper classes.

The landholders in France give little or no attention to beautifying the country; its aspect is consequently monotonous, without plantations, seats, or cheerful cottages. The peasantry live in villages, frequently ill built and inconveniently situated. The purchase of land, however, is the favorite mode of investing money in France. It sells, in general, for twenty-five years' purchase; while the public funds seldom fetch above sixteen or eighteen. There is at Paris a society similar to the Board of Agriculture in England, and, forming, like it, a central point for corresponding with the different agricultural societies in the kingdom. It holds its sittings twice a month, and a public meeting annually for the distribution of prizes. The French have also (since 1819) a corn law, permitting imports and exports only when the home market shall be above or below a specific rate. The chief difficulty the French government have to contend with in regard to the corn trade, is the popular prejudice that freedom of export raises the home price.

Timber.—Of the 18,350,093 acres which are covered with wood, in 1836, there belonged to government 2,547,800 acres, which were divided into 1473 forests. A very small part of this is allowed to grow into large timber. The rest is subject to an annual cutting and sale, for fuel; coal being very little used in France, except for forges, glass-houses, and other large works. In the government forests gross mismanagement took place during the disorders of the first Revolution. Extensive tracts were sold for an insignificant consideration, while in those that remained timber was felled with a lavish hand, and without any regard to the ultimate effect on these valuable properties. In 1801, however, a special board, appointed for the care of the forests, introduced the most beneficial regulations. In the years of financial pressure (1815, 1816, and 1817), it was proposed to effect sales of these great domains; but a fair price being unattainable, government continues to keep them. During the monarchy the revenue derived from the wood annually cut and sold amounted to £700,000 or £800,000 sterling.

The administration of the forests is (1855) placed under the direction of the minister of finance. The French territory, comprising Algeria, is divided into 30 *arrondissements forestiers*, at the head of which is placed a *conservateur* who corresponds with the administration, and who has under his orders a number of inspectors and sub-inspectors. Under these are the *gardes généraux*. Every one employed in the forests must be twenty-five years of age, but this provision may be dispensed with if the employé be a pupil of the *Ecole Forestière*. There are (1855) 32 *conservateurs*, 200 *inspecteurs*, 100 *sous inspecteurs*, and 500 *gardes généraux* of forests in France.

Fuel being comparatively little wanted in the south of France, the forests are confined to remote and rugged situations. These, like most of the forests of the kingdom, harbor a multitude of wolves, which are frequently destructive to the sheep and lambs. Regular officers, called *lieutenants de louvetrie*, are appointed for wooded districts; and on occasions of heavy loss, recourse is had to a general *battue*, which seldom results in any sensible reduction of the number of wolves. Bears also are found in the forests; but they are much more rare, being confined to the elevated districts in the Alps and Pyrenees.

Mines and Quarries.—France yields in this essential article of produce, not only to Britain, but to Germany, to Russia, to Sweden, and to Hungary. According to the most approved works recently published, the mines of France may be classed into five groups, namely, the mines of the Vosges and the Black Forest; those of the central provinces of France; those of Brittany; those of the Pyrenees; and those of the Alps. It is not many years since the mines of the Vosges yielded above 30,000 cwt. of lead, and a small quantity of silver, besides copper mixed with silver. The produce did not, it is probable, repay the expense, as they have since been abandoned. There are now a very few copper mines in the Vosges. In the central part of France there are numerous mines of lead, but they are not productive. They are chiefly situated in the department of La Lozere; and they yield annually, along with the lead, 1600 marcs of silver. The only metallic mines of any consequence in Brittany now are the three great mines of *galère argentifère* of Poullaouen and Huelgōet; and there is one mine of what is called in the divisional nomenclature of the minister of commerce and public works, *plomb argentifère*. In the chain of the Pyrenees there is only one mine of copper, which has long since been abandoned. There are, however, numerous iron mines, which furnish materials for more than 100 forges. The chain of the Alps contains many mines of iron, but is not rich in other metals; it possesses some unproductive mines of lead, and one of silver, which has long been abandoned. There are some appearances of gold in the department of the Isère, but not such as to encourage any trial of their value. If there are few other mines, those of iron are in great abundance, being thirty-eight in number, scattered throughout the country, and of these the produce is every day improving. The whole value of the metallic produce of France was estimated in 1828 to be equal to £3,199,595. The number of mines was estimated in October, 1854, at 824, viz., 448 of coal, 177 of iron, 199 of other substances; and the number of workmen they employed in 1851, at 33,634. (*Travaux Statistiques des Mines de* 1847 *à* 1852. Imprimèrie Imperiale, Octobre, 1854.) The working of mines is impeded in France by the want of good roads and canals by which to convey the ore and the coal for smelting it. The production of iron has been encouraged by the heavy duties on foreign iron. In 1814 a duty was imposed of fifteen francs per fifty kilogrammes, or 12s. 6d. per 110 lbs. imperial, on all foreign iron imported, which was, in 1822, including the decime or the tenth added to all duties, raised to £1 2s. 11d. on all coal-worked foreign iron. But this prohibition did not bring prosperity to the trade, though by these duties the price of iron in France was £23 9s. 2d. per ton, while English iron was sold at £9 6s. 8d. It is estimated that these heavy duties on foreign iron cost the agriculturists of France, in the additional expense of plows and other implements of agriculture, a sum varying from £1,500,000 to £2,000,000 a year. (See *First Report on the Commercial Relations between France and Great Britain*, p. 28.) Estimating the annual consumption of iron in France to be 160,000 tons, and the difference of price between French and English iron to be £10 per ton, the law of 1814, which imposed a duty on foreign iron, and the law of 1822 which increased that duty, can not have cost the French people less than £30,000,000 sterling of direct loss; while it is scarcely possible to calculate the indirect evil of this monopoly or protecting duty in favor of the iron-masters. One reason of the high price of French iron is the want of coal, an evil which is aggravated by the heavy duty on foreign coal in consequence of which the French are compelled to employ wood in their forges; and it is calculated that one fourth part of the wood cut down in the forests is consumed in the manufacture of iron. Coal has been discovered in more than half the departments of the kingdom (in forty-five departments), and would doubtless be traced in others; but the want of water communication limits the consumption of this article almost to the place where it is produced. In a report to the present Emperor of the French in 1854, by the minister of commerce and public works, that functionary attributes the high price of native coal in France not to the method of working the mines, or to the insufficiency of the machinery, but to the want of better intercommunication both by land and water. (*Resumé des Travaux Statistiques des Mines de* 1847 *jusqu'a* 1852.) It is a fact that more than half the departments that consume the coal of the Loire pay for it a price four, five, and six times higher than it costs at the mouth of the pit. (*Rapport addressé à l'Empereur par le Ministre ou department de l'Agriculture et du Commerce*, 1854.) One fifth part of the coal consumed in France is used in the department Du Nord. At St. Etienne, near Lyons, are excellent coal mines; but there being no iron mines in the vicinity, nor of course iron-works, there is no consumption of fuel on a large scale. The coal is only used for domestic fuel, and for the manufacture of hardware. M. Costaz, in an estimate contained in his work on the agriculture and commerce of France, makes the coal produced in France to amount to 15,310,687 metrical quintals; the value of which he estimated at between £700,000 and £800,000. The quantity of coal imported from Great Britain amounted in 1831 to 40,000 tons, though subject to a heavy duty of one franc sixty-seven centimes per hundred kilogrammes, or 1s. 4½d. per 220 lbs. imperial; and there were imported from Belgium, the duty being thirty-three centimes per hundred kilogrammes, 440,000 tons. The importation of coal in 1853 rose to 2,824,555 tons, of iron (*fonte brute*), to 73,689 tons. In December, 1853, the importation of iron went on increasing. The heavy duty on coal operates most injuriously on the industry of France. It is a most serious impediment to the working of the iron mines, for the encouragement of which such heavy duties are imposed on foreign iron. But such is always the effect of the prohibitory system. It pulls down with one hand what it builds up with another. The iron-masters and the coal-owners have each a monopoly of the home market. But is it not clear that these two monopolies run counter to each other, and that the iron trade is encouraged by the one, while it is most seriously discouraged by the other, and the whole inhabitants of France are taxed in a much higher price for fuel by the heavy duty laid on the importation of this useful article? Steamboat navigation is also discouraged, so that no steamboats ply regularly between any of the Atlantic ports of France. A steamboat which in England could be navigable at an expense of £2280 for coal, would cost in France £5700, about 18 per cent. on the capital employed. It is the owners of forest property who are the most zealous supporters of this duty, an impost which benefits them at the expense of the whole of France, and indirectly depresses the national commerce and industry in its most important branches. For many years only a small portion of Paris was lighted with gas, which is ascribed to the high price of iron pipes; and the supply of water is also impeded by the same cause. (An imperial decree of the 22d November, 1853, materially reduces the customs duties on the importation of coal and iron. Coal paid with the *décime* 55 centimes per 100 kilogrammes upon the greater part of the French frontier from the Sables d' Olonne to Dunkirk; upon the remaining portion of the frontier it paid 33 centimes, by the land frontier, except in certain places, by the Meuse, and in the department of the Moselle. Henceforth the great zone from the Sables d'Olonne, and from that by land to Helluin, is to have but one duty—amounting to 33 francs for French, and to 88 francs for foreign vessels. The rest of the maritime frontier is assimilated to the principal part of the land frontier. A double duty to that levied on coal was charged on coke. Henceforth coke is only to pay a half beyond what is levied on coal. As to iron, from the 1st of January, 1855, there is no distinction between iron smelted by coal or wood. The *fonte brute* is to pay 4 francs 40 centimes the larger bars, 11 francs the smaller bars, and steel 33 francs. Rails for railroads are to pay 132 francs. The greatest reduction is on steel.) The mines, like other large undertakings in France, are under the direction of government, being superintended by a board at Paris (*Conseil Général*), and having an *Ecole Imperiale* with public teachers, the whole under the control of the minister of the home department. This, however, does not prevent their machinery being in general very clumsy and antiquated.

Turf fit for fuel, or peat, is found in various parts of France, and will be more used as wood becomes progressively scarcer. This article is produced in the departments of Gard, Isère, the Lower Rhine, the Somme, Pas de Calais, Loire-Inferieure, l'Isere, Seine-et-Oise, Oise, Aisne, Doubs, Marne. The cutting and preparation of turf is computed to occupy the labor of from 50,000 to 55,000 workmen on an average of 40 days. The greatest turf-producing department in France is La Somme.

Salt is made in various parts of the kingdom. The works corresponding to the salt mines, or rather to the brine springs of Cheshire, are called, from their position, *Salines de l'Est*, and are situated in the small town of Salins in Franche Comté; they are wrought by undertakers on lease, yield about 20,000 tons a year, and afford a considerable revenue to government. The heat of the climate on the south and south-west coast of France is favorable to the evaporation of salt water, and consequently to the formation of bay salt, the name given to salt made, not by the action of fire, but by the heat of the sun, operating on sea water inclosed in a shallow bay. The duty raised from salt in France is nearly £2,000,000, a sum of great importance to the treasury, but attended with fully as much injury to the productive powers of France as was formerly our salt tax to those of England. Since 1848 the *droits* on salt have been reduced two thirds. The first Revolution began by abolishing entirely the odious *gabelle;* and salt being soon afterward made in great quantities, and sold very cheap, became the object of a most extensive consumption, being given to cattle as food, mixed with manure on the fields, or scattered as a stimulant to vegetation at the foot of olive-trees. But this extended use of salt was of short duration. No sooner was the power of Bonaparte consolidated, than he ventured to impose a tax on salt, less impolitic and oppressive indeed than the *gabelle*, but which had the effect of limiting the use of this article to such a degree, that the value of bay salt consumed, instead of amounting to £1,000,000, did not in 1836 exceed £100,000. It was thought that a considerable increase in the consumption of salt would take place from the year 1849. There has no doubt been a certain increase, but it has in no degree corresponded with the diminution of the duty.

In 1847 the quantity of salt produced was 350,210,300 kilogrammes; in 1848, 465,435,700; in 1849, 479,438,400; in 1850, 495,183,900; in 1851, 599,175,200; but in 1852 the quantity produced fell to 428,037,600 kilogrammes. The price of the metrical quintal of salt in 1847 was 3 francs 47 cen. In 1851 it fell to 1 franc 66 cen. The amount of salt produced from all the salt mines and saline sources in France in 1852 was 724,002 metrical quintals, valued at 2,865,556 francs. The consumption is confined to domestic purposes, and to a trifling export; yet the few cattle which still receive salt as a part of their food are visibly in better condition than those that are deprived of it.

France is in general much better supplied with quarries than England. The vicinity of Paris abounds in quarries of freestone. The case is similar in the mountainous districts, and even in several, such as Lower Normandy, that are comparatively level. The houses are consequently built of stone in those cities which, like Paris or Caen, are in the vicinity of quarries.

Fine variegated marbles are quarried at Campan, in the Upper Pyrenees. It appears from official documents published by the government that in the year 1846 there were 22,000 quarries in course of working, which employed 75,396 workmen. The value of the material sent into the market was 41,047,519 francs. In 1849, 86,379 persons were employed in quarrying; and in 1850, 87,486.

Manufactures.—Our historical notices of French manufactures are very imperfect until toward the year 1600, when the wars of religion were brought to a close, and peaceful industry received encouragement from Henri IV. and his minister Sully; a minister, however, who had a horror of luxury of all kinds, and who was much more favorably disposed to agriculture than to manufactures. It was under the "*roi vaillant*," however, that the patronage of government was extended to the manufacture of silk, glass, jewelry, gold and silver tissues; also of the finer woolens and linens, the coarser kinds having been established many centuries before. But the great extension of the finer manufactures of France took place after 1668, during the reign of Louis XIV., and the ministry of Colbert. It was then that workmen were invited from Genoa, Venice, and Holland, and induced to settle at Sedan and Abbeville, places still celebrated for their woolens. In the south of France also establishments were formed for making the light cloth suited to the Turkey market; so that toward the year 1700 the manufactures of France, as well of woolens as of other articles, had made considerable progress. Cloth serges were improved under Colbert, and *point de Gènes* and *point de Venise* introduced. In 1656, stocking-weaving, which had been introduced into France from England by two manufacturers of Nîmes, was extended and improved. The manual labor of the French workmen was ingenious, the machinery extremely imperfect. The linen, the paper, and in some measure the woolens and hardware, found their way abroad, because in the rest of Europe these manufactures were very backward, and, in particular, because the exports of England were then very limited. The repeal of the Edict of Nantes was a very impolitic measure, but its consequences have been overrated, for England has profited very little by the extension of her silk fabrics; and Brandenburg, the chief resort of the French emigrants, has never become an exporting manufacturing country. Another and a more important error is the current notion that French manufactures were formerly (from 1650 to 1750) more extensive and flourishing than at present, also that they underwent an almost total extinction during the Revolution. These, like many other impressions in regard to France, rest on mere loose allegations. Official *data*, far from sanctioning such fluctuations, are decidedly in favor of a progressive though slow increase.

Woolens.—To begin with the oldest and most widely diffused branch, woolens, we find that the relative numbers of workmen at three distinct intervals, and in very different parts of the country, were as follows, viz.:

	1789.	1800.	1812.	1840.
Carcassonne	....	8,000	9,000	7,000
Limoux, Chalabre, etc.	4,400	4,500	6,200	5,000
Clermont, Hérault	....	....	....	4,500
Lodève, Hérault	....	....	....	8,000
St. Afrique, Aveyron, etc.	6,700	8,500	10,000	7,500
Chateuroux	....	....	....	2,000
Roubaix, Nord	alternately in wool and cotton.			30,000
Elbœuf	"	"	"	25,000
Louviers	"	"	"	6,500
Sedan, Ardennes	"	"	"	11,500

Lisieu, also, in the north, had nearly the same number of workmen (5000) throughout. The finest qualities of black woolens are made at Sedan, in Ardennes, and at Louviers, in Normandy. In these the only material is merino wool. At Elbœuf and Darnetal, and in Normandy, the qualities are very various, the price being from 6s. to 28s. the English yard. Carcassone and Limoux owed the origin of their extensive manufactures to the abundant supply of wool from the pastures in the Pyrenees. Since the reduction of their exports to the Levant, an alteration in the quality of their cloths has opened to them a market in the interior of France. The mountainous districts in Languedoc contain great numbers of sheep, and are the seat of the manufacture of serges, tricots, and other coarse woolens, most of which are made, not by workmen collected in a factory, but in the hamlets or villages of the departments of the Tarn and Aveyron. Almost every house has its loom; and during the evenings in winter, or in the daytime when the weather is adverse to country labor, the women employ themselves in spinning, and the men in weaving. A highly finished species of the woolen manufacture, viz., shawls, vails, ladies' cloth, etc., has been introduced in the present age into France. Rheims is the seat of this important branch, and employs in the town and neighborhood no less than 20,000 workmen. Similar articles are made at Paris. The bounties granted on *fils et tissus de laine* in 1852 amounted to 7,500,000 francs.

Shawls.—Shawls became fashionable in France as an indispensable article of female apparel after the expedition of Bonaparte to Egypt. The first lady in France who wore one (in 1801) was Madame Gaudin, the beautiful Duchess of Gaeta, a Greek by birth, whose husband was then a high functionary. Many of the officers who were attached to the army brought back presents of shawls, and they were imported in great quantities from Constantinople, Moscow, Vienna, and London. These shawls, however, brought an enormous price when imported into France, which necessarily limited their consumption to the richer classes. The great demand turned the attention of manufacturers to this important article; attempts were made to imitate the Cashmeres, and specimens were exhibited at the *Exposition* of 1801. Ordinary shawls are now made of merino and other wools. But this was only a step in the progress of the manufacture; and a finer species of wool having been imported from the countries to the north of the Caspian Sea, the ingenious manufacturers with these materials at last produced shawls which rivaled in beauty those of the East, and in which it required the most practiced and skillful eye to discern any difference. In 1819 M. Jaubert proceeded on the part of the shawl manufacturer, Ternaux, to the countries between the Black Sea and the Caspian to buy a numerous flock of Astracan goats, for the purpose of using the wool for shawl-making. The speculation was a complete failure; and the French government, which was interested in it, lost 300,000 francs.

Two towns very remote from each other, Lodève in the south and Vire in the north-west of France, manufactured, under Bonaparte, very largely for the army. French woolens are, in general, much thicker than ours. In the fine qualities the raw material forms (Chaptal, vol. ii., p. 131) somewhat more than half the cost. In ordinary qualities it is somewhat less; but it is only in the slight qualities that the price of labor goes considerably beyond that of the materials. The computation for the whole country is, that a value of £4,000,000 sterling in wool becomes converted into a manufactured value of £9,000,000, of which a tenth only is exported. The cloth in France which corresponds to our superfine, and which is worn in general by the upper ranks, is very fine and durable, but heavy, with the exception of the superfine black. The price of the cloths produced at Sedan varies according to a graduated scale, from 15 to 50 francs the yard, and of kerseymeres from 7 to 24 francs. The duty on foreign wool has been very injurious to the French woolen manufacturers; because, by compelling the French to pay a high price for the raw material, it prevented them manufacturing woolen cloth as cheaply as their English competitors, to whom the foreign market, where the raw material had now fallen to a low price, was open.

WOOL AND WOOLENS IMPORTED INTO FRANCE.

	Kilogrammes.			Francs.
1820...	4,912,000	Consumption	in value	8,351,000
1830...	7,214,000	"	"	12,872,000
1835...	14,845,000	"	"	34,219,000
1840...	13,456,000	"	"	29,987,000

Belgium, Spain, Germany, Turkey, Barbary, Algiers, and England send wool to France. The exportation of woolen goods in 1839 reached 60,600,000 francs. In 1838 the exportation was 2,578,487 kilogrammes, valued at 65,823,346 francs. The wool produced in France amounts to 20,350,000 kilogrammes of fine wool; 20,000,000 of common; total, 44,350,000—about half that of England.

The wool imported from England in 1853 was 21,537 quintals, in value 9,481,836 francs, and the cloth 231,419 kilogrammes, valued at 5,795,332 francs. The worsted or thread was 19,630 kilogrammes, valued at 385,844 francs. The importation of the Thibet fur or hair was in value in 1839 3,576,480 francs, but has since declined to 2,058,920 francs. This material is spun in Paris, employing 500 or 600 persons. The wool of France is of an inferior quality. Its annual value averages about 120,000,000 francs, being 60,000,000 kilogrammes. There are 5,500,000 sheep of a superior breed, Saxons, Merinoes, and those imported from England; and 24,000,000 of indigenous race. Since 1829 the French sheep have increased nine per cent. The manufacture of merinoes and bombazines employs 17,000 hands: 6000 are employed at Amiens in the manufacture of alèpines, and about 36,000 pieces are made there, about a third of which are exported. The bonneterie in wool employs 15,000 workmen, 800,000 kilogrammes of colored wool, worth 8,000,000 francs, and returns 17,500,000 francs in manufactured goods. Coverlets are made at Rheims, Rouen, Beauvais, Lille, Lyon, Orléans, and at Sommières (Gard). This fabric is valued at 20,000,000 francs, and employs 10,000 hands, besides auxiliary assistance to the extent of 25,000 more.

Carpets.—Carpets are made to the annual value of 3,500,000 francs, the larger part at Aubusson and Felletin, two towns in the department of the Creuse, employing 1800 hands, and producing goods to the value of 1,500,000. Carpets are also made at Abbeville, at Amiens, Turcoing, and Besançon. The finest and richest velveted carpets, called "de Savonnerie," are made at Beauvais, and at the Gobelins in Paris. These are only made to order, and are not articles of traffic. The exports of woolen goods reach on an average the sum of 65,600,000 or 66,000,000 francs, consuming 2,578,487 kilogrammes of wool. They consist of coverlets, carpets, cloth, cassimeres, and merinoes, varied stuffs, shawls woven or made by hand, bonneterie, ribbon of worsted, and similar light goods, and stuffs of mingled materials. Machinery has been used for spinning wool in place of the hand only since 1809. Rheims is the great centre of French wool-spinning, it being situated in that part of the country where sheep are most numerous. There are at Rheims 275 establishments for spinning carded wool, and nearly 55,000 spindles, or 60 establishments for combed wool. The number of workmen is 50,000. France annually exports woolen yarn to the value of 2,000,000 francs and upward. Neapolitan flannels, English flannels or "bolivars," circassiens, lastings, cloths, cassimeres, merinoes, mousseline-de-laine, cuir-de-laine, made at Cartres first in 1819, and poplins, are noted manufactures.

Cotton.—The cotton manufacture was introduced into Amiens in 1773, the raw material being supplied, not from America, but from the Levant, with machines procured from England. In 1784 a privilege was conferred on an inhabitant of Seine and Oise for a manufactory; and soon afterward the manufacture passed to Rouen, St. Quentin, Paris, Lille, and other parts in the north, extending with a rapidity surpassed only by that of England. At present, as for many years past, the great import of cotton is from the United States. In this great department of manufacture the French have only followed in the footsteps of Great Britain, whose machinery, after the lapse of a certain time, the French manufacturers have imitated; and though they have equaled the British manufacture in durability, they have generally been inferior in cheapness. This is, in a great measure, owing to the centre of the manufacture being at Rouen and Paris, places where the support of workmen, including the extra price of fuel, is not less expensive than in Lancashire. The districts most remarkable for the cotton manufacture are Alsace and Normandy. The manufacture of *cotton velvet* was begun at Amiens so early as 1765; and in 1784 M. Martin of Amiens obtained, under the title of "the first importer from England of machines invented there for spinning cotton," the authority to establish a cotton factory, with special privileges. Nîmes is celebrated for its fine but not very durable cotton stockings. There are also manufactories of *bonneterie de cotton* at Besançon, Vitry, Bar le Duc, etc.

The cotton manufacture is prosecuted in many parts of France, and presents a great variety of fabrics and an extensive division of labor. In one place the weaving alone is followed; in other places the manufacture of threads, which are sold to those who weave them into cloth. Such is the case in the department Du Nord, which exports a great quantity of thread to the cloth manufacturers. In other places they bleach the linens, which are afterward dressed and stamped. The workmen employed in the cotton manufacture were estimated 20 years ago at 260,000, and they now amount to 355,000. Still, however, France is decidedly inferior to Great Britain in almost every branch of the cotton manufacture; and the consequence is, that as the importation of English cotton goods is prohibited, they are smuggled into the country in great quantities. Among these, the introduction of cotton twist is most extensive; and as the French mills can not manufacture the higher numbers, from 170 to 200, which are required in the fabrication of bobbinet, it has been found impossible to repress the contraband importation of this article. "It makes its way," say the writers of the Report on the Commercial Relations between Great Britain and France, "both by land and sea, in spite of all interdictions, and to a continually increasing amount." The English can be sold also at half the price of the French article, which presents an additional inducement to the smuggler. The annual value of the manufactures thus illicitly introduced was estimated in 1833 at £500,000 sterling; but smuggling has been reduced more than a fourth since that time. It is difficult to estimate the amount introduced, but very experienced persons in the trade doubt if it much exceeds £250,000. English bobbinet was also smuggled 20 years ago into France to the estimated annual value of £625,000 sterling; but it is questionable whether the amount of illicit traffic now amounts to £300,000, though English bobbinet sells at from seven to eight per cent. above the price of French goods of the same nominal quality. Quiltings, cambrics, and muslins are also largely introduced by the illicit traders; and the delivery of these goods is insured at a premium of from 18 to 50 per cent., according as the risk is greater or less in the case of heavy or of light goods. In 1852, 1,760,000 francs were paid in bounties on *fils et tissus de coton.* The average wages of men employed in the cotton trade is 2 francs 50 per centimes per day; of women 1 franc 20 centimes; children are paid 50 centimes. The value of the cotton fabrics of Normandy is 105,000,000 francs, that of Alsace 80,000,000 francs. In the last district 70,000 hands are employed in weaving; from 12,000 to 15,000 in printing; and 1000 in the bleaching grounds. In Normandy and vicinity, including a part of the Somme, Pas de Calais, Aisne, Eure, and Manche, 129,000 hands are employed, namely, 60,000 weavers for the Rouennerie, 20,000 for the calicoes, and 49,000 in other divisions of the labor. Alsace produces principally cotton cloths for printing, and exports a part into Switzerland. The number of pieces of printed cotton and muslins made is calculated at 1,100,000, valued at 40,000,000 francs. They are of three kinds and prices, but are unable to cope in cheapness with the English. Tulles, at first made only in Normandy, are now manufactured wherever cotton fabrics are made; to the extent of 32,725,000 francs, of which 20,000,000 francs is the cost of the embroidery. The most important of this branch of the manufacture is carried on at and near Calais, where from 600 to 700 looms, and 4800 men, women, and children, are in constant employment. The manufactures of muslins are most in arrears of all, owing to the fineness of the thread required, which is not yet made in France, but imported for the purpose. Tarare is the seat of this manufacture, valued at 20,000,000 francs. These muslins are generally embroidered. Blonds and lace are made at Caen, Bayeux, and above all, at Chantilly (Oise) where 70,000 persons are employed. Cotton *bonneterie* is made at Troyes to the value of 7,000,000 francs, employing 10,000 looms, and from 10,000 to 12,000 hands.

In 1803 the import of cotton wool had reached 10,711,665 kilogrammes, and in 1820 had doubled that amount. The cost of the raw material in France, and its manufacture, are enhanced by the expense of fuel and carriage. The profits, deducting all outlay and wear and tear of machinery, and making allowance for every expense, are considered to be about 30,000,000 francs. It appears, that prior to the legal permission to import cotton thread free, when above No. 143, not less than 5,000,000 kilogrammes were smuggled, when the duty was from 70 to 80 francs the kilogramme. This traffic has not yet ceased. The spinners number from 80,000 to 90,000, and the mean wages of adults and children are 1 franc 50 centimes per head, who attend to 3,500,000 spindles. No. 132 of the French thread corresponds to 120 of the English, because of the difference between the English pound weight and the French demi-kilogramme. In the year 1806 the utmost degree of fineness attained in cotton thread was

No. 110. In the year 1809 it had reached No. 150. In general the French thread remains much below the English, but it continually improves. No. 180, which in France sells at 39 francs or 40 francs, costs in England only 18 francs. In the Seine Inférieure, at Rouen, and vicinity, there are about 1,000,000 of spindles at work. In the arrondissement of Lisle 600,000 are worked by 82 steam-engines, of 850 horse-power in all. St. Quentin works 210,000 spindles with 200 horse-power of steam, besides water-power. The spinning in Alsace employs 18,000 persons of all ages. The dyeing of cotton occupies 87 establishments at Rouen and its vicinity alone. The principal part of the weaving takes place in Normandy, Alsace, Amiens, St. Quentin, and Troyes. The looms are above 270,000, and employ 385,000 hands, the mean of whose wages is 75 centimes per day. Many of the looms there are worked by hand. The principal products are calicoes for printing.

In the departments of the Seine Inférieure, Somme, Pas de Calais, Aisne, Eure, and La Manche, the spinners, weavers, dyers, muslin fabricators, machinists, cardmakers, amount to 107,000. The individuals connected with the manufacture in other ways, the whole comprising 150,000 families, carry the total number concerned up to 400,000. Of the workmen immediately designated, the number is 107,000, employed thus:—

Spinners	21,000
Machinists	5,000
Loom weavers	65,000
Dyers	5,000
Muslin fabricants	9,000
Cardmakers and others	2,000
Total	107,000

In Alsace, including the Haut and Bas Rhin, the Vosges, the Meurthe, Haute Saone, and Doubs, above 100,000 persons are employed:

Spinners	17,000—18,000
Loom weavers	70,000
Printers	12,000—15,000
Bleachers	1,000
Total	104,000

The principal places for the manufacture of yarn in Alsace are Mulhausen, Wesseiling, St. Mary aux Mines, and Guebwiller. In the other parts of France the principal are St. Quentin, Rouen, Caen, Amiens, Bar le Duc, Lille, Roubaix, Turcoing, Lyons, Paris, Darnetal, Bolbec, Troyes, Gisors, etc. The yarn made in the Seine Inférieure exceeds the whole made in Alsace. In the departments of the Somme, Pas de Calais, Aisne, Eure, and Manche, there are 60,000 weavers of *Rouennerie*, 20,000 of calico, and 49,000 in the other branches of the manufacture.

Linens.—In the extent of her linen manufacture, France is greatly superior to England; not that her soil is better adapted to the growth of hemp and flax, but because England depends on importations of linen from Ireland and Germany, and the spinning of flax does not form the occupation of our female peasantry. In France, particularly in the north, every farmer, and almost every cottager, covers a little spot with hemp or flax to employ his wife and daughters in spinning throughout the year; a stock of linen being the usual dowry of these humble occupants of the soil. The manufacture of this article is not exclusively concentrated in the towns, like that of the other fabrics: many of the weavers reside in villages and hamlets; and the hemp and the flax are spun by the hand. This is a most valuable branch of domestic industry, which gives employment to females under the roof of their parents; but it is destined, in the progress of capital and industry, to be superseded by machinery and great establishments. In Normandy, Lisieux, Dieppe, the neighborhood of Havre, Yvetot, Bolbec, and the more inland towns of Vimoirtiers and Domfront, are all remarkable for one or more branches of the linen manufacture. The more backward province of Brittany manufactures, at Rennes, St. Malo, and Vitré, quantities of coarse linen, canvas, and sacking; but Anjou affords a much superior article; the *toiles de Laval* have long been in repute, and gave employment, in Laval and the contiguous towns, to nearly 25,000 workmen. Lille and its populous district have very extensive manufactures of hemp and flax; for the number of workmen so employed, directly or indirectly, in this part of French Flanders, is not short of 50,000. Since 1790, fine linen has, in France as in England, been in a great measure replaced by fine cotton; and the two together employ, at St. Quentin (in Picardy) and the neighborhood, more than 30,000 workmen. In another part of the kingdom, the province of Dauphiné, there are carried on linen manufactures of various qualities, the prices being from 1 franc 10 centimes to 5 francs the yard. The value of the linen manufacture of France of every kind is no less than 525,000,000 francs. The raw material grown in France is valued at 30,941,840 francs for the hemp, and 19,000,000 francs for the flax. The hemp imported, and the thread together, give 35,699,003 francs value. About 1,000,000 francs is the worth of the flax imported. Total, 20,000,000 francs. The manufacture gives:

	Francs.
For the hemp	107,097,009
" flax	75,000,000
A total of	182,097,009

The manufactures of hemp and linen employ 600,000 workmen. The exports of linen, principally to England, were, in 1840, nearly 6,167,731 kilogrammes. The manufacture has doubled since the first Revolution. Lille, Dunkirk, Essonne, Pont Remy, Bellais, Vernon, and Alençon, are noted places for their linen manufacture. Normandy sends to Paris* annually 20,000 pieces of linen. The linens of Brittany are mostly consumed at home. The fine linen cloths called *toiles de mulquinerie* are principally made in the departments of the Aisne and Nord. St. Quentin was once noted for them; now that town, Cambray, Valenciennes, and Solesmes, produce cloths so fine, called *batiste* and *linon*, that 70,000 pieces are exported to England. The beautiful batist embroidery employs 13,000 persons at Nancy. *Coutils*, a cotton cloth crossed with thread of linen, are woven in the department of Mayenne, where 4500 looms are employed upon this article. French linen differs in quality according to the place of manufacture; but in general it is thicker and stiffer than Irish linen, while in whiteness it is inferior to the linen of Flanders and Holland. It is, however, a substantial and durable article. Cambrics, thread, gauze, and lawn, rank among the leading manufactures of the north-east part of France. They are made at St. Quentin, Valenciennes, Cambray, and to a smaller extent at Douai, Chauney, and Guise. Lace is still more general, being made in quantities at Valenciennes, Dieppe, Alençon, Caen, Bayeux, and Argentau. Machinery had, up to 1820, been very little applied to this manufacture in France, and the number of women employed in it was very great. There are considerable manufactures of printed linens; and the dyeing of linen thread gives rise to an extensive commerce. At Rouen, and in the surrounding districts, this branch of industry is carried on; and many stuffs of great variety, and for which there is a brisk demand, are produced. In 1822 the duties on foreign thread and linen were raised by the French government till they were nearly prohibitory; and the annual importation from Germany and Belgium, which formerly amounted to a million and a half, almost entirely ceased. The price of home-made linen rose 25 and 30 per cent.; the consumers had recourse to cotton as a substitute; the French dyeing trade fell off, and also the entrepôt trade in foreign linens, both of them sources of great business.

The value of the hemp annually grown in France may be computed at £1,200,000, the quantity imported at £200,000; together £1,400,000; a value which is doubled in the coarse manufactures, and tripled in the finer. Of this quantity of hemp, the half is made into canvas and thread, a third into cordage, and the remainder into cloth for domestic use. Of the flax annually employed, the value is about £800,000; a sum which is tripled when it is made up into thread, linen, and mixed stuffs, and much more than tripled in the finer qualities.

Iron.—France had in 1855 about 569 furnaces, of which more than 300 are said to be blast-furnaces. It is, however, almost impossible to ascertain the exact number of blast-furnaces, the position of which is regulated by that of the iron mines. They are chiefly in the mountainous departments of the Dordogne in the south-west, and of the Haute Marne, the Haute Saône, and the Côte de'Or, in the east of the kingdom. Of forges for malleable iron, called *forges à la Catalane*, there are eighty-six scattered throughout different departments, but chiefly in the hilly part of Languedoc. There are also a number of wire-works in France, in which, as in the blast-furnaces, there has been since 1790 a progressive but very slow increase, altogether different from the rapid advance of the iron-works of England previously to 1815.

The stationary character of these works has evidently been owing to the deficiency of fuel and of water communication; disadvantages which prevent the hardware manufactures from being concentrated in cities or populous districts, and cause them to be spread over the country in petty towns or villages, with a very limited division of labor, and a consequent inferiority of execution. The result is, that France does not export hardware, and that in nothing is the inferiority of domestic accommodation in that country more conspicuous than in articles which belong to the province of the locksmith and cutler. The amount of pig-iron annually made in France appears to be about 100,000 tons. The value of the hardware of the kingdom, including cutlery, arms, and other articles of nice workmanship, is computed at £8,000,000 or £9,000,000 sterling. Fine cutlery in former times was largely smuggled into France, but now to a much smaller extent. The annual import of iron and steel is only from £2,000,000 to £3,000,000. The high price of iron is a great obstruction to the progress of the hardware manufactures; and this circumstance places in a strong light the impolicy of the heavy duties on foreign iron, by which, notwithstanding the change in the scale of duty in 1838, all those important branches of industry in which iron is used are stunted in their growth. In copper, the importations greatly exceed the home produce. From Great Britain the quantity imported for the last ten years has increased from 200 to 20,000 hundred weight. Of lead, also, the chief part is imported. The manufacture of steel has only been lately introduced into France. Prior to 1786 there was no manufactory of this useful article; and it was only after accounts had been published by scientific persons of the composition of that article, and after repeated experiments, that in 1809 manufactories of steel were established, which have been since extended to several departments, especially to those of the Loire.

Silk.—As regards silk, France possesses, both from physical causes and from the long-established manufacture, a decided superiority. Mulberry-trees were introduced in the fifteenth century, and were first planted, not in the south, but in the central part of the kingdom, near Tours. That town was the seat of the earliest silk manufactures, and it was not till 1600 that the culture of the mulberry was carried southward.

The mulberry thrives in a variety of soils, and may be planted with success in neglected borders or in waste lands.

The manufacture of silk is considered as an important branch of French industry, not only on account of the variety and beauty of the fabrics, but because the raw material is an indigenous product of the country. It was estimated* 20 years ago that the amount of the annual sales to foreigners was 30,000,000 fr.; that the home consumption of the kingdom amounts to £3,333,334; and that the whole annual value of the silk manufacture was equal to £4,598,889. The manufacture of silk is not confined to any particular spot. It is carried on in different parts of the country, in all of which it diffuses prosperity. It has enriched the poor of Nîmes, of Avignon, and of Tours. St. Chamond and St. Etienne owe a great part of their prosperity to the manufacture of ribbons, and the town of Ganges to bonneterie. Paris derives immense profits from her manufacture of silk stockings, and other fabrics, either of silk with a mixture of silk, or of wool and cotton. Silk is also the great staple manufacture of Lyons, in which it is carried on in all its branches with astonishing success; and since the Revolution, in addition to fabrics of silk, all sorts of stuffs mixed with silk, and with cotton and wool, have been manufactured; and to these manufactures Lyons is indebted for its riches, having risen not only to be the second town in France, but one of the most opulent and flourishing cities in the world. It was 20 years ago estimated that about 60,000 or 70,000 individuals, young and old, were supported by the silk manufacture in Lyons and the adjacent district; but the number has increased 25 per cent. since 1835. The dyeing of silk being an important branch of the manufacture, many experiments were made to bring it to perfection; and, in particular, a dye of perfect black that would retain its color was a desideratum. This dye was invented by a common dyer at Lyons, who received a pension, beside being made a member of the Legion of Honor. Prior to this, the black dye which was used changed in a few days to a brown, and came off the stuff when it was hard pressed by the hand. Another improvement which was made consisted in producing a silk of a permanent white color. The eggs of the worm which produced this silk were brought from China, not however with the desired success. The worm was afterward purchased from a merchant of Alais, and distributed in the northern department of the country; and the produce of white silk is now very considerable, and of great importance in the manufacture of gauzes, crapes, and tulles. Other inventions were devised for saving labor n the various stages of the silk manufacture, by which, in this branch of industry, France was long enabled to outstrip all her neighbors, though of late years the silk manufacture has made immense advances in Great Britain.

There were in 1820 no less than 9,631,624 mulberry trees in France for the nourishment of the silk-worm. These supplied food for cocoons producing in 1819, according to Chaptal, 5,147,609 kilogrammes of cocoons. In 1835, the product had increased 9,000,000, yielding 278,000 kilogrammes of silk grège, and 161,000 kilogrammes organzine. At present (1855) the quantity of silk furnished amounts to 1,600,000 kilogrammes; which, at 55 fr. per kilogramme, the average price, gives a sum of 88,000,000 fr. as the value of the amount produced. In 1810 the amount was only 4,073,198 kilogrammes of cocoons, at 3 fr. 45 cen. per kilogramme. In 1830 it had risen to 9,007,967, at 3 fr. 82 cen.; while the wound silk (grèges filées), which in 1810 only reached 350,629 kilogrammes, at 45 fr. 12 cen., in 1835 had increased to 876,016 kilogrammes, at 58 fr. 64 cen. per kilogramme. But the home growth not being enough to meet the demand, importations took place to the extent of 1,154,956 kilogrammes, valued at 53,731,538 fr., and they still increase. Italy,

---

* See Costaz, *Sur l'Agriculture et les Manufactures de France.*

Switzerland, Turkey, and Greece, supply the larger part. A small quantity is obtained from Austria and Sardinia. The exportation of silks, plain and flowered, from 1787 to 1789, on a mean of 10 years, was 37½ millions of francs in value. In 1829 it was 111,000,000, and in 1836 206½ millions of francs, consisting of 2,720,914 kilogrammes, under 22 different denominations of goods. The United States, England, Germany, then Belgium, and, lastly, Spain, are the principal outlets for the silks of France; but South America, Russia, and Switzerland, are also considerable purchasers. France exports silks to a large amount in the way of transit. Lyons, Avignon, Tours, and Nîmes, are the principal seats of the manufacture of silk stuffs; and St. Etienne, St. Chamond, and Paris, for that of ribbons. In the arrondissement of Lyons and Ville Franche, there are 31,083 looms. The manufacture of ribbons at St. Etienne employs 20,000 workmen and 30,000 looms, producing 27,473,000 fr. value annually. The fabrication is divided into the manufactures *unis* and *façonnés.* Under the first head are those with the prefix *gros;* as, *gros de Naples;* those called *pou de soie*, *fontard*, *crèpes*, which last are subdivided; then satins and the like. The ribbons are, in like manner, distinguished by different appellations, after the nature of the fabric. St. Etienne employs in all 279,000 spindles (*broches*); of which 165,000 work organzines and trames, and 114,000 work the silk intended for crapes and gauze ribbons. The number of looms has been estimated in all at 65,000 for weaving silks, and 80,000 for ribbons.

The raw silk or silk-wool consumed in France in 1840 was valued at 53,731,536 fr.; while the value of the silks in transit reached 40,134,301 fr. Plain and flowered silk consumed at home, = 5,299,490 fr.; that which passed in transit = 37,204,483 fr.; being a total of 136,369,810 fr. A decree of the 18th August, 1852, permits the free exportations of silk.

The silk-wool of French production exported in 1840 was valued at 3,738,103 fr.; the foreign grown silk-wool exported at 47,491,154 fr. The value of the export and import together was thus 380,256,696 fr. The following are the most important districts of the mulberry, with the growth respectively, and the cocoons produced in 1840:

Districts.	Hectares.	Cocoons.
		Kilogrammes.
Gard	14.941	2,696,000
Drôme	6.212	2,585,352
Ardèche	5.602	1,765,121
Vaucluse	3.986	660,600
Hérault	2.592	1,248,972
Isère	2,073	539,507
Bouches du Rhône	1.546	549,780
Rhône	1.295	471,560
Ain	836	74,716
Var	787	491,750
Total	39,770	11,053,358

About 500,000 kilogrammes of cocoons are produced in the other departments. The importation of English woven silk into France in 1853 was 52,703 kilogrammes, in value 5,464,699 fr.

Articles of leather are in France much cheaper than in England.

Jewelry, *Porcelain*, *etc.*—Jewelry is made in Paris to the value of 50,000,000 fr. Lyons, Marseilles, Bordeaux, Clermont, and Strasbourg are also famous for jewelry. Watch and clock-making are carried on to a great extent in France, particularly in Paris. A time-piece is there a much more frequent article of ornamental furniture than in England; and the number of clocks and watches made annually in the kingdom is not less in value than 30,000,000 fr., employing 10,000 hands. The works in bronze are chiefly manufactured in the capital, and reach, in their different branches and stages, of which gilding is the chief, a further annual value of 37,000,000 fr.

Paris is remarkable for other fabrics of taste and luxury; in particular, the porcelain of Sèvres, near St. Cloud, and the beautiful but very expensive tapestry of the Gobelines. The materials of the latter are silk and the finest woolen thread; the subjects woven into the work are taken from paintings executed on purpose. Both the establishments have been long conducted by government at a sacrifice, and both are now on a reduced scale, the articles being far too costly for ordinary fortunes. The articles more frequently purchased are *passementerie*, by which is understood artificial flowers, fringes, gold and silver lace, with a variety of trifling but tasteful articles, all sufficiently adapted to a city where so much more is thought of display than of utility.

Soap.—The value of all the soap made in France is computed at 30,000,000 fr. The main ingredient is olive oil; and Marseilles was formerly the seat of this manufacture for almost all France—an advantage owing both to the extent of the olive-grounds in the south-east of the kingdom, and the vicinity of Marseilles to Italy, the Levant, and Spain, whence soda and olive oil were imported in vast quantities. A million of francs were paid for bounties on the export of soap in 1852. The export of soap from France in 1838 was 2,911,631 kilogrammes, valued at 2,941,631 fr. The disorders of the first Revolution, and the establishment of similar manufactures in other parts of France, have caused to Marseilles the loss of a third of its soap works; they are still, however, very extensive. Of the oil used in France, whale oil forms a very small proportion: the great supply is of vegetable oil, viz., that extracted from the rape and cole-seed of the north, and the olive oil of the south.

Beer, formerly little drunk in France, has become of extended consumption since 1790; but even at present, the quantity used does not exceed £2,000,000 sterling, its place being supplied by cider in the north, and by wine in the south. Within the last few years there is a considerable consumption of English bottled stout and porter, and a lesser, though increasing, consumption of English ale. The breweries have increased, and are increasing, in Paris, as well as in the northern departments. The consumption which corresponds to that of English home-made spirits and rum, is in brandy, of which the value annually made is between £2,000,000 and £3,000,000 sterling. The distillation varies in amount with the season. The brandies of Cognac, Jarnac, and Angoulême, are most in esteem. The best brandy is made in a district called Champagne, comprehending a part of Saintes Jonzac and Cognac territory. In Franche-Compté and Alsace, a brandy called Kirsch is made, but little of which is exported. The Hérault, Aude, and Gard, supply the largest quantity of spirit of wine. The best is called that of *trois-six.* The amount varies from 40,000 to 80,000 pipes of 80 veltes, five of which form a quintal. A velte is 7·61 litres = 1·675 gallon. Beer is brewed in the northern and eastern departments, viz.:

	Quantity.	Value.
	Hectolitres.	Fr.
Nord Oriental	3,115,615	41,419,492
Nord Occidental	527,378	9,429,261
Midi Oriental	160,942	5,447,719

Cider is made everywhere; in largest quantity in the Nord Occidental, and the best in La Mancha and Calvados. Some is distilled for brandy. The quantity is estimated at 11,000,000 hectolitres, at 7 fr. 75 cen. Normandy furnishes half. The whole is worth 34,000,000 fr. There is also a considerable distillation of spirit from potatoes, "which," says Chaptal (vol. ii., p. 197), "has been generally approved, and has been brought into competition with brandy.

Lesser Manufactures.—Of hats, the manufactures, formerly concentrated at Lyons and Marseilles, are now diffused throughout several towns; and the value annually made is about 24,000,000 fr. The hat manufacture of Paris is estimated at an annual production of 1,200,000, of the average value of five francs each, and employing 2000 men and 2500 women. Superior qualities of silk hats are sold to the retail tradesmen at from 9 fr. to 11 fr., for which the latter obtain from 15 fr. to 18 fr. The hat manufacture in France employs 17,000 hands, and yields a value of 19,500,000 fr., in 1159 workshops. The second order of hatters, who finish the hats according to the different tastes required, elevate the value of the trade to 24,375,000 fr. The manufacture of gloves—principally made at Grenoble, though called "Paris gloves"—employs 25,000 persons. In 1839, the value of the gloves made in France was 9,436,000 fr.; in 1840, 5,556,000 fr. The tanneries prepare 33,286,004 kilogrammes of leather, valued at 82,864,706 fr., for boots, shoes saddlery, etc. Perfumery is made extensively in Paris, and in the south, chiefly at Montpellier, where, from the mildness of the climate, aromatic plants are abundant. The value of the manufacture is about 13,000,000 fr. Paper being exempt from the heavy duties of England, is sold in France upon very reasonable terms, while in quality it is equal to our own. The value annually used in printing and in writing is computed at 25,000,000 of francs; and the paper employed in the hanging of rooms is estimated at an equal value. Of glass, the manufacture has been much improved and extended during the present age. Whether for mirrors, for windows, or for bottles, this article in France is good, and of a moderate price. The number of glass-houses in 1818 was 185, and is now over 220. Small mirrors are manufactured much cheaper in France than in England. Bohemia is the country with which the French manufacturers state they can not compete. As to earthenware, it is only since 1790 that English pottery has been successfully imitated in France. It is now made to the value of 29,000,000 fr.; while the coarse earthenware, fabricated in almost every province of the kingdom, is computed at 15,900,621 fr., employing 10,433 hands. French earthenware is very inferior to English. Saltpetre, till lately a monopolized manufacture, is now unrestricted. Sulphuric acid has, since the beginning of the present century, been greatly lowered in price and increased in quantity.

Sugar.—The manufacture of sugar from beet-root was introduced into France during the reign of Napoleon Bonaparte, when, the coasts of France being blockaded by the fleets of Britain, the importation of foreign articles, and among others that of sugar, was rendered dangerous and difficult; and its price was so high as entirely to preclude its consumption by the middle classes of society. Various articles were resorted to as substitutes, such as honey, and juice of raisins, etc., but they were not relished by the taste of the people; and in this case experiments were tried by eminent chemists to extract from beet-root the sugar which it contained. These experiments were successful. There were in 1831 more than 200 establishments, from which were produced annually 7,480,000 pounds of raw sugar; and there were in 1854 303, producing 62,205,600 pounds. The largest sum paid by the administration of the customs has been for refined sugar. It amounted in 1852 to 16,000,000 fr.

Machinery.—The manufacture of machinery has greatly increased. Steam-engines have been introduced into France from Great Britain, where they are now employed in every department of industry. It was in the year 1779, at the village of Chaillot, near Paris, that the first steam-engine was established in France; but, owing to prejudices, and attachment to old customs, it was long before these engines came into very general use. Prejudice, however, gradually faded away before the productive powers and manifest utility of this extraordinary application of science to the business of life, and there are now many establishments for the manufacture of these machines. The scarcity of coal is a great obstruction to the extensive use of steam-engines; and the tax on foreign coal is, in this view, peculiarly impolitic, and injurious to the general interests of the community. The tax, though lately reduced by the imperial government, requires still further reduction.

In 1836, of 1749 steam-engines in France, 1393 were home made. In 1839 the import surpassed the export. Since that year the reverse has been the case. The metallic castings in France are still very inferior to those of England. Paris is the principal seat of the manufacture of French machinery, then Arras, Creuzot, Rouen, Mulhausen, and Nantes. Locomotive engines are made at Bitschwiller, in the department of the Haut-Rhin; machinery for steam-vessels at Indret. The value of French industry has been estimated in the mean product as follows:

	Francs.
Iron from the ore to the perfect state, minerals, etc	124,000,000
Copper, zinc, and lead	26,500,000
Glass, crystal, and looking-glasses	47,500,000
Tiles, bricks, lime, plaster	66,500,000
Porcelain, pottery, etc	27,500,000
Chemical manufactures, the products	22,000,000
Hemp and Flax (supposed to be no less than 525 millions of francs)	360,000,000
Cotton	500,000,000
Wool	400,000,000
Silk	230,000,000
Leather and skins	300,000,000
Sugar	45,000,000
Paper, colored and figured	25,000,000
Printed paper, books, etc	25,000,000
Machinery	10,000,000
Clocks and watches	30,000,000
Bronzes	25,000,000
" plated ware	6,000,000
" jewelry and goldsmith's work	50,000,000
Distilleries, breweries	206,000,000
Different branches of industry	135,000,000
Mechanic and domestic arts	250,000,000
£116,440,000=	2,911,000,000

"Labor in Paris is as much dearer relatively to the provincial towns of France, as labor in London is relatively to those of England. It still remains for us to remove from our capital some manufactures which have been most injudiciously established there; but the French have carried this false calculation much further, Paris being the centre not only of ornamental fabrics, such as jewelry, bronze, sculpture, cabinet-making, and the vast variety of elegant trifles comprised under the term "articles de Paris," but of a number of coarser employments, which a very slight change of plan might transfer to a cheaper quarter. Periodical exhibitions of French manufactures are held at Paris every three or four years, at which are present the sovereign, the princes, the nobility, and all eminent men of science. In 1855 was opened in Paris an Exhibition of the Industry of all Nations, similar to that which took place in London in 1851, and in Dublin in 1853. The Parisian exhibition, like the Dublin one, contained a branch dedicated to the fine arts. This exposition continued open from May till the middle of November. It was twice visited by her majesty Queen Victoria between the 20th and 25th August in her nine days' visit to France. There is also in that capital a *Conservatoire des Arts et des Métiers;* a collection, on a large scale, of models of all instruments or machines that relate to arts and manufactures. It is more the practice also in France than in Britain to encourage ingenious inventions in the mechanical arts, by premiums, orders of merit, and other honorary marks of distinction. Yet, with all these advantages, industry has not made the same progress as in this country.

"To prescribe the mode of manufacture was formerly a favorite course with government in England as in France. From the time of Colbert (1660) the French *ordonnances* prescribed peremptorily the length and breadth of serges, of druggets, in short, of every kind of cloth calculated for export, under the plausible idea that all these precautions were necessary to establish a reputation for quality. It is a curious fact, that these rules were desired by the manufacturers themselves, and were long considered as the safeguard of French industry. A change was introduced in 1779, and permission given to every manufacturer to follow his own method, provided he distinguished the goods thus made from those which were in conformity with the regulations. But this was of very short duration. The power of habit and prejudice prevailed. New *ordonnances*, issued the succeeding year, revived the former limitations; and the manufacturers of France were not put on an unrestricted footing till the Revolution. Much inconvenience had also been sustained from the absurd law which prevented a workman from settling in business in any town excepting that in which he had served an apprenticeship. This law was abrogated in 1767.

"The manufacturing industry of France is confined, far more than ours, to the home market, whether we look to the supply of the raw material, or to the export of the finished articles. Her imports are large only in cotton and silk; in woolen and iron they are not considerable; while in flax, hemp, and leather, they may be termed insignificant. In exports the limitation is still more striking, her hardware, her linen, her woolens, her cotton, her leather, and, in a great measure, her silk, being confined to the home market; a restriction owing partly to our manufacturing superiority, but more to the capital of our merchants, their ability to give long credit, and to deal with foreign traders and merchants in a liberal and not in a petty retail spirit. The productive industry of France is consequently much less subject than ours to sudden fluctuation. It follows nearly the same routine year after year. On the occurrence of a war, or other political change, the commerce and manufactures of our neighbors, to borrow a phrase of Talleyrand (Letter to Mr. Fox, 1st April, 1806), *se replient sur euxmêmes*."—E. B.

Commerce, Colonies, Fisheries, Shipping.—In no country in Europe has trade been laid under such galling restrictions as in France; and it is remarkable that this system of restriction has in a great measure been the creation of modern times. The ancient legislation of the kingdom was rather friendly to foreign trade. It encouraged importation in preference to exportation. This latter privilege of export was in 1577 claimed by Henri III. as his royal and seignorial right; and he regulated by his ordonnances the export duty on a variety of articles, while the produce of foreign countries was admitted on payment of an *ad valorem* duty of 2 per cent. Louis XIV. introduced a sort of navigation act, by which he levied a tax of 50 sous on all foreign ships. In 1667 further restrictions were introduced; and in 1687 the exclusive system was established in its full rigor. The statesmen of France seem to have imagined that a flourishing commerce could be created by legal authority, and that domestic industry could only be encouraged by the exclusion of all foreign competition; and hence all the vices and obsolete maxims of the mercantile system will still be found in the commercial policy of our neighbors. The extension of the restrictive system was promoted by the authority of Colbert, a minister who, though he introduced order into the finances, and improved in many particulars the system of taxation, and was indeed a great master of detail, adopted the most erroneous maxims of commercial legislation. It is justly observed, in the report of Villiers and Bowring on the commercial relations between Great Britain and France, that the "whole of the bounties by which he induced adventurers to enter into remote speculations, as well as the excessive duties which he imposed on cheaper foreign articles, were almost uncompensated sacrifices; while, on the other hand, of the manufactures which he transplanted into France, and which he protected by the exclusion of rival productions, scarcely one took permanent root;" and even those which he intended to support by special encouragement would all of them have been more prosperous, but for the regulations with which his mistaken zeal retarded the progress of manufacturing industry. His whole system was an attempt to regulate by law what would have been better left to the sagacity of individuals, and to give a forced and artificial direction to the national capital. Thus he encouraged a trade to the West Indies by granting a bounty of 25s. on every ton of goods exported, and of 41s. 8d. on every ton imported. He boasted of setting up 40,000 looms by virtue of legal enactments, without considering that the capital employed in these establishments would have taken a more natural direction, and been more profitably employed, but for his interference. The restraints also which were thus laid on domestic industry were often enforced by the despotic authority of government. Many of the absurd and pernicious regulations of Colbert were broken down by the first French Revolution; but others remained, and the tariff of 1791 was from beginning to end a system of prohibition, the object of which was to encourage the home manufacturer by freeing him from all foreign competitors. It must be confessed that England set the example of illiberality; and it was no wonder that the French of that day should be jealous of a country which excluded her silks and cambrics, and laid a discriminating duty of 33⅓ per cent. on French wines; and whose Parliament, under the reign of William III., declared the trade with France to be a nuisance. The commercial treaty concluded with France in 1786 by Mr. Pitt was the earnest of a better system. Since this period the legislature of this country have been impressed with the injurious tendency of all commercial restrictions. But in France the progress of improvement has been slower, and it has besides been retarded by political events. The long and sanguinary war waged between Great Britain and France subjected the latter to the maritime hostility of her powerful opponent, the consequence of which was, that her trade with foreign countries was interrupted, and the supply of many of their staple articles of produce greatly diminished, and raised enormously in price. It became a great object, in this case, to produce these articles at home. In addition to the existing restraints upon the importation of foreign manufactures, special encouragements were given to the production of articles for which neither the soil nor the climate of France was peculiarly fitted. Thus when the maritime blockade of France was raised by the peace of 1814, her industry, partly from ancient and mistaken maxims, partly from the pressure of war, received a very artificial direction, and was oppressed by ruinous and complicated restrictions. At the restoration of the Bourbons in 1814, the tariff of 1791 was the law of the land. It had undergone a few modifications, but these were mostly in the restrictive and prohibitory spirit, and were accommodated to the hostile position which France occupied in regard to surrounding nations. When the barrier to a free intercourse with foreign nations was at length thrown down by the peace of 1814, the exclusive provisions of the tariff of 1791 were brought into full operation; and when the obstacles to the commercial intercourse of France with foreign nations raised up by the war were withdrawn, a no less effectual line of circumvallation was drawn around her commerce by the restrictions and prohibitions of her own erroneous policy. It is remarkable, indeed, that a committee of the Chamber of Deputies, in reporting on the budget in 1832, enters into an exposition and defense of the restrictive system, the principle of which is to encourage domestic industry by the exclusion of the cheaper and better manufactures of foreign nations.

The tariff of 1791 either excluded from France, or laid under heavy duties, almost all the great staple manufactures of other countries. Manufactured iron in every shape, manufactured steel, copper, tin, cutlery, and all articles manufactured from any of the metals; all fabrics of wool, cotton, silk, or tissues of hair, saddlery, spirituous liquors, grain, refined sugar, tobacco, toys, and various other inconsiderable articles, are included in this charta of domestic commerce. The inconsistency, and the fallacies on which this system is founded, are well exposed in the report of Villiers and Bowring. The passage, though somewhat long, is replete with instruction.

> "It requires merely to state some of the objections to importations in order to show their narrow and anti-commercial spirit. The introduction of manufactured tin, for example, is opposed because it might benefit England, which is rich in tin mines, as if the importation into France could take place without equally benefiting her. The reasons, too, which are grounded on the superiority of other countries; as, for example, 'dangerous rivalry' in the case of manufactured steel; 'cheapness' of foreign articles in the case of shipping; threatened 'annihilation of the French manufacture' in that of cutlery; 'extra advantages of the English' in plated ware; 'apprehension of the English' in articles of pottery; 'imprudence of admitting English saddlery,' as so many persons, regardless of price, prefer it; 'advantages of machinery' in works of iron; all are modes of announcing the superiority of the foreign articles, and the power which foreigners possess of supplying them on cheaper terms than they can be produced at home.
>
> "There are other grounds of prohibition by which particular French manufactures are avowedly sacrificed to the interest of other branches of French industry. The importation of extracts of dye-woods is disallowed for the purpose of encouraging the importation of the dye-woods themselves; the interest of the dyer, the manufacturer, the consumer, being wholly forgotten. The importation of iron of certain sizes is prohibited, lest small manufacturers should establish fabrics, and supply the markets at a less cost than the larger establishments. Woolen yarn is not allowed to be imported because it can be produced in France, though the high price must be a great detriment to the woolen manufacture; and cast iron of a great variety of sorts is prohibited, on the ground that a sufficiency may be obtained at home, though the cost is notoriously more than double that of many articles of foreign cast iron. Molasses is not allowed to be introduced, because the price in France is so low, and the exportation so large, on the ground that importation will lower the prices still more, though the lowness of price would obviously make importation unprofitable; and the fact of considerable exportation is the best evidence that the average prices are low in France. Rock salt was prohibited in 1791, and the prohibition is now justified on the ground that mines have lately been discovered. The prohibition of refined sugar was supported on the ground that its admission would not benefit the treasury; but it is clear, if the interest of the treasury were kept in view, that all prohibitions would be suppressed, or superseded by a system of duties. While some articles are prohibited because the production is small in France, and requires protection, others are prohibited (dressed skins, for example) because the production is great, and engages a large number of hands."

There is another branch of the French legislation regarding commerce, which is equally exceptionable with the prohibition to import foreign manufactures; namely, the system of drawbacks and bounties on the exportation of domestic produce. Having by special encouragements created a surplus of certain articles at home, and which the high price prevented from being sold to foreigners, the public were called upon to pay the difference between this high price and the price abroad; and thus they were taxed, by the exclusion of the foreign article, in a higher price for what was consumed at home, and also taxed for all that was consumed abroad, in the bounty which was paid on the exportation of the article. This is a double iniquity, which has gone on increasing in France. In 1817, the whole amount of what was conceded on this account amounted to £3500 per annum, while in 1830 it amounted to £600,000, nearly one fifth of the nett amount of the whole custom-house revenues of France; and as it was going on progressively, it might soon have absorbed the whole custom-house income, without in the least benefiting, but rather injuring, the general interests of commerce. During the first nine months of the year 1832 premiums or bounties were paid to the amount of 24,448,375 francs, or £1,018,682.

The commerce of France, obstructed by these restrictive duties, has not made the same advances as her agriculture and manufactures. The internal produce of every country necessarily increases with its population; and the inhabitants of France having increased, since 1780 to 1855, to full 36,000,000 (for the census of 1851 makes the population 35,781,628) from 24,800,000 must produce as well as consume more. But in the mean time her commerce has not kept pace with this increase in her population. The value of the imports into France amounted in 1787 to 631,790,700 francs, or about £25,000,000 sterling, and engaged 888,868 tons of shipping; and her whole imports only amounted in 1830 to £25,500,000 sterling, and employed 1,009,454 tons of shipping, which is far from being an increase corresponding to her augmented population. According to the last accounts, the value of imports was in 1853 £65,240,000, of which to the value of £44,120,000 remained for home consumption, and engaged 4,605,000 tons of shipping. The whole trade of France with its own colonies and foreign powers amounted for the year 1853 to an official value of 3,443,000,000 of francs, which was an increase of 12 per cent. on the year 1852, and an increase of 32 per cent. on the average of the years between 1844 and 1848. The foreign commerce of England was, in the year 1787 about 7,000,000 less than that of France, or about £18,000,000 sterling, and employed 1,349,419 tons of shipping. Her population was 9,000,000. In 1830 her foreign trade had increased to £69,700,748, including £17,127,764 to the colonies, which employed 2,866,615 tons of shipping. Thus, while the official value of the commerce of England had nearly quadrupled, and her shipping nearly doubled in forty-three years, not above one fiftieth part was added to the foreign commerce of France; a fact which strongly illustrates the pernicious influence of monopolies in damping the energies of individual enterprise, and thus obstructing the national prosperity.

OFFICIAL VALUE OF IMPORTS AND EXPORTS,

Years.	Imports. Francs.	Exports. Francs.
1849	1,142,000,000	1,423,000,000
1850	1,174,000,000	1,531,000,000
1851	1,158,000,000	1,629,000,000
1852	1,438,000,000	1,682,000,000
1853	1,632,000,000	1,861,000,000
Total	6,544,000,000	8,126,000,000

The intercourse of France with its colonies and foreign States in 1853, exports and imports united, formed a sum in official value equal to 3,493,000,000 francs, being an augmentation of 373,000,000 francs over 1852. The actual value of the imports in 1853 was 1,217,000,000 francs against 1,006,000,000 francs in 1852, and of the exports the actual value was 1,572,000,000 francs against 1,278,000,000 francs in 1852. The ocean imports were in actual value 1,070,000,000 francs, and those by land 626,000,000 francs. The exports by sea were 1,633,000,000 francs actual value, and those by land, 420,000,000 francs.

Observations on Trade.—During the four years from 1850 to 1854 inclusive, the value of French commerce has augmented 303,329 francs, and the number of seamen employed has increased 19,046. The exports to Russia, owing to the war, were reduced in 1854 to three ouward-bound vessels. The commerce with England has increased with great rapidity, having nearly doubled the amount in 1850. With Sweden and Norway the increase has also been considerable. With Austria, on the other hand, there has been a diminution, and also with the Roman States. With China there is an increasing trade, as well as with the United States of America, but with Rio de la Plata and Ecuador there has been a falling off. Most of the other States with which France carries on a commercial intercourse, exhibited an increase which, if small, augmented the general commerce so much as to show that the country was entering upon a more active career of traffic.

The tables on the following page contain, from official documents, a comprehensive view of the value and extent of the commerce of France at different periods. The trade between France and Switzerland is carried on by land by Colmar, Strasbourg, St. Louis, Belfort, Nantua, Seyssel, Morteau, Pontarlier, Les Rousses, Montbeliard, etc.

IMPORTS OF FRANCE.

	1851.	1852.	1853.
Breadstuffs	£80,000	£200,000	£3,840,000
Coal	1,480,000	1,520,000	1,680,000
Cotton	4,160,000	5,120,000	5,320,000
Raw silk	3,680,000	5,360,000	5,200,000
Wool	1,360,000	2,600,000	1,720,000
Iron	200,000	240,000	440,000
Total	£10,960,000	£15,040,000	£18,200,000

EXPORTS OF FRANCE.

	1851.	1852.	1853.
Breadstuffs	£3,800,000	£2,360,000	£1,160,000
Cotton manufactures	6,600,000	6,000,000	6,560,000
Silk manufactures	8,120,000	9,040,000	11,520,000
Woolen manufactures	5,280,000	5,120,000	5,840,000
Linen manufactures	1,080,000	1,200,000	1,360,000
Gloves and hosiery	3,200,000	3,400,000	3,030,000
Wines	1,480,000	1,480,000	1,800,000
Total	£29,560,000	£28,600,000	£31,270,000

IMPORTS OF COAL AND IRON IN 1852.

	From England.	From Belgium.
	Tons.	Tons.
Coals	664,632	1,792,155
Coke	2,732	169,398
Iron, pig	15,002	26,416
Iron, bar	1,841	....
Steel	270	....

Returns of the customs duties levied on the principal merchandise imported into France during the nine months of 1855 ending on the 1st of October, give an amount of £5,927,030. Compared with those of 1854, they show an augmentation of £1,723,976. The receipts during the month of September were £465,688, or £40,383 less than in the corresponding month of last year. The salt-tax produced during the nine months of 1855, £930,891.

The value of exports in 1853 reached £74,640,000, of which £54,520,000 represented French produce, and £20,520,000 was foreign produce re-exported. The imports for home consumption showed an increase of £4,680,000, and the exports of French produce an increase of £5,200,000 above 1852.

The following is a brief sketch of the trade of France with other countries:

The corn, the hemp, the flax, the tallow, which form such important articles of export from the north of Europe to England, are comparatively unnecessary to France. Their timber and pitch are imported there, but the quantities required by a people where shipbuilding is so limited, are necessarily of little consequence. It would appear, however, that in the progress of the recent war against Russia, many articles imported from the north of Europe have become more necessary to France, and by a decree published in the *Moniteur* on the 20th October, 1855, building-timber, wood for cabinet-making, of a certain thickness, rough castings, bar and sheet iron, hemp, etc., may be imported for three years free from import duty. Pitch, tar, and tallow, when employed in shipbuilding, may be imported at a duty of 10 per cent. if it can be proved they have been used *bona fide* for the purpose within a year. The further articles of import are iron, copper, lead, salt fish, all likewise on a small scale. The returns from France are no longer in the sugar and coffee, which, before the loss of St. Domingo, furnished an annual export to the north of fully £2,000,000 sterling. They are limited to wine and brandy, luxuries of which the consumption is confined to a few large towns, such as Petersburg, Hamburg, Lubec, Stockholm, and Dantzic.

With Germany the exchanges of France are now carried on by steam, canal, and land-carriage, and for lighter articles and *articles de Paris* by railroad, and river navigation.

From Holland are imported spirituous liquors, spices, butter, cheese. The returns from France consist chiefly of wine, silks, brandy, and dried fruit. When the Netherlands were subject to France, this intercourse was very active.

From Italy, France imports raw silk, corn, rice, olive-oil, and fruit, chiefly lemons, oranges, figs, and raisins. The returns, various in kind, but small in quantity, consist of wine, brandy, cattle, woolens, linen, leather, hats, stockings, jewelry, glass, hardware. From the Levant, the imports, though less than formerly, still consist of raw silk, cotton, wool, corn, dried fruits; the exports, manufactured silks, woolens, stockings, and, in a small degree, hardware, paper, liquors, linens, lace. With Spain the intercourse is more extensive; the exports from France consist of corn, flour, salt fish, wines, brandy, also woolens, cottons, silks, leather, linen, lace, hats; all articles which have passed through some process of manufacture, and bear testimony to the industry of the French. The Spaniards, on the other hand, true to their character, make no returns except in produce and raw materials, viz.: wool, silk, fruit, sweet wines, along with some iron and copper. During the years 1854 and 1855 there have been considerable exportations of Spanish wine into France for the use of the French troops serving in the Crimea. With Portugal the trade of France is not considerable, the staple products, wine and brandy, being the same in both countries.

The intercourse between the French and Americans should be great, but the Americans require long credit, and to give credit exceeds the means of the French. The cotton, tobacco, and rice of the United States are paid partly by wine and brandy, but in a slight degree by manufactures. This branch of trade will increase with the population and wealth of the United States. At present the intercourse with England is more considerable than with almost any other country; but a reduction of the custom-house duties would extend greatly the mutual trade of the two countries. Great Britain would supply France in greater quantities with imports, consisting of cottons, hardware, earthenware, copper, tin, iron, coals, etc.; while a corresponding increase would take place in the French exports, of which the staple articles are wine and brandy, the smaller silks, olive-oil, fruit, butter, poultry, corn, and butcher's meat.

The chief commercial business of Paris is necessarily inland; but it is the centre of exchange transactions for France, foreign as well as inland; as London is for England, and Amsterdam for Holland. Havre de Grace is the channel for the maritime intercourse of the capital, the outlet for its exports, and the medium through which it receives colonial produce, raw materials, and foreign manufactures. Bordeaux is a sea-port of great activity, as well for the exportation of wine and brandy, as for the importation of sugar, coffee, and cotton. Marseilles, a larger but a less bustling city, continues the emporium for the trade with Italy and the Levant. Nantes has suffered greatly by the loss of St. Domingo, as well as by the abolition of the slave-trade, of which it was the centre. It still exports to Martinique and Gaudaloupe, linen, hardware, printed cottons; and, like Bordeaux, receives in return sugar, coffee, and raw cotton. Rouen, though accessible to vessels of burden, is, like Lyons and Lille, chiefly remarkable for manufactures.

The mercantile marine of France recently presented the following results, which are remarkable while England and America are building vessels of such superior tonnage :

MERCANTILE MARINE—1853.

Tonnage.	Vessels.	Total Tonnage.	Tonnage.	Vessels.	Total Tonnage.
700—800	1	717	100—200	1,365	197,947
600—700	3	1,881	60—100	1,561	123,149
500—600	4	2,091	30— 60	1,301	58,740
400—500	35	14,599	30 and below	10,647	81,681
300—400	150	50,866	Total...	15,600	662,500
200—300	533	130,829			

Manned, including the men of the fisheries, by 83,000 men and boys.

The steam and sailing-vessels of France and the nations trading with her from 1848 to 1853 were as follows :

NAVIGATION FOR 1848 TO 1853 INCLUSIVE—FRENCH AND FOREIGN.

Steam and sailing vessels.				Sailing vessels only.			
Years.	French.	Foreign	Total.	Years.	French.	Foreign	Total.
1848	13,194	13,320	26,514	1848	11,303	9,663	20,966
1849	14,364	14,768	29,132	1849	12,618	10,978	23,596
1850	15,034	16,892	31,926	1850	12,284	12,054	25,338
1851	15,389	19,247	34,636	1851	13,421	13,668	27,089
1852	15,295	19,803	35,098	1852	13,176	14,995	28,171
1853	15,835	20,425	36,260	1853	13,434	14,754	28,188
Mean of first five years.	14,655	16,806	31,461	Mean of first five years	12,761	12,271	25,032

Navy.—The superiority of the English navy over the French existed when her pecuniary means were far inferior ; and though, during the middle of the reign of Louis XIV. the French, by financial sacrifices, obtained a numerical superiority, one great battle, that of La Hogue, in 1692, was sufficient to change the ascendancy. The war of 1741, however successful on the part of France by land, was, particularly toward its close, unfortunate to her at sea. In the succeeding interval of peace, great efforts were made to reinstate the French navy ; but the war of 1756, though the French admiral, De la Galissonièr, boasted of a success over Byng, proved doubly disastrous, and at last swept it almost entirely from the ocean. A very different scene opened in the war of 1778, when France, unembarrassed by a continental struggle, was enabled to direct all her disposable resources to her marine, an object of great care and solicitude to Louis XVI. She was then enabled to keep in an effective state about 70 sail of the line, the crews of which, added to those of the frigates and corvettes, formed a total of 60,000 seamen. The injuries sustained by this force, toward the end of the war were repaired with great diligence during the peace ; and to prepare young officers for the sea in preference to the land service became a favorite object in several of the government schools. In 1791, an official report stated the effective French navy at 74 sail of the line, 62 frigates, and 29 corvettes ; a state of preparation which accounts for the resistance made by the revolutionary government under all the disadvantages of an unparalleled continental struggle.

TRADE AND NAVIGATION OF FRANCE WITH FOREIGN NATIONS—ACTUAL VALUES.

Nations.	Years.	Imports. Value.	Exports. Value.	Ships.		Tonnage.		Crews.	
				In.	Out.	Entering.	Outward.	Inward.	Outward.
		Francs.	Francs.						
Russia	1850	27,255,165	20,146,540	136	71	19,274	9,225	1,266	758
	1854	58,853,979	3,862,520	43	3	8,930	795	458	62
Sweden	1850	5,840,697	1,265,163	29	5	2,985	857	198	42
	1854	7,707,154	2,578,604	29	12	2,796	1,181	190	81
Norway	1850	13,326,660	2,134,130	15	3	1,520	262	102	19
	1854	19,214,908	1,935,281	42	1	4,147	101	284	7
Denmark	1850	77,709	1,288,077	6	8	412	651	36	50
	1854	7,329,923	4,055,140	4	9	325	997	26	64
England	1850	111,181,981	312,119,023	2,878	3,211	223,213	210,040	21,990	23,880
	1854	201,490,531	536,643,810	3,082	1,546	301,590	115,525	27,938	15,306
German Association	1850	47,324,482	50.983,390	16	19	1,516	1,914	104	128
	1854	103,661,586	62,556,573	6	3	591	235	41	20
Hanse Towns	1850	6,654,524	15,646,264	96	137	9,333	14,048	990	1,207
	1854	7,022,584	18,321,208	64	76	5,119	6,451	390	474
Netherlands	1850	22,801.018	14,911,230	80	98	10,227	12,355	1,330	1,552
	1854	33,984,969	29,272,053	25	32	1,364	2,882	168	242
Belgium	1850	156,620,134	113,690,547	73	143	5,272	10,554	458	819
	1854	267,630,168	153,690,829	55	90	4,033	6,971	345	515
Switzerland	1850	123,777,710	93,047,246	....	....	....	....	....	....
	1854	221,620,584	124,438,776	....	....	....	....	....	....
Portugal	1850	2,414,166	3,898,688	54	18	6,216	1,875	410	170
	1854	4,308,287	9,469,053	135	43	17,326	7,813	1,359	675
Austria	1850	6,932,209	10,357,565	17	20	2,038	2,113	188	141
	1854	6,745,678	10,296,286	6	11	642	1,341	48	95
Spain	1850	43,861,339	86,629,133	361	125	30,198	8,465	2,369	768
	1854	88,211,169	79,595,735	832	269	68,225	21,283	5,553	1,829
Sardinia	1850	91,245,671	71,731,977	606	589	36,018	35,825	4,236	3,711
	1854	117,643,939	87,141,008	623	645	63,160	63,723	6,928	6,666
Tuscany	1850	12,281,131	24,533,550	238	213	13,282	12,133	2,141	2,023
	1854	15,981,113	23,689,080	330	226	33,207	25.634	4,091	3,226
Roman States	1850	3,350,214	5,264,172	53	27	4,141	1.978	321	169
	1854	2,601,095	6,612,661	51	22	4,236	2,275	345	240
Two Sicilies	1850	22,581,432	17,097,039	170	68	24,541	11,235	2,020	1,221
	1854	24,262,548	20,691,260	138	36	23,634	7,122	2,475	1,088
Greece	1850	1,081,081	3,836,596	4	15	502	1,784	31	115
	1854	3,325,131	4,000,061	....	7	....	966	....	89
Turkey	1850	54,266,664	31,677,194	342	200	71,398	47,845	5,836	4,072
	1854	60,189,958	40,608,396	310	250	75,230	70,385	5.609	5,629
Egypt	1850	9,586,161	10,532,807	93	54	21,399	13,400	1,526	937
	1854	17,435,283	7,685,450	103	63	21,206	13.955	1,565	1,112
Barbary	1850	21,808,551	4,937,036	209	121	22,272	14,021	1,911	1,359
	1854	8,579,124	4,492,767	95	62	14,227	9,289	1,698	1,111
Africa, West Coast	1850	4,502,514	2,128,676	89	49	14,931	9,553	891	551
	1854	9,232,228	3,964,868	112	43	23,155	9,418	1,166	486
Mauritius	1850	72,247	5,057,132	....	....	....	....	...	....
	1854	632,962	6,662,509	3	17	1,149	5,793	46	261
Africa, East Coast	1850	287,008	593,612	....	2	....	627	....	24
	1854	2.154,367	3.819,828	6	6	2,245	2,368	93	101
English E. Indies, including Java, Sumatra, and New South Wales	1850	33,274,310	4,287,420	72	18	23,215	5,736	391	284
	1854	52,469,742	5,767,690	98 21	46 8	34,609 6,999	17,593 3,682	819	740 121
Dutch East Indies	1850	5.342,007	1,338,228	....	....	....	....	....	....
	1854	10,664,620	1,706,440	....	....	....	....	....	....
Philippines	1850	1,706,567	120,881	3	3	879	792	42	42
	1854	1,168,517	339,786	....	....	....	....	....	....
China and Cochin-China	1850	1,585,970	336,887	2	....	819	....	89	....
	1854	2,723,534	3,858,397	5	17	2,205	5,600	85	269

Trade and Navigation of France with Foreign Nations—Actual Values—*Continued.*

Nations.	Years.	Imports. Value.	Exports. Value.	Ships.		Tonnage.		Crews.	
				In.	Out.	Entering.	Outward.	Inward.	Outward.
		Francs.	Francs.						
Mexico	1850	3,616,758	21,129,723	43	53	8.986	9,959	459	571
	1854	4,015,878	24,310,946	43	41	9,780	8,645	523	483
United States of America, East	1850	132,130,326	278,354,956	50	39	13,179	7.210	593	383
	1854	190,771,342	332,090,943	34	23	9,562	8,161	464	356
United States, West	1850	44,903	7,586.238	....	38	....	12.906	....	571
	1854	714,288	9,568,935	2	16	699	6,557	34	304
Guatemala	1850	308	403,154	....	....	....	....	....	....
	1854	1,166,733	982,871	4	2	1,148	635	56	25
New Granada	1850	931.133	5,049,735	8	12	1,634	2,252	96	154
	1854	1,147,741	3,494,501	6	6	1,252	1,108	78	67
Venezuela	1850	2,937,081	3,497,615	16	14	2,845	2.488	194	161
	1854	6,492,216	5,792,518	26	21	4.382	3,418	272	222
Brazil	1850	17,087,782	27,234,483	87	90	18,878	19,402	1,084	1.122
	1854	27,970,169	44,048.500	95	87	22,544	21,757	1,261	1,147
Uruguay	1850	987,881	2,220,347	8	16	1,662	3,524	95	203
	1854	5,991,240	10,662,537	16	45	3,656	12,775	215	638
Rio de la Plata	1850	10,753,839	13,580,718	53	63	11,880	13,358	628	729
	1854	10,390,020	23,610,663	26	46	6,238	11,364	336	583
Ecuador	1850	890,990	816,691	1	2	393	599	17	32
	1854	297,428	192,972	....	1	....	244	....	12
Peru	1850	6,381,244	12,608,342	20	14	6,320	4,613	323	215
	1854	7,863,258	18,759,998	34	16	15,118	7,227	629	296
Bolivia	1850	....	49,850	....	....	....	....	....	....
	1854	....	372,251	....	....	....	....	....	....
Chili	1850	4,273,120	14,023,128	5	20	1,662	5,797	73	306
	1854	4,257,504	21,421,197	8	22	2.911	9,984	141	435
Hayti	1850	8,250,901	3,480,770	59	23	11,305	4,114	640	244
	1854	10,150,125	5,331,759	75	32	14,455	5,670	807	327
Span. Amer. Possessions, Isls., etc.	1850	26,394,272	10,330,924	123	32	29,274	8,427	1,502	440
	1854	29,210,434	17,939,202	113	40	28,641	10,812	1,428	557
Eng. Possess. in Amer., Isls., etc.	1850	199,830	622,626	....	2	....	622	....	22
	1854	253,687	3,059,869	9	4	2,512	1,406	133	63
Dutch Possessions in America	1850	153,646	165,095	1	....	303	....	15	....
	1854	3,122	68,663	....	....	....	....	....	....
Danish Possessions in America	1850	105,014	5,003,481	2	17	158	3,662	14	212
	1854	191,754	6,400,481	4	13	890	2,864	48	156
Isle of Bourbon	1850	18,309,419	11,591,628	50	83	15,422	24,242	767	1,251
	1854	29,908,188	18,319,000	81	105	26.918	86,587	1,337	1,677
French Guiana	1850	1,311,401	2.029.849	13	21	2,302	3,775	161	251
	1854	1,156.196	4,571,300	10	28	2,017	5,732	120	317
Martinique	1850	11,045,108	14,805,110	81	104	18.432	24.230	994	1,289
	1854	18,987,405	20,144,217	115	119	28.314	28,482	1,431	1,483
Guadaloupe	1850	9,322,364	11,251,741	51	83	11,246	18,594	589	974
	1854	17,114,518	16,276,198	116	110	22.139	24,352	1,226	1,373
Algiers	1850	6,263,239	67,371,988	704	1,072	74,769	115,125	6.940	9.680
	1854	49,422,025	90,918,877	1,036	946	183,155	121,155	12,262	11,368
Senegal	1850	3,920,745	6.321,551	48	62	6,270	8,569	437	569
	1854	6,932,825	8,744,316	75	84	11,769	154,095	734	879
French India	1850	3,333,342	474,896	6	8	1,637	2,097	84	101
	1854	10,369,437	445,725	19	4	5,320	1,257	272	59
St. Pierre and Miquelon, etc.	1850	19,931,116	5,424,677	....	....	....	....	....	....
	1854	18,902,278	6,148,157	....	....	....	....	....	....
Mayotte, etc., and Madagascar	1850	....	90,036	....	....	....	....	....	....
	1854	404,741	222,756	1	4	208	1,140	13	66

	Ships.	Tonnage.	Men.
Total for 1850... Outward bound,	7,540	787,560	76,246
Inward "	7,494	837,526	74,277
Total.........	15,034	1,625,086	150,523

	Ships.	Tonnage.	Men.
Total for 1854... Outward bound,	5,726	796,718	73,156
Inward "	9,307	1,131,702	96,413
Total.........	15,033	1,928,415	169,569

The proud naval force, however, disappeared progressively at the capture of Toulon, the victory of the 1st June, 1794, and still more in the victory of Aboukir; so that Bonaparte, on his accession to power, found the French marine in a very reduced state. He labored, however, to reinstate it. The years of continental peace, 1801, 1802, 1803, and 1804, were favorable to his efforts; and in 1805 he boasted of having in equipment 60 sail of the line, a force destined to an early diminution at Trafalgar and St. Domingo. The Bourbons, on recovering their crown, found little more than half the force which existed previously to the Revolution. It has since been augmented, and in 1831 it amounted to 35 ships of the line, 40 frigates, 23 corvettes, 57 brigs, 29 galliots and cutters of eight and four guns, 12 steamboats, 16 armed store-ships, 32 armed transports, and two yachts; total, 284; and in 1854, according to the last authentic account, it consisted of

		Guns.
53	vessels—9 carrying 120, 14=100, 19=90, 11=80 or 82 guns. Total	5,096
58	frigates—42=50 to 60, and 16=40 to 46	3,955
39	corvettes	868
101	brigs, schooners, and cutters	1,066
39	corvettes de charge and gaberres	788
290		11,773

Steam Fleet.

3 vessels of the line,
20 frigates,
80 corvettes,
64 other vessels,

Amounting together to 28,750 guns.

407 (1855)

In the present year (1855) 14 ships of iron (nine being vessels of the line) have been launched, and 32 new vessels are on the stocks.

On the 1st January, 1855, the officers of the French navy consisted of two amirals, 17 vice-amirals, 37 contre-amirals, 108 capitaines, 238 capitaines de fregate, 658 lieutenants, and 614 ensigns.

Fisheries.—The bounties paid for the cod-fisheries in 1852 absorbed between 6,000,000 and 7,000,000 of francs, which was double the sum paid on the average of the five years between 1820 and 1830. The vessels equipped for the fisheries of Newfoundland, St. Pierre, Miquelon, etc., proceed from the ports of St. Malo, St. Brieuc, and Granville. The vessels proceeding to Iceland sail from Dunkirk. The French fish are of very inferior quality to those caught by the Americans, the latter selling at 47 francs 35 centimes per quintal, while the French cod-fish only brought 26 francs 95 centimes. With all this expense, however, the French fisheries are not adequate to the supply of the colonies, which receive considerable quantities of fish from foreigners, as will be seen from the following table:

Fishery and Export of Cod, from 1848 to 1853.

Years.	Ships.	Men.	Expenses of Shipping.	Exportation from all ports	Total expenses.
				Cwts.	
1848	354	11,142	£13,931	311,733	£112,340
1849	324	10,606	20,000	338,733	123,204
1850	363	11,710	22,202	306,030	117,482
1851	396	12,649	24,140	408,351	154,982
1852	419	13,648	25,994	400,154	145,174
1853	421	13,588	25,347	372,715	133,190

Statement of the whale-fishery from the French ports—Havre, 5 vessels, of 2045 tons and 127 men; return of product, 22,142 cwt. of oil of the whale; 30 cwt. of the cachalot; 1608 cwt. of whalebone.

French Cod-Fishery Importations and Exportations—Fresh, Dried, Oil, etc.; and Importations of Whale-Fishery.

Years.	Cod-Fishery.		Whale-Fishery.
	Imported.	Exported.	Imported.
	Cwts.	Cwts.	Cwts.
1848........	412,431	82,964	10,711
1849........	388,374	88,251	19,047
1850........	376.132	62.070	20.157
1851........	403,377	85,410	17,477
1852........	378.862	54.400	3,889
1853........	345,541	55,307	12,081

The mean of the first five years is above 391,915 quintals. Vessels of France employed in the fisheries generally—1848, 849; 1849, 685; 1850, 838; 1851, 925; 1852, 959; 1853, 943. The mean of five years is 851 vessels. The total amount of codfish exported in 1853 from all the ports of France amounted to 1,537,971 kilogrammes, or 55,307 quintals. See article Fisheries.

Whale-fishery.—The whale-fishery was established in France in 1784, by means of encouragements held out by Louis XVI., who ordered that no duty should be collected on the articles exported, and that the produce of the fisheries should pay no import duty. He guarantied the adventurers against loss, and ultimately paid, in addition to £12,500, which he advanced without interest, an additional sum of £6695, being the balance of loss on 17 voyages. Notwithstanding these encouragements, the whole project was abandoned in 1787. In 1816 the offer of bounties attracted new adventurers into this branch of trade. The premium offered by the government was 50 francs (£2) per man, and two thirds of the crews were allowed to be foreigners. In 1819 40 francs were allowed to foreign vessels having a crew half French, 50 francs when the captain and one third of the crew were French; the premium to be doubled if the vessel passed Cape Horn. In 1829 a new ordonnance granted 90 francs per ton on vessels wholly equipped by Frenchmen, 40 francs when only two thirds were Frenchmen, and 30 if the captain was a foreigner. The premium was doubled if the vessel passed Cape Horn. A supplementary premium was allowed to vessels fishing to the south-east of the Cape of Good Hope, and the double premium was given to all vessels fishing at a higher northern latitude than 60°; and as the fishing is seldom or never prosecuted at a lower latitude, this premium of 180 francs per ton (£7 4s.) was invariably paid. The law of 1832, which regulates the whale-fishery of France, established a bounty of 70 francs per ton from March 1832 to March 1833, if the whole crew were French; the bounty to be diminished four francs yearly till it reached 54 francs. If one third of the crew be foreigners, the bounty to be 48 francs per ton, to diminish two francs yearly till it reached 40 francs per ton. A supplementary bounty to be given of 50 francs per ton if the crew be French, decreasing three francs per annum per ton; and 24 francs if one third be foreigners, decreasing one franc per annum, to be paid to vessels doubling Cape Horn, or reaching 62° of south latitude, if returning with less than half a cargo, or after an absence of 16 months; 500 tons to be the minimum for a single whaler.

With these extraordinary encouragements, capital was attracted to this new line of industry; and in 1831 three vessels cleared out for the Greenland whale-fishery, and 13 for the South Sea fishery, which employed 6412 tons of shipping, and were manned by 551 men. Notwithstanding all the bounties given to the whale-fishery, France has very few vessels engaged in it. There were only 17 ships in the trade in 1849, and 7 only re-entered French ports. There were but 5 vessels left Havre in 1853, of a tonnage of 2045 tons, and with a crew of 127 men. The return of the product was 112,485 kilogrammes of the whale, 1589 of the cachalot, and 81,710 kilogrammes of whalebone.

It was estimated by the minister of commerce, in his report on this subject to the Chamber of Deputies more than 20 years ago, that the 550 seamen employed in the whale-fishery do not cost the State less than 1,000,000 francs, at the rate of £72 12s. per man, or £6 a month. The wages granted by the budget to seamen employed in ships of war amounted to £1 per month; so that the allowance to the seamen employed in the Greenland fishery is six times the ordinary allowance of seamen in the public service. It is remarkable that France was granting these extravagant allowances for the encouragement of the whale-fishery exactly at the time that Great Britain was withdrawing the bounties by which she had formerly endeavored to promote this branch of trade as a nursery for seamen. Yet, in 1830, the number of vessels that cleared out for the fishery in England was 123, consisting of 40,166 tons, navigated by 5044 seamen; being thus about eight times the quantity of the tonnage employed by France. The government of Louis Philippe, alarmed at the large outlay in bounty, endeavored to lessen it, and to render it transitory and temporary only. M. d'Argont, the minister of commerce, insisted that these bounties exhausted the resources of the State, and decreasing bounties were after a period adopted, but M. Cunin Gridaine, who was minister of commerce, relapsed into the old error by introducing supplemental bounties. The provisional government of 1848, by one decree augmented the bounties, and by a second extended the term of the law to 31st December 1851. On the 22d of July, 1851, the National Assembly voted for the continuance of the bounties to 1861.

Shipping.—France seems destined, by the natural advantages which she possesses, to become a maritime power of the first rank. Her sea-coast exceeds in extent that of any other continental State. On the Atlantic she has 130 leagues of coast, 150 on the Channel, and 90 on the Mediterranean; while her position between northern and southern Europe, and her numerous ports and navigable rivers, are eminently favorable to the extension of her navigation. But in this as in all other branches of the French trade, the prejudicial effects of the restrictive system have been abundantly manifest. France, in forcing a trade with her colonies, containing less than half a million of inhabitants, has sacrificed her trade with other tropical countries and their numerous population, to the great injury of her shipping interest. A great increase has taken place in the tonnage employed in the coasting trade of France, a fact which affords clear and convincing evidence of the extending resources of the country, which would have equally occasioned an increase in the shipping employed in the foreign as well as the domestic trade, if this important branch of industry had not been stunted in its natural growth by the monopolizing system. The navigation of France no doubt suffered grievously during the last war, under the maritime hostility of Great Britain. But in the course of nearly 20 years it would have recovered from this state of depression, if the natural energies of the country had been allowed free scope in this line of industry.

Butcher's Meat.—The Revolution of 1830 did not alter the system prevailing antecedently with respect to the trade in butcher's meat, but modified it. The same may be said of the Revolution of 1848. It did not change the system but modified under certain heads the practice of the trade. The *droits d'octroi et de caisse de Poissy* were at first suppressed, then re-established, but with a radical change in this respect, that the duty was levied by the *weight* of the cattle, and not at so much per head, as before. This alteration had long been ineffectually demanded by the agricultural breeders. Butchers from the interior of France were also to provide stock and meat for the Paris market as well as their brethren of the capital. These regulations and modifications satisfied neither agriculturists nor butchers. In the month of January, 1851, the National Assembly directed an inquiry into the production and consumption of butcher's meat. The commission charged with this inquiry seriously engaged in it, but the events of the 2d December, 1851, prevented it from finishing its task. From the portion of the report, however, that has been printed, we know that it was the opinion of the committee that there should be liberty of commerce in meat, and that the local authorities should, under no pretext whatsoever, be allowed to interfere with this cardinal principle. The committee considered meat, like spice, silk, or cloth, a mercantile commodity, and were of opinion that the police should only interfere as to frauds in reference to quantity or quality, or as to the wholesomeness of the victual as an article of food. This was only returning to the principle professed in the laws of the 14th and 17th June, 1791, and the 1st Brumaire An. VII. On the question of the *octroi* they were of opinion that it interfered with the price and consumption of food, and that it should be abolished from the 1st January, 1860. Since this report was published the price of butcher's meat has increased, and the supply has diminished at Poissy, the great market which supplies Paris. In consequence of this, recourse was had to an expedient which sound political science has proved to be utterly ineffectual. An ordonnance appeared in the *Moniteur* of the 11th and 12th October, 1855, of which the following is the substance:

"On and after the 16th of the present month, butcher's meat shall be sold at prices taxed by the authorities. The prices shall be fixed every fortnight for every kind of meat, according to the returns made at the Caisse de Poissy, and to the weight of meat ascertained to have been sent from the public slaughter-houses of Paris during the preceding fortnight. In the shops established in the markets, meat shall be sold at 10c. at least, per kilogramme (about a half-penny per pound) below the fixed price."

This decree, which violates every sound principle of political economy, appears to have been well received by the poorer classes of the population, who had long complained of the dearness of meat, and of the exorbitant profits of the butchers. But the way to reduce the profits of the butcher is to destroy the monopoly, and to render trade in meat free.

Revenue and Expenditure.—In France, the ancient system of taxation and finance was extremely unequal and oppressive. Her various provinces, though they were united under one head, retained many of their own peculiar laws and privileges, which were absurd in themselves, and opposed to the general interests of the empire. Among these was an exemption from certain imposts, to which some were subjected, and consequently over-taxed; and others, again, contributed a certain quota of revenue to government, which they raised by taxes imposed by their own local authorities. The consequence was, that no uniform system of taxation could be established throughout the country. The taxes on many commodities were higher in one province than in another; and custom-houses were accordingly established on their respective frontiers, to prevent the importation of goods until they had paid the duties. In this manner, owing to the inequality of taxation, commodities could not freely pass from one district of the country to another; and the kingdom was thus broken into separate divisions, to the great interruption of trade. The partiality shown to the privileged orders was another serious grievance to the ancient system of French taxation. The taxes by which the public revenue was raised were, first, the *taille*, a tax on real property, or on income derived from commerce and industry. From this tax the lands of the noblesse and clergy were exempt. "The tax was called *taille*," says Borel, "because the peasant collectors, not knowing how to write, marked down what they had received on a wooden tally." Secondly, the *vingtième* was the tax of 1-20th on property, from which the clergy alone were exempted. This tax was established in 1750, and was levied upon all property of whatever description. In 1754, it was taken off the amount of income arising from personal industry. Thirdly, a poll tax was levied on all classes indiscriminately. Many of the taxes were farmed by rich capitalists, called farmers-general, or *fermiers-generaux*, who paid annually into the treasury a fixed sum, and collected the taxes from the people. Those farmers-general held the monopoly of the manufacture and sale of tobacco and salt; and also the *octroi*, which was a duty on all articles entering Paris and other large towns. The power delegated to these contractors, was the source of grievous oppression to the people. The duties called *aides* were imposed on spirituous liquors and other articles of consumption; they also include duties on all articles worked in gold or silver, on wrought iron, playing-cards, leather, paper, starch, etc. These duties levied by collectors for the benefit of government were abolished by the National Assembly in 1790. The *corvée*, which consisted in so many days' labor annually, of men, horses, oxen, carriages, etc., was nominally applicable to the maintenance of roads. The tax was payable either in money or in labor. The system of taxation, so prejudicial to internal commerce, was, to a certain extent, reformed by Colbert, the minister of Louis XIV., who, though his views in regard to the principles of commerce were narrow and illiberal, yet improved in many particulars the system of taxation, by rendering it more uniform, and thus breaking down the barriers which obstructed the free intercourse between the different provinces. Under his administration the public revenue of France amounted in 1682 to £5,000,000.

The long and expensive wars of Louis XIV. produced a great accumulation of debt (nearly £100,000,000 sterling), which, after his death, was lessened by an appeal to a singular privilege, of which advantage has often been taken in France, viz., that a new sovereign is not bound to pay the debts of his predecessor in full. During the 18th century, the revenue of France increased progressively, but more slowly than that of England: the vicious system of farming the taxes still continued. Necker, appointed to office in 1776, endeavored to teach the French court the value of publicity in financial statements; and exhibited the rare example of a war conducted for several years without new taxes, the supplies being found by loans, the interest of which was provided for by successive retrenchments in the public expenditure. His successor, M. de Calonne, pursued a very different course, and was found altogether incapable of the measures necessary to remedy an annual deficiency of £2,000,000. The revenue of France was then about £22,000,000 sterling. The sum required for payment of the interest of the public debt was nearly 10,000,000 (Report of Camus to the National Assembly in September, 1790), leaving only £12,000,000 for the army, navy, civil list, and other public expenses.

Such was the state of the French finances at the era of the Revolution of 1789, which was followed by invasion on the frontier, and in the interior by all the confusion consequent on the reign of terror. In this era of confiscation and judicial murder, the national debt could hardly be respected. It was not, however, openly canceled, but the interest was issued in assignats of no value except for purchases of national property. At last, in 1798, on an approximation to regularity in the management of public business, there was passed a law declaring that one third of the old national debt should be sacred, and the interest on it payable in *bons*, or paper receivable in discharge of taxes. This third was called *la tiers provisoire*, but its price in the market continued very low until Bonaparte succeeded to power, and placed Guadin, afterward Duke of Gaeta, at the head of the treasury, when means were found to redeem the public funds from their depression, and to resume the payment of the dividends in cash. The amount of the revenue was greatly impaired by the general confusion of the Revolution. In 1799 the expenditure exceeded the receipt by £8,000,000 sterling. (Gaudin, *Notice Historique des Finances de la France.*) A partial reduction of expenditure, and improvements in the collection of the taxes, brought, in 1803, the receipts to £19,500,000, while the expenditure was £20,000,000. In subsequent years both received a progressive augmentation; and in 1813 the revenue derived from France, exclusive of conquered territory, was about 27,000,000. On the restoration of the Bourbons, in 1814, the public debt, funded and unfunded, did not exceed 123,000,000 (Bignon, *Exposé Comparatif de la France*); its interest £7,900,000. France had thus a fair prospect of financial prosperity, when the return of Bonaparte, and a second invasion by the allied troops, overthrew public credit, and produced a national loss and a general derangement of trade. It has been estimated that the return of Napoleon from Elba, which led to the second invasion of France by the allied troops occasioned a loss to the country of 4,000,000,000 of francs. The direct loss, which included the expenses paid to the allied powers, and those incurred by the maintenance of their armies, placed in cantonments throughout France, may be estimated; but the indirect evils occasioned by the ravages inseparable from the invasion of a hostile army, by the confusion and derangement of all commercial relations, and the impossibility of collecting the revenue in such a time of trouble, can not be summed up in money. At the same time there are scarcely any national difficulties which may not be overcome by the energies and industry of a free and intelligent people such as the French. With an inconsiderable addition to her debt, France has defrayed all these heavy expenses, the contributions imposed on her by the allied powers, the expenses of the temporary maintenance of their armies, and her own warlike expenses. For this purpose, however, it became necessary in 1815 to impose additional taxes. In 1817 a loan was required of 392,989,000 francs; and in 1818, to defray the extraordinary contribution of 575,807,197 francs, paid in that year to the allies, the minister had recourse to another loan of 220,510,718 francs; while, by the taxes which had been imposed, the revenue of that year was carried to £35,000,000.

MEAN REVENUE OF FRANCE IN THE TEN YEARS BETWEEN 1832 AND 1842.

	1832.	1842.
	Francs.	Francs.
Direct Taxes	341,386,157	401,900,835
Registration, Stamps, etc	181,108,061	230,896,780
Forests, etc	27,080,175	34,700,000
Customs and Salt	152,855,890	181,107,236
Indirect Taxes	198,188,051	240,568,321
Post Office	49,468,948	47,025,500
Algerian Revenue		4,349,082
Prod. Universitaires		19,127,972
Prod. Eventuels, etc		2,890,000
Divers Sources	14,018,509	12,519,749
Total	954,105,791	1,174,584,975

The expenditure of 1853 was as follows:

	Francs.
Interest on Public Debt, etc	372,314,577
Dotations—Civil List, etc	17,268,580
Expenses of various Ministries—Justice, Foreign Affairs, etc	787,553,516
Expense of Collecting and Paying Taxes, etc	151,095,335
Drawbacks, Discounts, Bounties, etc	83,942,983
Total	1,412,274,991
Travaux Extrordinaires or Additional Works	72,738,334
Total	1,485,013,325

Besides the public revenue of the empire, the communes raised a revenue for their own local expenses. According to the latest published accounts, this revenue arises partly from *octrois*, which amount throughout France (there being 1436 *octrois*) to 95,176,602 francs, and partly from other sources, the whole of which amounted to 230,633,209 francs in 1850. The total of the ordinary ways and means of France in the *Budget Provisoire* of 1855 amounted to 1,528,110,288 francs. During the administration of M. Vilèle the five per cents. in France were converted into a three per cent. fund, at the rate of 133·33 cents. for every 100 of the five per cent. stock; so that the whole five per cent. stock, bearing an annual interest of 30,574,116 francs, was converted into a three per cent. fund, of which the capital was increased one third. The effect of this transaction was, in reality, to reduce the interest on the five per cent. stock to four per cent., by which he saved annual interest to the amount of 6,000,000, though by a very useless complexity in his operations. The interest on the public debt of France, thus reduced, may be stated as follows: it amounted in 1855 to 418,370,442 francs. The sinking fund, or *caisse d'amortissement*, ceased altogether its operations on the 14th July, 1848. In the 32 years of its operation the *caisse d'amortissement* liberated the country from liabilities to the amount of 1,633,474,090 francs, and placed at the disposition of the treasury, from 1833 to 1848, 1,016,693,856 francs.

Taxation.—The ancient system of taxation in France was subverted by the National Assembly in 1791, and new taxes were substituted in lieu of those formerly in force. These consisted of direct and indirect taxes. The direct taxes are, 1. *Contribution foncière*, or land-tax; 2. *Contribution personelle et mobilière*; 3. A tax on doors and windows; 4. *Droits de patente*, or a license duty on particular trades and professions, and a duty on mines.

The *contribution foncière* is raised equally on all lands and houses, in proportion to their nett revenue. There are no longer any exemptions in favor of the nobility since the first Revolution, in 1789. The imperial domains and the property of the State are alone exempted. The *contribution personelle et mobilière* is divided into two parts. The first is a species of poll tax, rated at three days' labor, calculated in money value to be from 10 to 30 sous per day, and levied on all males above 18 years of age. The *contribution mobilière* is a house-tax, levied on rents from 200 to 3500 francs. For the *contribution personelle*, the *octroi*, which is a custom-duty on all goods entering a town, is substituted in Paris and other large cities. The tax on street-doors, gateways, and windows, varies in proportion to the size of the town in which the house is situated, and also in proportion to the size and value of the house, and the number of windows. It is regulated by a tariff, in which are two divisions. The *droits de patentes*, or license duty, is levied on every person following a profession, trade, or business; and is divided into two heads—the proportional tax or the fixed tax, which depends on the extent and population of the town where he exercises his profession. A merchant pays from 40 to 5000 francs per annum, according to the population of the place where he resides, and an additional 10 per cent. on the rent of his dwelling-house. Bankers in all cases pay 510 francs a-year; and there is in like manner a fixed rate for other inferior trades and professions. The duty on mines is in proportion to the extent of the surface, and also to their nett produce.

The law which fixes the amount of the direct taxes also determines the quota which each department is required to pay. This is announced by the minister of finance to the prefect of the department, who communicates it to his sous-prefect and to the mayors. The sum thus assigned by the prefect to each arrondissement is subdivided by the councils of the arrondissement and by the communes; and the amount allotted to each is apportioned among the inhabitants by persons appointed for that purpose, called *repartiteurs* or assessors. These assessors regulate the amount of taxable property, and they fix the scale. The land-tax is, however, very unequally assessed, amounting in some departments to six per cent., while in the department of the Seine it is seventeen per cent. The equalization of the land-tax has always been accounted a capital object in the financial policy of France; and with this view a very minute survey and measurement of all the landed property in France (termed the *cadastre*) was begun in 1808, and finished in 1847. The *cadastre*, accurate as it generally is, can not, however, be considered as the expression of actual facts. The *propriétés imposable*, or taxable property, consists, according to the *cadastre*, of 25,581,658 hectares of cultivable land; 5,159,226 hectares of meadows; 2,090,533 hectares of vines; 628,235 hectares of orchards, nurseries, and gardens; 4,175 hectares of mines; and 17,400 hectares of lakes, ponds, etc. The inequality of the land-tax has long been a subject of loud and just complaint; and various plans have been adopted for a more accurate classification of the land. But these have generally proved inefficient and unsatisfactory.

The indirect taxes consist chiefly of fourteen principal kinds—of the *droits réunis* or excise duties on articles of consumption, of stamp duties, registration duties, duties on carriages, on canals and ferry-boats, on gold and silver plate. A revenue is raised from the monopoly of tobacco and gunpowder; from the post office; the *octroi*, or custom duty on all articles entering large towns, one tenth of which goes to the imperial treasury, the remainder being applied to local expenses. The customs form an important branch of the French revenues. The *droits réunis*, or excise duties, are laid on wine, brandy, etc., which pay 1½ francs per hectolitre of 120 English quarts, on being removed from one place to another. Wine in bottles pays 10 francs per hectolitre on its removal; cider, perry, and mead, pay 80 centimes per hectolitre. Ten per cent. of the above duty is paid on their removal from the wholesale warehouse. Prior to 1830 a duty distinct from the octroi was levied on the entry of all wine or spirituous liquors into communes the population of which amounted to 1500 and upward. All communes whose population does not amount to 4000 are exempted from this tax; and a new tariff has been established, rising progressively from 4000 to 5000 inhabitants, in proportion to the estimated wealth of the departments, which are divided into four separate classes—a very vague, as we should suppose, and uncertain standard of taxation. There is a further duty on wine and liquors sold by retail, which since 1830 has been reduced from 15 to 10 per cent. A reduction of 3 per cent. on this duty is made to dealers, and of 25 per cent. if the wine be grown by the retailer himself. Strong beer pays a duty of 2 francs 40 centimes, and small beer a duty of 12 sous, per hectolitre. Retailers of liquors must take out a distinct license, which varies, in proportion to the size of the town, from 6 to 20 francs. Proprietors of public carriages pay one tenth of the price of each place for passengers, a third being deducted for vacant places, and one tenth of the price received for merchandise. Private carriages are subjected to a moderate duty, according to their size, of 40 francs per annum for a carriage with two wheels, and holding two persons; and of 150 francs per annum for a carriage with four wheels, and holding nine persons. The *enregistrement*, or registration duties, embraces a variety of transactions, where property is conveyed or given away by marriage-settlement or otherwise. There is a duty on gifts *inter vivos*, which increases with the distance of the relation between the parties. It was modified by an ordonnance of Louis Philippe in 1832. The duties payable on registry are either fixed or *ad valorem;* the fixed or certain duties apply to common certificates, those of life or residence, account-books, bills of lading, appointments of arbitrations, valuations of furniture, and the like. The *ad valorem* duty applies to all bonds or obligations, discharges, judgments, deposits or releases of sums of money, and for every transfer of property, etc. The stamp duty applies to receipts, bills of exchange, newspapers, handbills, playbills, admission cards to public places, and upon paper used for civil and judicial *actes*.

The total received from the *impôt direct* in 1854 was 411,273,000 francs. In 1853 the sum received was 420,064,000 francs, which shows a deficit of nearly 9,000,000 of francs in 1854. The total receipts of the *impôts indirects* in 1854 were 847,260,000 francs. The impôt on salt produced in 1854 a sum of 33,270,131 francs. The total of "droits" received in 1854 amounted to 149,337,510 francs.

	Francs.
Land carriage or roulage 31,000,000 of tons, the mean transport at 15 leagues, at the mean price of 1 franc per ton.	465,000,000
The public voitures which travel 18 leagues per day, in place of the common carriages of 8 or 10 leagues, yield, per annum....................	60,000,000
The duty on the public conveyances returns 6,000,000 francs; three fourths are derived from the passengers, and one fourth from the goods they convey.	

The share capital of the French railways in 1848 was £49,044,000 sterling. The total merchandise conveyed per transit in 1844, was in value 229,820,795 francs. In 1854=54,926,640 francs official value. Value of wine, spirits, beer, and cider consumed in France, reckoned at 500,000,000 francs, give 311,000,000 francs wine, 54,000,000 francs brandy, 59,000,000 francs beer, and 76,000,000 francs cider.

The duties levied on this branch of the French revenues produced £5,483,765 in 1852 and £5,505,686 in 1853. In France these duties are laid on in many cases more with a view to restriction and monopoly than to revenue. France sacrifices a large revenue for the encouragement of the colonial monopoly; paying for the produce of the colonies an exorbitant price, and afterward, as in the case of sugar, the staple article that is imported from the colonies, giving a great portion of the duty as a bounty on its exportation to foreign countries, to indemnify the exporter for the loss that he would incur if he were selling the sugar at its ordinary price in the markets of Europe. In 1830 the gross receipts from the sugar duty amounted to £1,397,340, of which one third, namely, £420,903, were paid back in bounties on the exportation of the surplus. Thus the nett duty only amounted to £976,437, while in 1822, though the quantity of sugar consumed was only 1,086,596 cwts., or 281,075 cwts. less than in 1830, the nett amount of the duty was £1,234,653. The consumption of sugar in France in 1847 only reached to about 2,570,000 cwts. It is by means of heavy custom-duties that the French legislators endeavor to preserve the monopoly of the home market to their own manufacturers, by which policy they compel the French community to buy at a high price the inferior articles of their own manufacture, rather than the better articles of the foreigner at a lower price. The increased numbers and superior vigilance of the custom-house officers have been still counteracted by the new expedients and persevering ingenuity of the smuggler.

The frontier of France is the scene of this persecution against commerce, where all the illegal, daring, and ingenious resources of the contraband traders are called into activity. Among other expedients, they trained packs of dogs, according to Messrs. Villiers and Bourtry, to carry prohibited goods across the frontier. These dogs being conducted to the frontier, are kept without food for many hours; they are then beaten and laden with goods, and are started on their travels when it begins to grow dark, and reach the abodes of their masters as soon as they can, where they are well treated, and receive a full meal. According to the accounts of the French custom-house, 40,278 of these dogs were destroyed in the year 1830, on which account premiums were paid to the custom-house officers to the amount of 40,278 francs. That the trade, though it may be obstructed, is not prevented, is evident from the circumstance that there are regular rates of insurance on the conveyance of contraband goods into France, varying from 10 to 70 per cent. A revision, and if possible a reduction, of these heavy duties would be the true policy of France. Monopoly was never yet the source of commercial greatness in any country.

National Income and Capital.—Population.—Of the official surveys of the French territory, by far the most minute and accurate is the *cadastre*, a survey which became indispensable from the time it was determined to exchange the taxes on consumption for taxes on produce. A return of the rent of land, such as was made under the property-tax act in England, would not have been practicable in France, where so many thousands of petty lots are cultivated by their proprietors. At first the *cadastre* proceeded on the plan of an estimate *par masses de culture*, or continuous valuation of extensive tracts; but this proving unsatisfactory, it has been conducted since 1807 on a plan of such minute detail, as to give the value of every separate *parcelle* or patch of land. The progress of this minute survey of the landed property in France has been retarded by many causes; and in 1830 not above two thirds of the land had been surveyed. It was estimated in the report of one of the committees of the Chamber in 1832, that it would still require from that period about eight years, and an expense of above £2,000,000 sterling, to complete it. They had only surveyed 31,000,000 of hectares, or 68, 000,000 of acres. The annual expense of the survey is £120,000.

The wages of mechanics are so fluctuating and various, that a satisfactory statement of them can scarcely be produced. It may, however, be assumed that they are generally 20 or 30 per cent. lower than in England. The rate of wages of the agricultural population was thus estimated in 1851:

			Fr.	cents.		Francs.
6	millions of men,	at	1	50	per diem	1,800,000,000
6	" of women,	"		75	"	900,000,000
6	" of children,	"		25	"	3,000,000
18	" of agricul. laborers paid yearly.					3,000,000,000

Expense of Living.—A quarter of a century ago the difference in the expense of living in France and in England was about a third less in favor of England. As far as regards provisions, this difference was somewhat greater; but it received a counterpoise in the greater cost of fuel. Paris is now as expensive compared to the rest of France, as London is compared to the rest of England. In 1855 prices were generally on a par with prices in London, and in house-rent and the prices of lodgings and fuel, Paris exceeds London.

In the end of the seventeenth century, the territory of France, when very nearly equal to its present extent, appears, from the report of the intendants or provincial governors, to have contained about 20,000,000 of inhabitants. This number was found, by the census made by order of the National Assembly, to have increased nearly a third in the course of a century; the amount, in 1791, being 26,363,600, a number which, by computation, made in 1817, had further increased to above 29,000,000. In the year 1820 the population was 30,451,187: and, according to the ordonnance of January 1832, it amounted to 32,661,678. By the census of 1851 it appears that the population of France was 35,781,628. The marriages in 1832 and 1833 were annually about 236,996, and the deaths about 785,268, of which 395,250 were males, and 388,018 females. The births were 967,533, of which there were 498,707 boys and 468,826 girls. The number of illegitimate children was then 68,081. In 1852, twenty years after the period here spoken of, the total number of births was 965,080, of which 895,236 were legitimate, and 69,844 illegitimate. The number of children still-born in 1852 amounted to 37,901, the number of deaths to 811,695, and the number of marriages to 281,360.

The estimates of population in France, subsequently to 1791, are formed, not by actual survey, but by adding for the period which has intervened, the births, and deducting the deaths, of which an accurate record is kept in the public offices.

POPULATION OF TOWNS WITH 18,000 INHABITANTS AND UPWARD IN 1832 AND IN 1851.

Towns.	1832.	1851.	Towns.	1832.	1851.
Paris.........	774,338	1,053,262	Rennes.......	29.680	33,066
Marseilles....	145,115	185,082	Besançon	29,167	35,345
Lyons.........	133,715	156,169	Versailles	28,477	29,975
Bordeaux.....	99,062	123,935	Toulon.......	28,419	45,510
Rouen........	88,086	91,512	Clermont-Ferrand........	28,257	30,563
Nantes.......	77,992	91,303	Limoges......	27,070	37,010
Lille..........	69,073	68,463	Montauban...	25,460	23,314
Toulouse.....	59,630	85,554	Dunkirk......	24,987	26,886
Strasbourg....	49,712	63,642	Grenoble.....	24,888	26,852
Amiens.......	45,001	49,139	Havre de Grace......	23.816	26,410
Metz..........	44,416	48,484	Troyes.......	23.740	25,636
Nimes........	41,266	49,480	Tours........	23,235	
Caen..........	39,140	40.569	Poitiers......	23,128	23,818
Rheims	35,971	43,643	Aix..........	22,575	24,255
Montpellier...	35,825	40,222	Boulogne.....	20.856	29,488
Angers.......	32,743	43,088	St. Omer.....	19.344	19.226
Avignon......	29,889	31,812	L'Orient.....	18.322	22,561
Brest.........	29,860	36,492			
Nancy........	29,783	40,289			

The ratio of the increase of population in France is greatest in the lower classes; the middling and upper ranks have seldom large families. In that country the population evidently increases faster since the adoption of vaccine inoculation.

French Weights and Measures.—The weights and measures of France were reduced, as is well known, to a very simple and uniform scale soon after the first Revolution; but there has been much difficulty in accustoming the inhabitants, particularly in country districts, to the adoption of the new system, which unluckily preserved none of the names with which they were familiar. In 1812 a kind of compromise took place—government sanctioning the retention of the old names, such as pounds, ounces, ells, and bushels; but requiring that their contents should be calculated by a reference to the new standard. It is accordingly on this footing that business is now transacted in France. The new weights and measures are in general larger by a fraction than the old, and the use of the latter is prohibited by law.

The fundamental standard adopted in France for the metrical system of weights and measures, is a quadrant of the meridian—that is to say, the distance from the equator to the north pole. This quadrant is divided into 10,000,000 of equal parts, and one of these parts or divisions is called a metre, which is adopted as the unit of length; and from it, by decimal multiplication and division, all the other measures are derived.

The length of this quadrant was ascertained by MM. Delambre and Méchain, by measuring an arc of the meridian between the parallels of Dunkirk and

Barcelona, and has been found to contain 5,130,740 French toises, or 32,808,992 English feet. This number divided by 10,000,000 gives 3·2808992 English feet, or 39·37079 English inches very nearly, for the true length of the French metre.

In order to express the decimal proportions, the following vocabulary of names has been adopted:

For multipliers the prefix	DECA	means	10	times.
" "	HECTO	"	100	"
" "	KILO	"	1,000	"
" "	MYRIA	"	10,000	"
For divisors the prefix	DECI	expresses	·1	part.
" "	CENTI	"	·01	"
" "	MILI	"	·001	"

It may assist the memory to observe that the prefixes for multiplying are Greek, and those for dividing Latin; thus decametre means 10 metres, and decimetre 1-10th of a metre; hectometre means 100 metres, and centimetre 1-100th of a metre; kilometre means 1000 metres, and millimetre 1-1000th of a metre. The metre (as before stated) is the element or prime unit of long measure, and is equal to 39·37079 English inches.

The are, which is a square decametre (or 100 square metres), is the elemental unit of square or superficial measure. It is equal to 119·6033 square yards, or very nearly 2-81 parts of an acre.

The stere, which is a cubic metre, is the elemental unit of solid measure, and equal to 35·3166 cubic feet English, or nearly 35½ cubic feet.

The litre, which is the cubic decimetre, is the elemental unit of all liquid measures, and of all other measures of capacity. It is equal to 61·02705 cubic inches, or is very nearly 11-50ths or 22-100ths of an imperial gallon.

Lastly, the gramme, which is the weight of a cubic centimetre of distilled water at its temperature of greatest condensation, is the elemental unit of all weights, and is equal to 15·4325 grains troy, or 13-23ds of an avoirdupois dram nearly.

TABLES OF FRENCH WEIGHTS AND MEASURES, WITH THEIR VALUES IN THE ENGLISH IMPERIAL STANDARDS.

LINEAL MEASURE.

	Inches.	Yards.	
Millimetre =	·03937079		
Centimetre =	·3937079		
Decimetre =	3·937079		
METRE =	39·37079	= 1·093633	
	Feet.		
Decametre =	32·80899	= 10·93633	
Hectometre =	328·0899	= 109·3633	= 5-80 mile.
Kilometre =	3280·899	= 1093·633	= 18-29 "
Miriametre =	32808·99	= 10936·33	= 6 3-14 miles.

SUPERFICIAL MEASURE.

	Sq. Yards.	Sq. Feet.	Sq. Inches.
Centiare =	1·196033 =	10·7643	= 1550·059
Deciare =	11·96033 =		
		Acre.	Acres.
ARE =	119·6033 =	·0247114 =	1-40 n'rly.
Decare =	1196·033 =	·247114 =	1-4 "
Hectare =	11960·33 =	2·47114 =	2 1-2 "
Killiare =	119603·9 =	24·7114 =	24 7-10 "
Miriare =	1916033· =	247·114 =	247 1-9 "

SOLID MEASURE.

	Cubic Inches.	Cubic Feet.	Cubic Yards.
Centistere =	610·2705 =		
Decistere =	6102·705 =	3·53166	
Stere =	61027·05 =	35·3166 =	1·30802
Decastere =	610270·5 =	353·166 =	13·0802

MEASURE OF CAPACITY.

	Cubic Inches.	
Centilitre =	·6102705 =	
Decilitre =	6·102705	
LITRE =	61·02705 =	11-50 gallons nearly.
Decalitre =	610·2705 =	2 1-5 " "
Hectolitre =	6102·705 =	22 " "
Mirialitre =	61027·05 =	220 1-100 " "

MEASURE OF WEIGHT.

	Grains Troy.	
Centigramme =	·154325	
Decigramme =	1·54325	
GRAMME =	15·4325	
Decagramme =	154·325 =	·35275 oz. av.
Hectogramme =	1543·25 =	3·5275 "
Kilogramme =	15432·5 =	2·2047 lbs. av.
Miriagramme =	154325· =	22·047 "

The following are some nearer approximations to the values of the weights and measures of most frequent occurrence:

METRE	about	1 yard 3 inches.
DECAMETRE	"	11 yards.
HECTOMETRE	"	1-16 mile.
KILOMETRE	"	5-8 or more nearly 18-29 mile.

One of the old measures frequently used, the toise, is equal to 2 yards 5 inches.

ARE about.....	1-40	acre.
DECARE........	1-4	acre or 1 rood.
HECTARE.......	2 1-2	acres.
DECISTERE.....	3 1-2	cubic feet.
STERE.........	1 2-3	cubic yards.
DECASTERE....	13 1-10	" "
LITRE about....	1-5	or 11-50 gallon.
DECALITRE.....	2 1-5	gallons.
HECTOLITRE....	22	gallons or 2 3-4 bushels.
MYRIALITRE...	3 1-2	quarters.
GRAMME.......	5-9	dram avoird.
DECAGRAMME..	1-3	oz. "
HECTOGRAMME.	3 1-2	" "
KILOGRAMME..	2 1-5	lbs. "
QUINTAL or 100 Kilogrammes	is 3 1-2	lbs. less than 2 cwt.

French Money.—The French monetary *unit of value* is the franc, which, in the gold coinage of 20 and 40 franc pieces, is equal in value to 9·525 pence sterling, and in the silver coinage of francs and five-franc pieces, is equal to 9·705 pence; but the common rate of exchange is 25 francs for 1 sovereign, which gives the value of a franc equal to 9 3-5 pence sterling.

	s.	d.	d. farth.	farth.
Centime............	= 0	0·096	= 0 0·384	= 0 2-5 nearly.
Decime.............	= 0	0·96	= 0 3·84	= 3 21-25
FRANC..............	= 0	9·6	= 9 3-5	
Five-franc piece...	= 4	0		
Napoleon or 20-franc piece.....	= 16	0		

In reducing French money to English, from any number of francs subtract their fifth part, and the remainder will be their value in shillings. Or multiply the francs by four, point off the two right hand figures of the product for decimals, and the result will be their value in pounds and decimals of a pound sterling.—E. B.

Commercial Relations of the United States with France.—Prior to the ratification of the treaty of the 6th of February, 1778, we have no reliable account of the value of our trade with France. The navigation acts and other regulations imposed upon the colonies by the mother country, strongly tended to fetter and embarrass their intercourse with other nations; but, in spite of them, irregular, illicit commerce was carried on to a considerable extent. By the treaty alluded to, the high contracting parties reciprocally bound themselves to grant to each other, in respect to commerce, all the privileges and immunities which either of them might thereafter grant to the most favored nations; to charge no more in imposts, port duties, or other customary burdens of trade, to the subjects or citizens of each, respectively, than should be charged to the subjects or citizens of other powers; and to protect the vessels of each other when within their respective jurisdictions. The subjects or citizens of either were excluded from the fisheries of the other, and the United States became bound not to disturb the subjects of the King of France when fishing at the Banks of Newfoundland. The citizens of the United States were exempted from the *droit d'aubaine*, and were empowered to devise real and personal property, and their heirs were permitted to inherit without becoming naturalized in France; and corresponding privileges were secured to French subjects residing in this country. The doctrine that "free ships make free goods" was recognized, and the articles to be deemed contraband of war were enumerated. The remaining stipulations refer exclusively to contingencies of war, and need not be enumerated. On the 14th of November, 1788, a convention was entered into and ratified, defining the powers and duties of the consuls of the high contracting parties. This convention was intended the more effectually to secure the faithful observance of the treaty stipulations.

These arrangements were ratified while the Continental Congress had no authority to regulate foreign commerce; and the ratification, therefore, only amounted to a pledge that the States would conform to its provisions, they having the sole power to levy imposts and port and tonnage duties. The arrangements continued in force, however, and were observed for more than 20 years, and until annulled by the act of the 7th July, 1798, on the ground of repeated violations of treaty stipulations by the successive revolutionary governments of France. Many of the fetters of trade were removed by this treaty; and, although importations and exportations were, for a time, exposed to the depredations of British cruisers, the enterprise of our seamen opened a commerce of no inconsiderable value. It was estimated that, during the three years immediately preceding the French Revolution, the average annual value of our exports to France was $1,520,000, and of our imports from thence, $380,000; showing an excess of exports of the value of $1,140,000. The imports and exports up to the date of the annulment of the treaty of 1778, were as follows:

Years.	Imports.	Exports.	Excess of exports.
1795.........	$3,671,331	$7,698,683	$4,027,352
1796.........	1,835,066	8,171.759	1,836,693
1797.........	3,045,796	3,825,231	779,435
1798.........	1,871,727	1,476,588	104,861

This statement indicates that, from 1795, there was a rapid decrease of imports and exports, and a decrease of the excess of our exports, attributable, no doubt, partly to the feebleness of federal authority, but chiefly to the convulsed condition of the French nation, the continuance of war in Europe, and the consequent disregard of treaty obligations.

Previous to the annulment of the commercial treaty, Congress passed an act "to suspend the commercial intercourse between the United States and France, and the dependencies thereof," approved June 13, 1798. It was provoked by repeated gross violations of the treaty by the French government and its citizens. The act provided that no vessel should clear from the ports of the United States for France or its dependencies; that no French vessel should enter our ports without a passport from the President, unless in distress; that French vessels found in our ports, and refusing to depart, should be seized and detained; and that the President might dissolve the prohibition of the act whenever he became satisfied that the French government and all under its authority were, in good faith, endeavoring to prevent her citizens from intermeddling with our commerce. This act was continued in force until the end of the ensuing session of Congress, when it expired by its own limitation. Two days subsequent to the annulment of the treaty, another act was approved, "further to protect the commerce of the United States." The President was thereby authorized to instruct the commanders of the naval forces of the United States to capture French armed vessels, which were, by the act, to be forfeited, and to grant letters of marque and reprisal to private citizens. These acts had the desired effect. The French government was in no condition to assume an attitude of open hostility.

On the 30th of September, 1800, a convention was signed by the plenipotentiaries of the United States and France, which was ratified in due time, for the adjustment of all differences, and the regulation of their future commercial intercourse. By its terms, it was to continue in force for eight years. In respect to commerce, it provided that the citizens of each country should enjoy in the ports of the other all the privileges and immunities of the most favored nations; that the citizens of either resident in the other should have the right to devise their property without being naturalized, and their heirs the right of inheritance; that six months should be allowed for the removal of property in case of war; that debts should not be sequestered or confiscated in consequence of war; that consuls and other agents should be appointed; that the traders of each might buy and sell of the enemies of the other, save in ports blockaded; that certain specified articles only were to be considered contraband; that free ships should make free goods, and the ships of either might carry enemy's property, save only contraband articles; that property of either found in enemy's vessels should be confiscated; that ships under convoy should never be examined; and that various minor provisions enumerated in the treaty, as means for the execution of its provisions, should be observed. This was followed by the treaty of the 30th of April, 1803, for the cession of Louisiana, by which the right of navigating the Mississippi and its tributaries was reserved to France for 12 years; and another convention of the same date, providing for the payment by France of debts due our citizens.

The convention of 1800 regulated our commercial intercourse with France until the 24th day of June, 1822. A few facts will show how our trade with that nation progressed during that important period. It must be borne in mind, that nearly all Europe was combined for three fourths of that space of time in waging war upon the French empire and its allies, and that, for a considerable period, the whole of France was declared by Great Britain to be in a state of blockade. It must also be remembered, that in 1812 the Congress of the United States declared war against Great Britain, and that this war was waged with great vigor on both sides, until brought to a triumphant close in 1815. The vast superiority of the naval force of England rendered intercourse of European nations with their colonies very hazardous, if hostile to her. These nations were hence compelled to rely upon neutrals to carry on this branch of trade. For a time, the productions of the French, Spanish, and Dutch colonies could be carried to their mother countries only under a neutral flag. Our vicinity to the West India Islands enabled us to monopolize most of this carrying trade; and, ere the war closed, such was our increase of tonnage, that we obtained a considerable portion of the carrying trade to and from the East Indies. Some colonial productions were carried in American bottoms directly to Europe. The greater part, however, was brought into our ports; whence, after receiving a drawback, it was shipped to Europe in our own vessels. The manufactures of Europe, as well as those of China and the East Indies, were also imported, and again exported, in large quantities, to the West Indies and South America. From 1793 up to 1807, the profits of these advantages were enormous. The exigencies of the war, and the natural jealousies engendered by such a condition of things, involved us in disputes both with France and England. The latter, therefore, issued her celebrated Orders in Council; in retaliation of which, the former, or rather her emperor, issued his Berlin and Milan Decrees, which were so injurious to our trade as to provoke the adoption of the embargo, which was followed by the non-intercourse act, and ultimately by the declaration of war against Great Britain. This annihilated our carrying trade. On the return of peace, we again enjoyed some of it, but to a much more limited extent than formerly.

The tables of exports and imports fully illustrate the operation of the causes enumerated. In 1799 our imports from France were of the value of $901,018. The value of exports is not known. The following table exhibits our exports to France from 1804 to 1820. We have no data on which to estimate the imports for that period. The contrast between $5,461,000 in 1820, and $31,623,000, in the amount of our domestic exports to France, is flattering evidence of the rapidly growing consumption of our principal staples.

Years.	Domestic produce.	Foreign produce.	Years.	Domestic produce.	Foreign produce.
1804	$3,219,112	$5,604,942	1813	$1,780,291	$2,296,453
1805	3,079,862	9,885,602	1814	286,429	30,018
1806	3.226,698	8,197,694	1815	5,033,084	1,853,859
1807	2,715,141	10,315,678	1816	7,352.676	2,222,660
1808	708,607	2,126,396	1817	7,114,535	1,695,232
1809	No data.		1818	8,719,445	3,346,577
1810	16,782	1,672	1819	6,612,499	2,729.549
1811	673,708	1,119,302	1820	5,461,889	2,134,854
1812	402,803	2,435,218			

For the remaining two years of the period of the operation of the convention of 1800, the imports were, in 1821, of the value of $4,989,940; and the exports of domestic produce, $5,168,698, and foreign produce, $359,861. In 1822, the imports were $6,089,940 in value; exports of domestic produce, $4,744,490, and foreign produce, $1,280,870.

About the year 1792, cotton became a staple product of the southern States. The quantity exported to France from 1790 to 1806, was 15,794,800 pounds. The following table exhibits the exports of the staple to that country for the years enumerated:

Years.	Pounds.	Years.	Pounds.
1801	844,728	1809–10	None direct.
1802	1,907,849	1811	do.
1803	3,831,840	1812	913,433
1804	5,946,848	1813	10,200,348
1805	4,504.329	1814	1,661,085
1806	7,082,118	1815	19,978,143
1807	6,114,358	1816	18,024,567
1808	2,087,450	1816—1820	No data.*

* The imports of cotton into France from all countries during this period were: in 1817, 13,370,398 kilogrammes (each 2·022 pounds); in 1818, 16,974,159; in 1819, 17,010,401.

In 1821 the exports of cotton were 495,733 pounds of sea island, and 26,943,275 pounds of upland, the value of the whole being $4,531,861. The fluctuations in quantity during this period are plainly traceable to the wars and confusion in Europe, and to our last war with Great Britain. From 1822 to 1834, the exports of cotton to France were as follows (the figures are compiled from the United States' Treasury Reports on Commerce and Navigation):

Years.	Pounds.	Years.	Pounds.
1822	20.900,000	1829	56,630,800
1823	26,831,200	1830	46,856,000
1824	34,647,800	1831	50,111,600
1825	29,598,800	1832	59,242,600
1826	48,226,200	1833	63,401,800
1827	48,136,000	1834	69,491,400
1828	47,557,000		

Tobacco became an important export of this country at the close of the last century. The following table exhibits our exportations of this article to France during the period we are now considering. The regulations of the two countries in respect to it will be elucidated in another part of this digest.

Years.	Hogsheads.	Years.	Hogsheads.
1800	143	1807	2,876
1801	5,006	1808	556
1802	16,216	1811	569
1803	9,815	1812	142
1804	14,623	1813	188
1805	12,135	1815	2,843
1806	9,182	1816	4,076

In 1809 and 1810 there was no exportation. The same circumstance occurred in 1814. If any was exported, it was so inconsiderable as not to have been noticed by statisticians. From 1817 to 1820 we have no statistical data. In 1821, 3,478 hogsheads were exported to France. These cotton and tobacco tables, like those of general imports and exports, are marked in their character by the course of political and military events. Another period of our trade with France commences with the "Convention of Navigation and Commerce," signed by the plenipotentiaries of the two powers on the 24th of June, 1822, and ratified and declared in operation by the United States on the 12th February, 1823. That convention provides that articles, the growth, produce, or manufacture of the United States, when exported to France in vessels of the United States, shall pay an additional duty, not exceeding 20 francs ($3 75) per ton of merchandise, over and above the duties paid on the like articles exported to France in French vessels; that articles, the growth, produce, or manufacture of France, imported into the United States in French vessels, shall pay an additional duty not exceeding $3 75 per ton of merchandise, over and above the duties paid on like articles imported in vessels of the United States; that no discriminating duties shall be levied upon the productions of France imported in French bottoms into our ports for re-exportation; that a like advantage shall be given, and is given, to the United States; that the following quantities shall be considered a ton for the articles specified, viz.: 4 61-gallon hogsheads, or 244 gallons of 231 cubic inches of wine, American measure; 244 gallons of brandies and all other liquors; 50 cubic feet of silk, American measure, in the United States; and 42 cubic feet, French measure, in France; 804 pounds avoirdupois of cotton; 1,600 pounds avoirdupois of tobacco; 2,240 pounds avoirdupois of pot and pearl-ashes; 1,600 pounds avoirdupois of rice; and for all weighable articles not specified, 2,240 pounds avoirdupois; that the duties of tonnage, light-money, pilotage, port-charges, brokerage, and all other duties on foreign shipping, over and above those paid by the national shipping in the two countries, other than those above specified, shall not exceed, in France, for vessels of the United States, 5 francs (94 cents) per ton of the vessel's American register, nor for vessels of France in the United States 94 cents per ton of the vessel's French passport; that the convention shall remain in force two years from the 1st of October, 1822, and after that time until the conclusion of a definite treaty, or until one of the parties shall have declared its intention to renounce it, which declaration shall precede the renunciation six months; and, finally, that, in case this convention shall not be discontinued by either party, the duties specified, exclusive of tonnage, light-money, pilotage, port-charges, etc., laid upon articles of the growth, produce, or manufacture of either country, shall, at the expiration of two years, be reduced one fourth of the whole amount, and afterward by one fourth of said amount, from year to year, so long as it is not renounced by either party.

IMPORTS FROM, AND EXPORTS TO, FRANCE, BY THE U. S.

Years.	Imports.	Exports.	
		Domestic produce.	Foreign produce.
1822	$8,089,940	$4,744,490	$1,280,870
1823	5,666,730	5,001,775	3,699.554
1824	7,188,567	7,851,639	1.846,043
1825	10.868.786	7,525,935	3,352,467
1826	8,579,520	9,348,929	1,799,855
1827	8.527,232	9.187,558	3,336,945
1828	9,390,854	7,698,337	3,375,233
1829	8,838,978	8,894,045	2,854,350
1830	7,722,198	9,901,146	1,092,813
1831	14,065,743	5,635,424	3,529,378
1832	12,175.758	9,942,576	2.677,147
1833	13,431,678	10,806,583	2,965,638
1834	17,141,173	12,715,754	2,793,220
1835	22,915,376	18,037,014	1,714,230
1836	36,615.417	19,608,434	1.330,666
1837	22,083,614	17,350.914	2.339,664
1838	17,771,797	15,715,451	1,200,102
1839	32,531,321	15,966.108	2.264,841
1840	17,572,876	18,919,327	2,922.227
1841	23,933,812	18,410,367	3,356,388
1842	16.974,058	16,015,298	1,150,552
1843	7,657,686	11,570.872	525,279
1844	17,549,484	12,066.212	2.372,188
1845	21,595,425	12,330,171	3,170,233
1846	23,911,332	13,601,650	1,528,925
1847	24,900,841	18,592,531	505,087
1848	28,096,031	15,374,885	4,444.425
1849	24,363,783	12,523.759	2,986.824
1850	27,538,025	17,950,277	1,888,070
1851	31,715,553	25,302,085	2,950,061
1852	25,890,266	22,190,070	1,800,575
1853	33,455,942	25,120,806	1,450,978
1854	35,781,393	30,968,252	1,179,729
1855	31,609,131	31,623,898	1,254,230

The convention with France of July 4th, 1831, only slightly modifies the convention of 1822. The wines of France, from the ratification of that convention until the passage of the tariff act of 1846, were imported at duties not exceeding the following rates by the gallon, United States' measure, viz.: For red wines, in casks, 6 cents; for white wines, in casks, 10 cents; and for all kinds of wines, in bottles, 22 cents. This stipulation was limited to 10 years, and consequently expired on the 4th of July, 1841. Our trade has, therefore, been since regulated by the convention of 1822, and guarded by the powers and privileges secured to the consuls of each nation by the consular convention of the 28th February, 1853. The results of the operation of the stipulations of these conventions may be traced in the preceding and following tables of imports and exports.

The preceding table is made up from the annual Treasury Reports on Commerce and Navigation of the United States. It will not prove uninteresting, however, to subjoin, for comparison, a similar statement put forth by the French government.

VALUE OF COMMERCE BETWEEN THE UNITED STATES AND FRANCE, FOR THE YEARS SPECIFIED; TAKEN FROM THE OFFICIAL REPORTS PUBLISHED BY THE FRENCH MINISTRY OF COMMERCE.

YEARS.	VALUE OF IMPORTS FROM THE UNITED STATES INTO FRANCE.		VALUE OF EXPORTS FROM FRANCE INTO THE UNITED STATES.		TOTAL.	
	General commerce	Special commerce.	General commerce	Special commerce.	General commerce	Special commerce.
	Francs.	Francs.	Francs.	Francs.	Francs.	Francs.
1831	51,463,000	47,523,000	134,793,000	110,180,000	186,256,000	157,703,000
1832	89,360,000	64,927,000	87,631,000	58,559,000	176,991,000	123,486,000
1833	99,079,000	73,856,000	134,965,000	107,984,000	234,044,000	181,870,000
1834	97,186,000	76,564,000	113,094,000	78,136,000	210,280,000	154,700,000
1835	89,482,000	71,545,000	196,042,000	145.251,000	285,524,000	216,796,000
1836	110,770,000	81,464,000	238,874,000	158.738,000	349,664,000	240,202,000
1837	117,738,000	86.720,000	98,615,000	58,611,000	216,353,000	145,331,000
1838	132,796,000	101,248,000	170,698,000	119,724,000	303,494,000	220,972,000
1839	99,206,000	85,883,000	204,591,000	120,946,000	303,797,000	206,829,000
1840	175,829,000	117,970,000	136,120,000	80,760,000	311,949,000	198,730,000
1841	157,071,000	121,491,000	183,562,000	121,234,000	340,633,000	242,725,000
1842	176,057,000	135.046,000	83,346,000	48,106,000	258,403,000	183,152,000
1843	174,628,000	144,259,000	96,639,000	65,808,000	271,267,000	210,067,000
1844	142,500,000	133,600,000	161,400,000	102,000.000	303.900,000	235,600,000
1845	172,000,000	140,700,000	143.000,000	96,500,000	315,000,000	237,200,000
1846	153,700,000	141,200,000	150,100,000	100,400,000	303,800,000	241,600,000
1847	137,605,000	110,434,000	185,684,000	112,414,000	323,289,000	222,848,000
1848	71,883,000	56,986,000	165,749,000	99,430,000	237.362,000	156,416,000
1849	127,100,000	105,779,000	232,669,000	148,564,000	359,769,000	254,343,000
1850	132,175,000	122,105,000	285.941,000	193,511,000	418,116,000	315,616,000
1851	116,883.000	109,853,000	242,626,000	144.584,000	359,509,000	254,437,000
1852	190,089,000	167,721,000	263,040,000	154,613,000	453,129,000	322,334,000
1853	179,786,000	157,921,000	328,992,000	209,195,000	508,778,000	377,116,000

In these tables it is not difficult to trace the effects of the controversy relative to the re-charter of the Bank of the United States, the temporary expansion of the paper currency, the necessary contraction following the restoration of the constitutional currency, and the addition to the gold circulation of the world made by the mines of California. All these historical facts are of too recent occurrence to need comment in a work such as this. In like manner may be traced the effects of the French revolution of 1830, the 18 years' policy of Louis Philippe, the convulsions of 1848, the temporary ascendancy of republican principles, and the re-establishment of the empire. Causes like these, which affect commerce without a change of international obligations, would require more space for their elucidation in detail, than can be accorded to them in this digest. They are, however, alluded to for the purpose of awakening suggestive trains of reasoning. From 1831 to 1841 the general commerce between the two countries increased 154,377,000 francs, or about 83 per cent. This augmentation falls especially upon the products of the United States imported into France, the amount of which has tripled in this period. In the following years the effect of the high tariff of 1842 will be perceived, especially on the value of exports from France into the United States. The article of cotton has, for a number of years, constituted in value, upon an average, three quarters of all our domestic exports to France. The average annual value of our exports of home products to France from 1830 to 1833, was $9,000,000; and the exports of cotton for the same period, $7,000,000. The following table exhibits the quantities of cotton exported to France for the years enumerated, viz.:

Years.	Pounds.	Years.	Pounds.
1835	71,110,600	1845	124,610,400
1836	80,009,600	1846	121,518,000
1837	80,281,800	1847	125,628,800
1838	96,316,000	1848	167,457,409
1839	76,630,400	1849	157,132,800
1840	106,878,200	1850	109,479,306
1841	110,700,000	1851	118,913,224
1842	115,130,400	1852	167,429,900
1843	123,497,000	1853	174,639,940
1844	119,345,600	1854	144,428,360

The tables from which we extract do not give the *values* of our cotton exports for the years stated above, but, as in some preceding years, we learn from other data, they have been equal to the value of three fourths of our exports of home products. It may be added, that, with the exception of 1854, the above figures have been compiled from French custom-house returns. They are considerably below those given in the annual reports prepared by the United States' Treasury Department, and are not so reliable. The following table, compiled from these annual reports, will show the exports of cotton to France for six years, ending with June 30th, 1850, and the value; as also the total value of domestic exports to France during the said years, respectively:

Years.	Pounds.	Value.	Total value domestic exports.
1850	125,834,091	$14,395,449	$17,950,277
1851	139,164,571	18,124,512	25,302,085
1852	186,214,270	15,438,586	22,190,070
1853	189,226,913	19,248,076	25,120,806
1854	144,428,360	14,532,712	30,968,252*
1855	210,113,809	19,035,428	31,623,898

* The export of gold and silver coin and bullion was unusually large this year, amounting to $6,609,000.

Tobacco.—Our other chief export to France is tobacco. In that country, the trade in this article is monopolized by the government. Information on this subject is derived from a recent publication, from the pen of a gentleman who has analyzed and studied our European tobacco trade in the principal markets of the eastern continent. The exclusive right to purchase imported and indigenous tobacco is invested in the *regie*, or commission—an association under the supervision of the Minister of Finance. This *regie* alone can authorize its manufacture, fix the prices at which it is to be sold to retailers, and the prices at which the latter shall sell for consumption. The capital of the *regie*, consisting of houses, offices, machinery, and tobacco in store, is of the value of about $45,000,000. There is usually kept on hand a supply of tobacco sufficient to meet the demand for three years. This enables the *regie* to manufacture it more perfectly, and to provide against accidental failures of the supply. No one can purchase at wholesale of any one but the *regie;* and no one can retail without a license, which compels the purchaser to sell at prices fixed by that commission. Of late years, however, the system has been so far relaxed as to allow an importation, for personal use, of a certain quantity by individuals, upon the payment, by the importer, of duties equal to the profits reaped by the *regie* upon its sales. One fact is encouraging: while the consumption is constantly increasing, the culture remains in France at a stand. It remains at a stand, because it is also under the supervision of the *regie*, which prescribes the methods of cultivation, and confines its produce to certain departments, and even to certain individuals. There is nothing to stimulate enterprise, or to secure the concurring energy of individual interest.

Up to 1817 purchases were made upon the offers of merchants submitted to the director-general, and communicated by him to the Council of Administration. The number of competitors created embarrassment, and the present system was, after some years, adopted. The system is this: Proposals are published by the *regie* to make contracts for the supply of certain qualities and certain quantities of specified kinds of tobacco. Samples of the kinds and qualities are submitted to the inspection of those who desire to contract, and they thereupon submit their offers to supply at certain prices within a time specified. The samples submitted to the contractors are carefully preserved; and when the cargoes arrive at the various ports, samples of them are forwarded to Paris and compared with the model samples, and the acceptance or refusal depends upon this comparison.

It requires but little reflection to perceive that this system is seriously injurious to our trade. It is a moderate estimate to make, to suppose that, if tobacco were admitted into France as other products are admitted, we should export ten times as much as we do at the present time. The abolition of the system would, therefore, seem to be an object constantly to be kept in view by our government. It has stood so many years, however, and under so many forms of government, and is so productive to the revenues, and so important to the government itself, in the number of persons thus brought under its direct influence, that we can not hope to see it soon materially changed. In addition to the facts already detailed on the subject of this important staple, the following extracts from official dispatches, communicated to the Department of State, are presented as pertinent:

"Tobacco is only permitted to be cultivated in six departments as a staple, and this cultivation is under the most rigid *surveillance* of the government. In the other departments agriculturists are allowed to grow *four* plants for each tenement for medical uses. On the tobacco disposed of by the *regie*, whether imported or produced, the profit realized amounts to 447 per cent. The retail dealers in the article, numbering about 30,000, are under the control of the *regie* inspection, and are allowed a commission on their sales of from 10 to 12 per cent. There are only ten manufactories. They are located at Paris, Havre, Lille, Strasbourg, Morlaix, Tanneins, Lyons, Marseilles, Toulouse, and Bordeaux. Each has its circle of departments to supply, and is restricted to transactions therein. The manufactured article is deposited in magazines, of which there are 357. In the departments adjoining Switzerland, Germany, and Belgium, the price established is vastly below that which rules in the interior. The object of this is to prevent smuggling. Where frontier facilities are afforded for illicit importations, the rate is comparatively moderate. Where none exist, it is enormous. Thus, at Strasbourg a pound is worth only 15 sous (cents), while at Orleans it is worth 8 francs ($1 06). Last year (1848) the receipts from the customs only amounted to about 146,000,000 francs—86,000,000 of which were derived from tobacco, nearly all grown in the United States—under the workings of the *regie.* Were this *regie* abolished, and a moderate import duty substituted, instead of a market of 16,000 or 18,000 hogsheads of tobacco per annum, France would take from us double that quantity immediately thereafter."

At the present time, we export about two fifths of all the tobacco consumed in Europe. Strict attention to its proper culture will enable us to furnish a much greater proportion. From 1827 to 1836, our exports to France amounted, annually, on an average, to 5,727,900 pounds. For many years we have exported from three fourths to four fifths of the tobacco consumed in France. From official reports of the French authorities, we gather the following statistics of our exports and sales to the *regie* in the years specified:

Years.	Pounds.	Years.	Pounds.
1837	10,622,108	1846	17,798,000
1838	11,643,710	1847	15,562,907
1839	13,089,036	1848	13,046,305
1840	17,846,613	1849	16,852,130
1841	21,046,924	1850	18,612,628
1842	19,148,800	1851	12,088,876
1843	27,771,788	1852	32,305,240
1844	20,891,000	1853*	9,741,600
1845	24,318,800		

* United States' Treasury reports give the quantities of tobacco exported to France for the fiscal years ending June 30, 1854 and 1855, respectively, as follows: 1854, 15,162,000 lbs.; 1855, 40,866,000 lbs., besides 2,905 cases, and 879 bales. The excess of the latter year was probably for the army in the Crimea. The French fiscal year ends with that of the calendar.

No values are attached to these quantities, but they may be estimated by the aid of other data. The cost of American tobaccoes, on delivery at the factories of the *regie*, all expenses included, is given by a French legislative report as follows, on an average for several years: Maryland tobacco, 9.5 cents per lb.; Virginia, 8.2 cents; Kentucky, 7.7 cents; Missouri, 7.5 cents. The following statement, also derived from French authorities, shows the nett profits of the *regie*, which, after paying all expenses of purchase, transportation, manufacture, and sale of tobacco, it has paid over to the State treasury, annually, from the 1st of July, 1811 (commencement of the monopoly with the *regie*), to the 1st of January, 1853:

Years.	Francs.	Years.	Francs.
1811	6,000,000	1833	49,250,280
1812	26,000,000	1834	50,843,714
1813	29,355,842	1835	51,700,181
1814	32,000,000	1836	55,029,540
1815	33,123,303	1837	59,026,912
1816	32,355,321	1838	61,682,425
1817	39,182,994	1839	66,001,841
1818	41,705,861	1840	70,111,157
1819	41,412,893	1841	71,989,095
1820	42,219,604	1842	73,884,142
1821	42,279,004	1843	77,368,735
1822	41,959,997	1844	79,499,879
1823	41,584,489	1845	82,584,494
1824	43,129,723	1846	85,961,080
1825	44,030,453	1847	86,291,298
1826	44,993,657	1848	85,271,053
1827	45,728,983	1849	85,136,106
1828	46,385,633	1850	88,915,000
1829	45,622,490	1851	92,287,729
1830	46,782,418	1852	95,344,082
1831	45,920,930		
1832	47,751,597	Total	2,328,201,725

French official documents furnish the following facts relative to our cotton trade with that empire. By the custom-house returns for 1855, it appears that there were received for that year, from all countries, 167,200,000 lbs.; against, for 1854, 157,520,000 lbs.; 1853, 165,000,000 lbs.; 1852, 158,400,00 lbs.

The following table shows the quantities of cotton imported into Havre, from all countries for a period of four years, ending with 1855:

Years.	From the United States.	From Brazil.	From elsewhere.	Total.
	Bales.	Bales.	Bales.	Bales.
1855	406,600	2,500	9,000	418,100
1854	411,000	2,000	12,000	425,000
1853	374,500	2,800	12,200	389,500
1852	374,900	6,000	14,400	395,300

TABLE SHOWING THE QUANTITIES OF COTTON RECEIVED AT THE OTHER PORTS OF FRANCE DURING THE SAME YEARS.

Years.	From the United States.	From Brazil.	From Egypt.	From elsewhere.
	Bales.		Bales.	Bales.
1855	12,000	None.	30,700	2,800
1854	19,300	"	21,400	4,300
1853	14,500	"	33,000	17,000
1852	17,800	"	36,700	12,500

The preceding tables exhibit a total importation of cotton into France, viz.:

	Bales.
In 1855	463,600
" 1854	470,000
" 1853	454,000
" 1852	462,300

The document from which the preceding tables are translated and condensed, adds: "We may further remark, that, while England imports from the East Indies annually 400,000 bales of cotton, and thus finds profitable employment for her commercial marine, France is deprived of the advantages of this trade. The fault is found in the apathy of our cotton spinners and in our custom-house regulations. Cotton from the Indies, imported in the direct trade in French vessels, ought to be admitted free of duty; and the impost on cotton introduced from the entrepôts of Europe should be extremely moderate."

The articles of domestic produce usually shipped from the United States to France, besides cotton and tobacco, are hops, fish, pot and pearl-ashes, whale-oil and whalebone; and those of foreign produce are principally sugar, coffee, teas, cocoa, pepper, and other spices. The principal articles imported into the United States from France are wines, brandies, silks, olive-oil, jewelry of all kinds, and, latterly, some cotton goods. An examination of the details of the trade in these articles could add nothing to the inferences which the general tables, already presented, suggest.

In the year 1793 an act was passed by the National Assembly, interdicting direct commercial intercourse between foreign nations and the French republic. This act, although never formally repealed, has been practically abrogated by the introduction of numerous modifications. Even foreign goods actually prohibited are admitted to entrepôt for re-exportation at the ports of Marseilles, Bayonne, Bordeaux, Nantes, Havre, and Dunkirk, on payment of specified duties; and these goods may be transferred from one bonded warehouse to another. Goods not prohibited may be thus transferred by land, on the terms of the transfer, free of duties. Arles, Port Vendée, and Strasbourg are points where merchandise not prohibited is received in bond, and from which it can be exported by sea only. There is also, at Lyons, a special dépôt to which all the ports of bonding dépôts may transmit merchandise for consumption or exportation.

By the terms of the convention of the 24th of June, 1822, the time for levying discriminating duties has long since expired. The only charges upon commerce, in articles of home produce, which can be made by either country, are duties upon tonnage; and they are specifically limited to 5 francs (or 94 cents) per ton on the vessel's measurement, which is to be calculated according to the American vessel's register, and the French vessel's passport. This tonnage duty exceeds the amount levied by France on every other country, and thus operates injuriously to American interests. Vessels of all other countries, except Great Britain, pay 77 cents. British vessels, going direct to France, pay 20 cents; going in ballast from any other country, nothing. Other trivial port charges, such as light-money, permits, certificates, etc., are charged equally to all nations. The inequality in tonnage duties, alluded to, gives great advantages to some other nations over both France and the United States. This is the case as regards Austria, the Hanseatic League, and several other countries, which, by the terms of their treaties with the United States, are permitted to carry on an indirect trade. The vessels of these nations, being subjected to a lower duty than ours in France, and a lower duty than French vessels in our ports, are thus enabled to carry merchandise to and from the United States cheaper than the vessels of either country can do it. In this way they have monopolized no inconsiderable portion of the carrying trade between the two countries.

The reciprocity stipulated in the convention of 1822 extends only to articles of the growth, produce, or manufacture of the respective countries. To admit a cargo from the United States to the advantages secured by the treaty, it must be certified by the French consul at the port of clearance to be of the growth, produce, or manufacture of the United States. The American ship-master is subjected, in a French port, to many small charges for the authentication of certificates, etc., from which the French master is exempt in our ports. Most of these are, probably, sheer abuses, without authority of law. They practically operate as an increase of duties, not warranted by the provisions of the treaty. There is a stipulation in the convention of 1822, by which the products of the United States, carried in American vessels, after a certain period, are to become liable to no higher rate of duty than if imported in French vessels. This does not include tin, the products of the fisheries, or spermaceti, simply pressed. Copper and lead* are also excepted; but, in point of fact, are admitted to the advantages of this provision, if it be shown that they are of American production.

The prospects of future commerce with France depend upon a variety of facts and contingencies. The facts, of a permanent character, which operate upon them, are the natural capabilities of the countries, the populations, and the subdivisions of their labor; the contingencies chiefly arise from their relations to other countries and their legislation. The facts bearing upon the subject, in the United States, are to be found in its history and its census, and are familiar to all. Those respecting the French empire, may be briefly summed up in a suggestive rather than an elaborate form. France proper, to which alone reference is now had, lies between 42° 49′ and 51° 5′ north latitude, and embraces an area of 204,355 square miles, greatly variegated by mountains, streams, and plains. The soils and their proportions are as follows:

	Parts.		Parts.
Mountain country.	8	Soil of stones.....	18
Lands, or plains...	10½	" sand.......	10
Soil of rich mold...	14	" clay.......	5
" chalk.......	18	" marsh.....	0½
" gravel......	7	Various soils.....	14
Making an aggregate of.................			100

One half the area of France is cultivable; and of this, 9 parts are meadow; 4½ parts vineyard; 15 parts woods and forests; 15 downs, pastures, and heaths; all the remainder consisting of roads, cities, canals, vegetable gardens, etc. It presents every variety of geological formation, exhibited in almost every variety of known relations. All the departments, 85 in number, contain mineral substances. There are 36 coal-fields in 30 departments. The most important are those of the Loire, embracing an area of 42,000 acres, lying between the Loire and the Rhône, down which their products reach markets. Next to these come those of Nord, Saone, Avignon, Gard, Calvados. The remainder are small. The annual produce of coal exceeds 3,000,000 tons. France is surpassed by England only in the production of iron. There are twelve iron mines in operation. Lead, silver, antimony, copper, and magnesia are found, but do not assume commercial importance. Salt is made in several localities, and has become a considerable source of wealth. 300,-

---

* Circular letter of the Customs Administration, September, 1827.

000 persons are engaged in mining, and their operations show an annual value of $80,000,000.

The population of France, in 1851, was 35,781,628. The increase in the preceding 10 years was nearly 2,000,000. A like increase would give in 1855 a population of fully 37,000,000. A little less than one half are males. Those of them who were old enough to vote under the late republican constitution were employed as follows:

Working class, or paupers................	6,585,000
Manufacturing, commercial, and agricultural capitalists..................	927,000
Learned professions, and independent incomes..................................	425,000
Paid officials, army, navy, and pensions....	379,000

About the same distribution of employments yet prevails. Schools are provided for only about one sixteenth of the children. The revenues of France are direct and indirect. The average aggregate annual revenue, from all sources, is about $300,000,000. The national debt is over $1,100,000,000.

The number of acres under vine cultivation exceeds 5,000,000, giving employment, in the cultivation of the vine and the manufacture of wine, to about 2,000,000 of persons (mostly females), and in its transportation and sale, to 250,000. The average home value depends, as does all other produce, on the supply and demand; rarely, however, exceeding 20 cents, or falling below 10 cents per gallon. The vine disease, now more or less prevailing in all wine-producing countries, has increased the average price of wine from 100 to 175 per cent.

The following statements, showing the produce of wine in France, and the exports in 1845 and 1846, were furnished to the *Economist* from which we have taken them, by the authorities in Bordeaux.

ACCOUNT OF THE PRODUCE OF WINE IN FRANCE IN EACH DEPARTMENT, IN THE ORDER OF THEIR IMPORTANCE.

Departments.	Hectolitres.	Departments.	Hectolitres.
Herault......	2,616,000	Aveyron..........	353,000
Charente Inferieure	2,394,000	Jura.............	357,000
Gironde...........	2,020,000	Vendee...........	319,000
Var...............	1,635,000	Tarn and Garonne	307,000
Charente..........	1,152,000	Tarn.............	344,000
Gers..............	1,128,000	Haut Rhin........	374,000
Gard..............	1,132,000	Deux Sevres......	270,000
Aude..............	1,011,000	Correze..........	253,000
Meurthe	912,000	Hautes Pyrenees.	268,000
Yonne............	856,000	Indre............	213,000
Loiret............	800,000	Isere............	242,000
Dordogne.........	770,000	Loire	228,000
Rhone.............	740,000	Ardeche..........	282,000
Saone and Loire...	644,000	Vaucluse.........	238,000
Lot et Garonne....	637,000	Vosges...........	212,000
Indre et Loire.....	628,000	Cher.............	250,000
Bouches du Rhone	626,000	Aisne............	228,000
Haute Garonne....	604,000	Moselle..........	274,000
Aube	692,000	Arriege	166,000
Loire Inferieure...	568,000	Allier............	195,000
Cote d'Or..........	538,000	Doubs............	172,000
Loire and Cher....	527,000	Nievre...........	170,000
Puy de Dome.....	536,000	Basses Alpes......	114,000
Haute Marne......	508,000	Seine.............	107,000
Maine and Loire...	510,000	Eure and Loire...	106,000
Seine and Oise.....	504,000	Sarthe...........	89,000
Seine et Marne....	516,000	Hautes Alpes.....	86,000
Bas Rhin..........	539,000	Oise...	65,000
Lot................	445,000	Haute Loire......	62,000
Meuse.............	459,000	Ardennes	70,000
Vienne............	459,000	Haute Vienne....	22,000
Basses Pyrenees...	825,000	Eure.............	21,000
Landes	886,000	Lozere	14,000
Marne.............	381,000	Morbihan	6,000
Haute Saone	343,000	Ile and Vilaine....	3,000
Drome............	805,000	Cantal...........	2,000
PyreneesOrientales	801,000		
Ain...............	333,000	Total productions.	35,763,000

The following table gives a clear exhibit of the exports of wine from France, and shows what countries are the principal consumers of French wine. These statistics exhibit some curious facts, and opposite to the belief of most persons. Algeria imports from France over ten times as much wine as England, and, what is more curious, wine of a higher price. The United States imports from France not quite three times as much as England, but in value more than four times as great.

ACCOUNT OF THE EXPORT OF FRENCH WINES TO ALL COUNTRIES IN 1845 AND 1846.

Countries.	1845.	1846.
	Litres.	Litres.
Russia........................	3,955,700	3.669.900
Sweden........................	698,900	516,600
Norway........................	621,000	272,700
Denmark......................	1,619,600	1,218,700
Hanseatic Towns..............	13,589,900	14.597,400
Germanic Zollverein..........	5,210,600	4,604,000
Hanover and Mecklenburg Schwerin..................	746,000	337,600
Netherlands...	9,689,800	3,775,700
Belgium......................	10,639,350	6.168,900
England.............	3,325,600	2,633,000
Portugal......................	....	....
Austria.......................	256,000	136,300
Spain.........................	421,600	227.400
Sardinia	7,810,700	5.499.200
Naples........................	....	119,099
Papal States..................	377,900	167,000
Tuscany......................	594,600	243,100
Switzerland..................	13,828,100	15,180,600
Greece........................	....	....
Turkey.......................	172,300	251,700
Egypt.........................	286,100	268,300
Barbary States................	....	....
Algeria.......................	34,579,500	42,538,500
Western coast of Africa.......	74,600	47,500
Mauritius	5,093,400	5,238,600
Other African countries........	....	....
India.........................	480,700	139,140
Dutch Indian Possessions......	469,300	126,700
French Indian Possessions.....	82,000	233,300
Philippine Islands............	147,200	9,100
China, Cochin-China, and Pacific Islands	....	....
Hayti.........................	313,600	481,900
United States................	8,889,600	10,398,000
British Possessions in America.	100,800	107,800
Spanish Possessions in America	528,700	336,000
Danish Possessions in America.	624,100	292,400
Brazil........................	3,062,200	1,473,300
Mexico...........	304,500	318,400
Guatemala....................	....	9,500
Venezuela	228,400	113,300
New Granada.................	26,600	57,000
Peru and Bolivia..............	309,400	207,200
Chili..........................	1,470,800	1,423,900
Rio de la Plata...............	8 665,600	355,900
Uruguay	1,023,600	667,900
Texas and Equador...........	95,200	....
Guadaloupe...................	2,575,300	2,388,000
Martinique...	3,864,300	2,403,700
Bourbon......................	3,025,600	3,473,300
Senegal......................	1,181,700	1,107,300
Cayenne......................	589,400	864,900
French Newfoundland Fishery.	573,600	853,500
Total....................	147,133,100	135,548,139

In 1849 there were produced in France, in round numbers, 925,000,000 gallons of wine. This was an increase over the quantity produced in 1839 of 115,000,000 gallons; but there were half a million of acres more under cultivation. The quantity annually exported averages about 45,000,000 gallons.

	Gallons.
In 1849 there were exported..............	41,000,000
1850 " "	42,000,000
1851 " "	49,500,000
1852 " "	53,200,000
1853 " "	43,500,000

The quantity exported in 1854 has not been ascertained. About 90,000,000 gallons are annually distilled into brandy, the exportation of which is under special government restrictions. 133,000,000 gallons of wine, in its various forms, are annually exported to foreign countries. The government derives a considerable portion of its internal revenue from the manufacture of wine. The excise duty in 1853 amounted to upward of $22,000. Besides the 90,000,000 gallons converted into brandy, it is estimated that 220,000,000 gallons are manufactured into other kinds of spirits. If this estimate be correct, there will be left for home consumption over 700,000,000 gallons, or about 21 gallons for each inhabitant.

The disease of the vine, during the past few years, has been very destructive in France, Spain, Madeira, and other old wine-producing countries. Should the disease unfortunately continue in those countries which have hitherto supplied the markets of the world with this beverage, the day may not be distant when the United States shall become the exporter instead of the importer of wine. The vine culture has already attracted attention in the western and southern States. The following table will exhibit the annual value of each of the chief products of France, all which enter into or influence its commerce:

Products.	Quantity.	Value.
Wheat....................bushels	150,000,000	$180,000,000
Rye and mixed corn...... “	85,000,000	70,000,000
Buckwheat.............. “	26,000,000	13,000,000
Barley.................. “	38,000,000	30,000,000
Peas and Beans.......... “	3,970,000	7,500,000
Potatoes................ “	56,000,000	11,500,000
Oats.................... “	90,000,000	54,000,000
Indian corn............. “	12,000,000	9,000,000
Wine....................gallons	800,000,000	100,000,000
Hemp........................	...	6,000,000
Raw silk....................	....	3,000,000
Flax........................	...	4,000,000
Madder......................	.	1,000,000
Fuel and timber.............	....	28,000,000
Olive-oil, rape-seed, etc...	....	12,500,000
Tobacco.....................	....	1,500,000
Chestnuts...................	....	1,500,000
Aggregate ann'l val. of products	....	532,500,000

The wild animals are not numerous enough to have any material influence upon trade. It is not so with those domesticated. The annual value of the wool grown from sheep is about $18,000,000. This branch of industry is very inadequately attended to. There are 14 or 15 different species of beeves, and the total number of all kinds is about 12,000,000. This branch of husbandry is also much neglected. In the southern departments olive-oil supersedes butter. The horse is not as well managed as in England, nor are there as many horses. Hogs are abundant, and so are domestic fowls. The latter are well attended to.

Landed property is more minutely divided in France than anywhere else in Europe, or even than in the United States. In a few departments may be found estates of 200 acres; but they are rare, and daily becoming more so, as the law divides the realty equally among the children. The greater portion of the farms are now less than 20 acres. Improvements in the methods of cultivation progress languidly, and the methods of manuring and rotation of crops, and of employing machinery, continue to be very defective.

Commerce and manufactures may be justly said to have commenced with Charlemagne. They were repressed during the feudal ages, when the barons enslaved the artisans and peasants. They were revived by the return of the crusaders, who brought a taste for the luxuries of the East. Louis XIV. well understood their importance. The death of Colbert and the revocation of the Edict of Nantes again paralyzed them, and the industry of France became subjected to monopolies. They continued enslaved, in a great measure, until the Revolution of 1789 unfettered them. Since that period, legislation has favored them by keeping them free, and giving full scope to individual enterprise and genius. They have only been retarded or disturbed by the intervention of wars. Their progress has, of late years, been wonderfully accelerated by the progress of science and its application to machinery and the useful and ornamental arts. Of scientific stimulants, the most important has been the application of steam-power. To science are also attributable metallurgy; the process of dyeing; the various preparations of animal substances; the weaving of cloths, cashmeres, and damasks; the making of paper, watches, and clocks, and of fine and common pottery; the manufactures of silks and tissues; and numberless other useful and tasteful arts, which have spread wide the wings of commerce.

The average annual value of the exports of France, from 1825 to 1833, was about $84,168,160, and of its imports $79,785,042. The official statement of the imports and exports, for the years 1844 to 1853, estimated in francs, were as follows:

Years.	Imports.		Exports.	
	French vessels.	Foreign vessels.	French vessels.	Foreign vessels.
	Francs.	Francs.	Francs.	Francs.
1844	878,200,000	454,100,000	385,000,000	440,500,000
1845	399,500,000	474,000,000	408,500,000	454,700,000
1846	425,600,000	468,500,000	403,600,000	456,100,000
1847	448,000,000	526,000,000	433,000,000	531,000,000
1848	325,000,000	254,000,000	386,100,000	476,100,000
1849	401,000,000	349,200,000	540,000,000	538,600,000
1850	410,000,000	361,200,000	526,500,000	656,900,000
1851	392,100,000	341,800,000	560,900,000	703,700,000
1852	471,500,000	457,800,000	559,700,000	745,600,000
1853	507,000,000	522,100,000	619,700,000	869,000,000

The number and tonnage of the vessels employed in the foreign trade of France during the same years were as follows:

YEARS.	INWARD.				OUTWARD.			
	FRENCH.		FOREIGN.		FRENCH.		FOREIGN.	
	No.	Ton'ge.	No.	Ton'ge.	No.	Ton'ge.	No.	Ton'ge.
1844	6,392	679,066	10,070	1,359,789	5,369	577,032	6,396	674,101
1845	6,920	746,310	10,775	1,439,320	5,739	651,670	6,313	734,822
1846	8,188	879,808	12,113	1,680,290	5,595	654,972	6,623	709,806

The following table, made up from materials contained in "*Annales du Commerce Extérieur*," brings down this statement of the amount and character of the foreign navigation statistics of France to the year 1853, the entrances and clearances being given in aggregate:

NAVIGATION TABLE CONTINUED TO 1853—THE ENTRANCES AND CLEARANCES UNITED.

Years.	FRENCH VESSELS.		FOREIGN VESSELS.	
	No.	Tonnage.	No.	Tonnage.
1847.........	9,701	1,047,000	20,794	2,708,000
1848.........	10,010	1,049,000	13,320	1,626,000
1849.........	11,200	1,142,000	14,768	1,721,000
1850.........	11,808	1,192,000	16,892	2,110,000
1851.........	11,668	1,202,000	19,247	2,389,000
1852.........	11,216	1,199,000	19,803	2,546,000
1853.........	12,132	1,339,000	20,425	2,743,000

In 1856 the arrivals and departures were thus distributed:

	Vessels.	Tons.
Entered......................	25,745	4,075,000
Cleared......................	14,475	2,321,000
Total..................	40,220	6,396,000

The great disparity between arrivals and departures is explained by the fact that the larger portion of imports consists of bulky and cumbrous merchandise, destined for our workshops and manufactures, while vessels leaving French ports are usually freighted with manufactured products, the value of which consists in their skillful workmanship rather than in their specific weight or the space which they occupy. This year (1856), especially, the importation of cereals was necessarily heavy.

A comparison of the different flags engaged in this general movement forces us to repeat the remark which we are constrained to make whenever we examine this subject—namely, that the French flag is invariably behind that of other nations in her own commerce. How stands our flag in 1856?

	Vessels.	Tons.
French Flag..................	16,320	2,521,000
Foreign Flags................	23,898	3,875,000
Total................	40,218	6,396,000

These figures are of themselves sufficient to show how necessary and urgent it is that the French merchant marine should be placed in a better condition to compete with the flags of foreign countries in her own ports.

The special* commerce of France with foreign countries in 1853, was distributed as exhibited in the following table, estimated from official sources:

---

* By "special" is meant for interior consumption.

Countries.	Imports into France.	Exports from France.
	Francs.	Francs.
Great Britain	92,000,000	317,000,000
United States	158,000,000	217,000,000
Belgium	140,000,000	123,000,000
Sardinia	104,000,000	67,000,000
Spain	44,000,000	69,000,000
Zollverein	58,000,000	45,000,000
Switzerland	87,000,000	54,000,000
Russia	68,000,000	11,000,000
Turkey	51,000,000	22,000,000
Brazil	14,000,000	34,000,000

The following tables exhibits the values of the chief articles imported and exported in 1853:

Articles.	Official value in francs.	Articles.	Actual value in francs.
Cotton, raw	155,000,000	Silk cloth	550,900,000
Silks, raw	149,600,000	Cotton cloth	114,400,000
Cereals	140,600,000	Woolen cloth	175,400,000
Silk tissues	137,800,000	Wines	145,500,000
Cotton cloth	75,100,000	Toys & other manufactures of wood	76,300,000
Wool, raw	68,200,000	Silks	55,700,000
Wood, common	45,700,000	Cereals	65,800,000
Stone coal	44,700,000	Skins, worked	63,100,000
Oil seeds	40,700,000	Glassware	21,800,000

The manufacture of cotton was first introduced in 1770, and has increased at an enormous rate. The total number of persons now employed in it is near 300,000. The total value of all the manufactures of France, annually, is 1,600,000,000 francs, and they are rapidly increasing.

The commercial legislation of France, which the tariff, inserted under its appropriate head,* is more especially designed to illustrate, has undergone, during the past few years, several important modifications. The latest, and not the least advantageous to the tonnage interests of the United States, is a decree which allows foreign-built vessels to be naturalized, and to take the French flag with all its privileges, on the payment of 10 per cent. on their assessed value.

This will create a new market, and an active demand for American vessels of 500 to 900 tons, and especially for steamers of 1000 to 1200 tons. A decree has also been promulgated admitting lumber, timber, naval stores, etc., free of duty for three years. Another extends to December 31, 1856, the decree of October 9, 1854, exempting from tonnage duties all vessels wholly laden with breadstuffs, flour, rice, etc.; and if only partially laden therewith, an exemption of tonnage duties proportionate to the quantities of such cargoes. A decree has also been published, reviving an old decree of 1816, exempting from tonnage duties all vessels entering French ports for the purpose of exporting salt, on which article the export duty has been suppressed.

Early in 1855 important movements were made in France, indicating an evident disposition in favor of the introduction and more general consumption of American salted provisions. From 1852 to 1854 the price of salt meats advanced at the extraordinary rate of 40 to 45 per cent. This state of the provision market immediately arrested the attention of the government, and various projects were adopted with a view, not only to prevent a further increase in prices, but also to reduce the rates already raised to so exorbitant a figure. The import duty on foreign cattle was lowered, viz.: from $10 23 to 74 cents per head, on beef; and every means was resorted to likely to encourage the use of salted beef among the general mass of the French people. To this end, the duty on salted meats has been successively reduced from $5 58 to $3 72, and again to $1 86; and in the month of September, 1855, it was further lowered to 9½ cents per 100 kilogrammes (220 pounds). The effect of this reduction of duty has been to open the markets of France to American salted provisions; and the importation has increased, since that period, to such an extent as to render it not at all improbable that this article will, henceforth, become a leading staple of export from the United States to France.

England is now almost exclusively supplied with salted meats by the United States and Ireland—the latter country exporting about an equal quantity with the former. The supply from the United States could be made always to equal the demand; and if France should open her ports to American salted provisions, the consumption in that country would be almost exclusively supplied from the United States. The following brief summary of the trade in salted provisions in France during the past 20 years will exhibit the development which this article of American produce has made in that country.

In 1834, the importation into France of salted meats reached only 3527 quintaux, equal to about 777,844·58 pounds. After a lapse of 21 years—that is to say, in January, 1855, and during that single month—the importation reached as high as 3720 quintaux, exceeding the importation of the whole year of 1852 by 203 quintaux, or 44,769 pounds. Prime pork is imported into France in barrels of 331½ pounds gross, in brine of gray salt, and is usually sold at from $14 80 to $15 81 the barrel. For the English market such pork is exported from the United States in tierces of 304, 320, and 336 pounds, and in barrels of 200 pounds.

American mess pork is too fat for the French market, and seldom finds a purchaser; American sugar-cured hams, however, always find a ready market and a brisk competition among purchasers. Shoulders, well cured, and put up in hogsheads of 994 pounds, are equally in demand, and bring from $18 60 to $19 53 per 220 lbs. A similar feeling is manifested in France in behalf of her colonies. By decree of 10th March, 1855, the duty on salted meats has been reduced as follows: into Martinique, Guadaloupe, Guiana, and Reunion, salted meats of whatever origin, or under whatever flag, pay 9½ cents per 220 pounds. This measure has attracted the attention of pork merchants of the United States, and already heavy freights of this article have been forwarded to those islands. Various other modifications have been decreed, but as they relate mostly to the tariff regulations, they are merely alluded to here for the purpose of noting the tendency to a more liberal commercial policy, which has, of late years been, observable in French legislation. Recent custom-house returns, published in France, show that the revenue to the State during the first six months of 1855, upon 18 different articles, the duties on which have been lowered, was 34,181,574 francs, against 18,258,808 francs, derived from the same description of merchandise during the corresponding six months of 1854.

Such figures supply the best argument in favor of free trade, especially in a country in which a prohibitive and protective system has so long prevailed. The annexed table will also illustrate the wise policy by which, it would appear, that the commercial legislation of France is henceforth to be shaped.

According to the *Journal des Economistes*, during the first six months of the year 1856, the commercial transactions of France exhibit a satisfactory condition; although the receipts for customs, compared with those for the corresponding six months of last year, show a decided falling off, amounting, for the entire period, to 4,361,836 francs. This indicated a decrease in importations, which is to be regretted, but which, all things being considered, should cause no disquietude. The movements in 1855 exhibited, in point of fact, results altogether exceptional: thus the first six months, compared with the corresponding period in 1854, showed an increase in import duties of 21,000,000 francs, of which 5,000,000 were for June alone.

---

* Part ii.

Navigation between France and Foreign Countries—1855, 1854, and 1853, compared.

Ports or places.	Entry of vessels into France.						Departure of vessels from France.					
	French.		Foreign.		Total.		French.		Foreign.		Total.	
	No. of ships.	Tonnage.	No. of ships.	Tonnage.	No. of ships.	Tonnage.	No. of ships.	Tonnage.	No. of ships.	Tonnage.	No. of ships.	Tonnage.
In the first 10 months of 1855:												
Marseilles	2,214	409,564	2,441	431,262	4,655	840,826	1,527	350,993	1,529	216,200	3,056	597,193
Havre	616	137,889	1,389	383,228	2,005	521,117	311	79,258	624	216,862	935	296,100
Bordeaux	855	99,053	462	103,876	1,315	202,929	391	73.427	166	37,638	557	111,065
Nantes	786	87,688	173	27,061	959	114,749	167	43,757	44	5,586	208	49,423
Rouen	390	28,632	588	61,175	978	89,807	152	17,771	163	13,715	315	31,486
Dunkirk	325	35,380	710	67,578	1,053	102,958	125	12,225	287	27,770	412	39,993
Boulogne	9	1,107	949	152,807	958	153,914	4	494	711	118,378	715	118,872
Calais	410	45,445	871	114,704	1,281	160,149	402	46,414	633	78,839	1,035	125,253
Cette	309	33,031	316	21,251	625	54,282	206	20,720	246	26,879	452	47,599
Other ports	2,185	169,570	3,485	357,957	5,668	527,527	1,605	135,652	2,298	141,641	3,905	277,253
Total 10 months of 1855	8,099	1,047.359	11,384	1,720,899	19,479	2,768,258	4,890	780,711	6,701	883,608	11,590	1,694,237
For 1854	8,285	992,327	9,543	1,378,259	17,828	2,378,626	4,918	681,189	6,895	911,813	11.813	1,393,002
" 1853	7,639	880,293	9,574	1,385,355	17,213	2,265,648	5,845	600,049	7,678	902,001	13,525	1,392,050

The preceding statement exhibits the navigation between France and foreign nations in 1855, as compared with 1854 and 1853. The following statement exhibits the exports of principal manufactured staples in 1855 compared with 1854: by which it may be seen that there has been an increase in the 10 months of 1855:

Table of Exportations of the principal Articles of Merchandise from France, in 1855 and 1854, compared.

Articles.	French and foreign during the first 10 months of 1855.	French and foreign during the first 10 months of 1854.	Articles.	French and foreign during the first 10 months of 1855.	French and foreign during the first 10 months of 1854.
Drinks:	Gallons.	Gallons.	Cotton tissues:	Pounds.	Pounds.
Wine, ordinary	18,286,000	27,286,500	Unbleached and white	9.393,300	7,062,000
" de liqueur	435,000	344,100	Painted and dyed	6,902,900	6,644,600
Brandy, pure alcohol	2,102,000	3,042,920	Tulle	123,040	156,340
Spirits of wine, pure alcohol	144,100	158,000	Others	4,776,900	4,685,600
	Pounds.	Pounds.	Flax and hemp tissues:		
Machines & mechanical apparatus	1,326,330,000	1,681,000,000	Linen	4,387,700	2,920,300
Modes, millinery, etc	1,962,000,000	1,242,500,000	Cambric and lawn	105,180	96,340
Porcelain, fine and common	7,300,000	9,550,000	Others	204,400	178,360
Soap (perfumed *excepted*)	13,000,000	10,799,000	Woolen tissues:		
Silk:			Cloths, cassimeres, & merinos	5,700,320	4,991,700
Raw	1,808,560	1,819,360	Others	6,676,600	6,230,900
Dyed	90.180	84,450	Silk tissues	6,572,880	6,185,240
Floss of all sorts	441,000	366,000	Glass and Crystal	48,117,300	41,542,000
Sugar, refined	55.575,000	46,363,000			

In addition to the numerous tables already given, the following statement is submitted, exhibiting the general direct trade between the United States and France during a period of 11 successive years.

Comparative Statement of the Commerce of the United States with France, exhibiting the Value of Exports to and Imports from each Country, and the Tonnage of American and Foreign Vessels arriving from and departing to each Country, during the years designated.

Years.	Commerce.				Navigation.			
	Value of exports.			Value of imports.	American tonnage.		Foreign tonnage.	
	Domestic produce.	Foreign produce.	Total.		Entered the United States.	Cleared from the U. States.	Entered the United States.	Cleared from the U. States.
1845	$12,330,171	$3,170,233	$15,500,404	$21,595,425	126,417	141,032	14,104	10,690
1846	13,601,650	1,528,925	15,130,575	23,911,332	113,554	134,679	13,714	12.116
1847	18,592,531	505,087	19,097,618	24,900,841	139,672	160,657	29,535	23,107
1848	15,374,885	4,444,425	19,819.310	28,096,031	156,326	132,546	24,837	27,387
1849	12,523,759	2,986,824	15,510,583	24,363,783	102,017	127,888	33,917	30,388
1850	17,950,277	1,883,070	19,833,347	27,538,025	114,867	128,747	42,852	26,392
1851	25,302,085	2.950.061	28,252,146	31,715,553	142,842	163,707	41,154	33,160
1852	22,190,070	1,800,575	23,990,645	25,890,266	193,242	214,763	46,768	17,602
1853	25,120,806	1,450,978	26,571,784	33,455,942	189,916	201,181	37,966	14,888
1854	30,968,252	1,179,729	32,147,981	35,781,393	233,148	230,052	31.833	18,091
1855	31,623,898	1,254,230	32,878,128	31,609,131	199,695	266,823	28,765	16,063

This important branch of French commerce comprises all the foreign merchandise transported over the French territories to other countries. Its vast increase may be perceived from the following statement for three years:

Years.	Metrical quintals. (220·456 lbs.)	Real Value, Francs. (18·6 cents each.)
1853	618,303	363,000,000
1854	732,525	377,000,000
1855	760,434	388,000,000

The countries which supported this transit trade in 1855, were:

Whence.	Francs.	Whither.	Francs.
Switzerland	143,000,000	United States	124,000,000
Belgium	102,000,000	England	99,000,000
England	50,000,000	Switzerland	74,000,000
Zollverein	45,000,000	Brazil	11,000,000
United States	16,000,000	Belgium	11,000,000
Sardinia	6,000,000	Sardinia	11,000,000
		Zollverein	10,000,000
		Spain, etc.	8,000,000

Statement showing the amount of precious metals, gold and silver (ingots and specie), imported and exported to and from France, during a period of 26 years, from 1830 to 1855:

Imported.

Gold.	Silver.	Total.
Francs.	Francs.	Francs.
1,870,000,000	4,044,000,000	5,914,000,000

Exported.

Gold.	Silver.	Total.
Francs.	Francs.	Francs.
857,000,000	2,229,000,000	3,086,000,000

See article France, *Ency. Brit.*, 1857; Hunt's *Merch. Mag.*, viii., 131, xiii., 26, xvi., 476, 547, xviii., 497, xxii., 259, xxiv., 284, v., 105, vii., 301; *Am. Ann. Reg.*, v., vii., viii. (by John Q. Adams and W. C. Rives); *For. Quar.*, iii., 359; *Dem. Rev.*, xxii., 545.

Commerce of the United States with France on the Mediterranean, from October 1, 1820, to July 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821	$69,855	$10,851	$80,706	$496,023	....	$247,384	316	593
1822	183,191	70,337	253,528	400,998	....	14,546	833	858
1823	323,861	1,171,898	1,495,759	501,457	$933	102,246	10,267	331
1824	265,815	750,431	1,016,246	450,454	6,760	47,875	8,457	....
1825	187,242	726,499	913,741	812,511	20,000	17,065	9,488	....
1826	273,675	483,677	757,352	892,152	1,600	85,088	10,960	....
1827	475,547	781,076	1,256,623	843,374	1,600	60,179	12,064	389
1828	606,638	279,407	886,045	904,426	5,852	2,484	10,498	....
1829	886,122	748,777	1,634,899	590,057	8,380	1,482	15,843	....
1830	717,252	430,888	1,148,140	891,183	5,000	14,517	18,967	1,074
Total	$3,989,198	$5,458,841	$9,448,039	$6,782,636	$45,125	$542,866	100,693	3,245
Sept. 30, 1831	$671,867	$300,926	$972,793	$1,188,766	$14,611	$6,155	15,459	1,477
1832	914,091	1,140,376	2,054,467	1,243,775	12,000	14,388	16,486	3,638
1833	1,036,898	768,826	1,805,724	1,080,052	300	13,414	14,976	3,922
1834	1,032,398	1,352,889	2,385,287	1,327,400	....	4,534	17,846	3,775
1835	2,023,829	554,192	2,578,021	1,468,998	74,000	2,258	15,200	2,311
1836	1,951,742	725,991	2,677,733	1,967,136	1,541	....	15,614	4,675
1837	1,196,347	649,550	1,845,897	1,562,118	28,938	1,554	10,525	5,116
1838	1,433,765	283,135	1,716,900	948,685	9,320	75,229	17,345	2,891
1839	1,046,260	176,186	1,222,446	1,612,871	....	6,505	9,256	3,651
1840	1,178,833	224,202	1,403,035	879,587	....	173,258	10,305	....
Total	$12,486,030	$6,176,273	$18,662,303	$13,279,388	$140,710	$297,245	143,012	31,456
Sept. 30, 1841	$1,512,460	$140,024	$1,652,484	$1,221,530	$1,500	$18,144	15,827	2,375
1842	1,674,570	73,868	1,748,438	958,678	....	3,021	21,944	2,147
9 mos. 1843	1,186,294	83,701	1,269,995	609,149	....	13,433	18,167	418
June 30, 1844	1,204,793	85,104	1,289,897	1,603,318	7,478	11,641	17,868	656
1845	979,739	197,980	1,177,719	1,414,175	1,175	2,400	19,217	660
1846	898,678	191,448	1,090,126	1,302,743	14,600	2,638	14,950	740
1847	1,172,146	56,041	1,228,187	1,001,765	....	....	13,078	4,611
1848	1,215,087	166,266	1,381,353	1,036,317	75,202	8,532	16,484	928
1849	877,147	168,521	1,045,668	1,153,905	....	....	13,853	3,227
1850	1,015,486	158,155	1,173,641	1,702,855	....	2,688	14,158	8,676
Total	$11,736,400	$1,321,108	$13,057,508	$12,004,435	$99,955	$52,497	165,546	24,438
June 30, 1851	$735,018	$135,393	$870,411	$1,926,429	$3,921	....	16,614	10,627
1852	1,396,192	79,134	1,475,326	1,694,352	....	....	26,798	6,517
1853	852,514	70,331	922,845	2,604,393	1,074	....	16,234	6,761
1854	1,218,786	201,374	1,420,160	2,889,372	....	....	17,728	3,166
1855	3,327,604	164,084	3,491,688	2,599,733	....	....	26,880	4,139
1856	3,096,432	185,164	3,281,596	3,515,664	....	....	33,152	3,469

Commerce of the United States with France on the Atlantic, from October 1, 1820, to July 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821	$5,098,843	$349,010	$5,447,853	$4,493,917	$12,000	$617,264	798	36,392
1822	4,561,299	1,210,533	5,771,832	5,688,835	519,892	80,356	3,638	....
1823	4,677,914	2,527,656	7,205,570	5,165,273	175,872	36,983	44,401	3,543
1824	7,585,815	1,095,612	8,681,427	6,741,113	....	77,238	58,615	4,610
1825	7,338,693	2,625,968	9,964,661	10,151,671	916,530	7,581	47,397	9,787
1826	9,075,254	1,316,178	10,391,432	7,687,368	202,563	158,681	76,478	11,270
1827	8,712,011	2,555,869	11,267,880	7,683,858	1,563,093	104,168	85,651	10,903
1828	7,091,699	3,095,826	10,187,525	8,486,427	2,396,699	56,559	65,085	8,708
1829	8,008,923	2,105,573	10,114,496	8,248,921	1,620,820	27,570	73,862	7,735
1830	9,183,894	661,925	9,845,819	6,831,015	135,111	47,812	82,521	6,014
Total	$71,334,345	$17,544,150	$88,878,495	$71,178,398	$7,542,580	$1,214,212	538,446	98,957
Sept. 30, 1831	$4,963,557	$3,228,452	$8,192,009	$12,876,977	$2,960,669	$47,949	48,022	3,722
1832	9,028,485	1,536,771	10,565,256	10,931,988	450,779	26,629	79,330	12,769
1833	9,769,685	2,196,812	11,966,497	12,351,626	66,006	46,719	77,127	14,707
1834	11,683,356	1,440,331	13,123,687	15,813,778	70,274	1,656,438	79,820	14,682
1835	16,013,185	1,160,038	17,173,223	21,446,378	556,622	516,788	91,102	9,717
1836	17,656,692	604,675	18,261,367	34,648,281	111,092	4,841,004	96,526	12,869
1837	16,154,567	1,690,114	17,844,681	20,521,496	1,020,609	1,051,503	91,687	20,032
1838	13,089,649	976,967	14,066,616	16,823,112	467,445	2,165,083	108,056	16,108
1839	14,919,848	2,088,655	17,008,503	30,918,450	2,017,798	150,129	88,519	14,752
1840	17,733,743	2,698,025	20,431,768	16,693,289	2,198,603	946,991	132,823	25,409
Total	$131,012,767	$17,620,840	$148,633,607	$193,025,865	$9,919,897	$11,449,233	893,012	144,807
Sept. 30, 1841	$16,897,907	$3,216,364	$20,114,271	$22,712,282	$4,087,199	$267,649	121,534	15,704
1842	15,340,728	1,076,684	16,417,412	16,015,380	1,113,698	232,447	130,865	16,042
9 mos. 1843	10,384,578	441,578	10,826,156	7,050,537	135,008	2,641,057	110,171	44,171
June 30, 1844	11,861,419	2,287,084	14,148,503	15,946,166	2,029,195	683,192	109,327	15,989
1845	11,350,432	2,972,253	14,322,685	20,181,250	3,179,273	134,855	121,815	10,666
1846	12,702,072	1,337,477	14,040,449	22,608,589	1,180,836	108,708	119,729	11,376
1847	17,420,385	449,046	17,869,431	23,899,076	....	1,858,472	147,579	18,496
1848	14,159,798	4,278,159	18,437,957	27,059,744	4,726,676	277,222	116,062	26,495
1849	11,646,612	2,818,303	14,464,915	23,209,878	2,983,124	241,154	114,025	27,161
1850	16,934,791	1,724,915	18,659,706	25,835,170	2,162,992	72,251	114,589	17,616
Total	$138,699,622	$20,601,863	$159,301,485	$204,518,072	$21,508,001	$6,017,007	1,205,706	203,086
June 30, 1851	$24,567,067	$2,814,668	$27,381,735	$29,789,124	$7,471,241	$304,883	147,093	10,588
1852	20,793,878	1,721,441	22,515,319	24,195,914	5,474,496	758,430	187,965	11,085
1853	24,268,292	1,380,647	25,648,939	30,851,549	4,281,868	231,908	184,947	11,127
1854	29,749,466	978,355	30,727,821	32,892,021	6,948,028	26,564	212,324	14,925
1855	28,296,294	1,090,146	29,386,440	29,009,398	3,762,400	2,814	259,943	11,924
1856	38,732,033	497,344	39,229,377	45,500,398	7,172,892	188,183	295,886	19,588

Commercial Decrees—Brandies.—By a decree of the 22d of September, 1854, all foreign brandies are admitted into France, by paying a duty of 15 francs per each hectolitre of pure alcohol.

Wines.—By a decree of the 5th of October, 1854, all wines, such as Madeira, Sherry, etc. ("vins de liqueur"), in casks, leather bottles, or bottles, are subject to the importation duty of 25 centimes per 100 litres.

Salted Meats.—By a decree of the 5th of October, 1854, a duty is fixed upon salted meats, of 50 centimes per 100 kilogrammes.

Medicinal Leaves.—By a decree of the 25th of October, 1854, the importation duty on medicinal leaves is fixed as follows: Orange, ivy, (stems and branches included); betel; clove; senna (leaves and follienas, whole or broken); and others not enumerated: By French ships, from countries out of Europe, free; by French ships, from entrepôts, 10 francs per 100 kilogrammes; by foreign ships, 20 francs per 100 kilogrammes.

The delay fixed by the decree of the 24th of June, 1855, concerning divers measures relative to alimentary products, is put off till the 31st of July next (decree 21st of October, 1854). These measures are as follows, viz.: 1st. Suppression of navigation dues (surtaxes) upon grain and flour imported by foreign vessels. 2d. Lowering of the entry dues upon those products to the minimum fixed by the law of the 15th of April, 1832. 3d. Reduction to 25 centimes for every 100 kilogrammes of the duties upon rice, dry vegetables, and oat-meal. 4th. Prohibition of the exportation of potatoes and dry vegetables. 5th. Exemption of tonnage duties on foreign ships when they arrive laden with grain, flour, rice, dry vegetables, oat-meal, and potatoes. 6th. Facility for the same ships to effect the transport of the same alimentary products by coasting from one French port to another. 7th. Facilities for foreign ships to effect the transport of grains, flour, rice, and dry vegetables, between Algeria and France. 8th. Prohibition of the exportation of potatoes and dry vegetables from Algeria to foreign destinations, and facility of expediting these products from France into Algeria.

Foreign ships to bring grain.—By a decree of the 19th September, the decree of the 23d June, allowing foreign ships to bring grain, is extended to the 31st December, 1855, and the same in reference to Algerine exportations. By the decree of the 14th February, 1855, the importation duty upon spermaceti from the whale and cachalot of foreign fisheries is provisionally established, as follows: Raw: by French vessels, from countries situated beyond Cape Horn and the Cape of Good Hope, 5 francs per 100 kilogrammes. By French vessels, from elsewhere out of Europe, 7. 50 francs per 100 kilogrammes. By French vessels, from the entrepôts, 10 francs per 100 kilogrammes. By foreign vessels, 15 francs per 100 kilogrammes. Pressed, 20 francs per 100 kilogrammes. Refined, 50 francs per 100 kilogrammes.

By a decree of February 17, 1855, it is provisionally established, that from the 1st of March next the rate of drawback allowed on the exportation of soap shall be as follows: White or mottled soap, composed of alkali and olive oil, or of oleaginous seeds, or mixed with animal fat; 1st. The oil entering by one half, at least, in the mixture of greasy matter, 8.20 francs per 100 kilogrammes. 2d. The oil entering for less than one half, 6 francs per 100 kilogrammes. Soap of animal fat: 3d. Pure, 6 francs per 100 kilogrammes. 4th. Mixed with rosin, 6 francs per 100 kilogrammes. Soap of palm or cocoa oil mixed with animal fat or rosin, 4 francs per 100 kilogrammes.

Cocoa tresses or filaments.—By a ministerial decision of the 22d of February, 1855, filaments of cocoa in the shape of tresses or twists are assimilated to the coarse tresses for matting, and admitted as such at the duty of 2 francs, and 2 francs 20 centimes, according to the mode of importation.

Duties on wines in the French colonies.—By a decree of the 31st January, 1855, "until otherwise ordained," foreign wines of all kinds imported from abroad into the colonies of Martinique, Guadaloupe, Guiana, La Réunion, and Senegal, shall pay the following duties: by French vessels, 25 centimes per hectolitre. By foreign vessels, 5 francs per hectolitre.

Icaco.—By a ministerial decision of the 15th March, 1855, the icaco or American prune will in future pay an entry duty similar to the ground and Taulmouna nut, either 1, 2, 3 francs, or 3 francs 50 centimes the 100 kilogrammes, according to the source from whence it comes and mode of importation.

Salted Meats to the French colonies.—By a decree of the 10th of March, 1855, "salted meats" of all sorts of foreign origin, imported from any country whatsoever, or by any flag, into our colonies of Martinique, Guadaloupe, Guiana, and La Réunion, will pay on entry a duty of 50 centimes per 100 kilogrammes. The importation of these same meats, on the payment of a duty of 50 centimes per 100 kilogrammes, is also permitted into St. Louis (Senegal), but by French vessels only, either direct from abroad or by extraction from the entrepôt at Gorée. Those which arrive at Senegal under a foreign flag will continue subject to the same regulations that exist at present.

Liqueurs from French colonies.—By a decree of the 14th of April, 1855, the duty on "liqueurs" imported from the French colonies is fixed at 15 francs the hectolitre of liquid.

By a decree of the 14th of April, 1855, the importation duties on raw wool are modified as follows, viz.: Imported direct, by French ship, from countries situated beyond Cape Horn and the Cape of Good Hope: From Australia and the Colony of the Cape, including Cape Town, present duties. From elsewhere, in the grease, 10 centimes per kilogramme. Cold-washed, in whole fleeces, 20 centimes per kilogramme. Offal or refuse, 10 centimes per kilogramme. Hot-washed, in whole fleeces, 30 centimes per kilogramme. Offal or refuse, 15 centimes per kilogramme. From elsewhere, present duties.

Nitrate of Soda and Potash.—By a decree of the 23d of April, 1855, the importation duty on nitrate of soda and of potash is established as follows: By French ships, from countries situated beyond Cape Horn and the Cape of Good Hope, 1 franc per 100 kilogrammes. From other countries out of Europe, 6 francs per 100 kilogrammes. From entrepôts, 8 francs per 100 kilogrammes. By foreign ships, 11 francs per 100 kilogrammes.

Drawback on Nitrate and Sulphuric Acids.—The premiums allowed by the laws of 6th May, 1841, and 11th June, 1845, on exportation of nitric and sulphuric acids, are—For nitric acid, 5 francs the 100 kilogrammes net of acid. For sulphuric acid, 20 centimes the 100 kilogrammes net of acid.

Citric Acid.—By a decree of the 23d of April, 1855, all duty is taken off citric acid of all sorts from the French colonies.

Foreign Vessels loading Salt exempt from Tonnage Duty.—By a decree dated May 16, 1855, the dispositions of the ordinances of 31st July, and 4th December, 1816, allowing foreign vessels to load salt in French ports when coming in ballast, free of tonnage duties, are extended to vessels coming to France *with* cargoes. The exemption from tonnage duties shall be in proportion to the quantity of salt exported.

Locust-trees.—By a decree of the 23d June, 1855, the importation duty on locust-trees is fixed as follows: By French ships, 25 centimes the 100 kilogrammes. By foreign ships, 1 franc the 100 kilogrammes.

Navigation Dues—Exemption to 31*st December*, 1855.—By a decree of the 5th June, 1855, the exemption of navigation dues accorded up to the 31st July, 1855, on cargoes of grain, flour, rice, potatoes, and dry vegetables, is extended to the 31st December, 1855.

By a decree of the 14th July, 1855, the regulation for the admission of molasses intended for distillation is fixed as follows, until it shall be otherwise ordained: By French vessels, from French colonies, exempt. By French vessels, from the East Indies, exempt. By French vessels, from South America, exempt. By French vessels, from the West Indies, exempt. By French vessels, from elsewhere, 2 francs the 100 kilogrammes. By foreign vessels, 3 francs the 100 kilogrammes.

By a decree of the 3d October, 1854, the duty then existing on the exportation of leeches, of 50 centimes per 1000, was abolished; and on the 5th, a duty of 50 centimes per 100 kilogrammes was imposed on the importation of salted provisions. On the 9th, a decree prolonged the free entry of vessels laden with grain, flour, rice, potatoes, and dried vegetables, from the 31st July, 1854, to the 31st July, 1855. Another decree dated the 25th, permitted the importation of leaves of oranges, ivy, cloves, and senna, intended for medicinal purposes, free of duty. On the 26th the distillation of grain, and all other farinaceous substances whatsoever, was prohibited by an imperial decree, under that date; and on the 6th November, a similar decree allowed the free admission of quercitron bark, imported by French vessels from countries out of Europe, and reduced the existing duty of 40 francs on that article, arriving by French vessels from the entrepôts of Europe, to 20 francs; and from 60 francs to 30 francs when imported by foreign vessels having no commercial treaty with France. On the 16th November, notice was communicated by circular, that, by a treaty concluded between France and Belgium, the former admitted geographical and marine charts, linen, printing-ink, types, thread and hemp yarn, straw plait, slate, stone, and other raw materials, without a certificate of origin—Belgium conceding to France a similar privilege on charts, types, printing-ink, clothes, pasteboard in sheets, paper of all descriptions except colored or morocco, slates, prepared plaster, Bordeaux, Burgundy, and Champagne wines, and also those of Tours and Bayonne, in cask.

On the 5th December, a declaration was promulgated between the Emperor of the French and the Prince of Monaco, by which the former reduced the then existing duty on olive oil (not exceeding 180,000 kilogrammes in quantity), when imported by French vessels, or those of the Prince of Monaco, to a uniform duty of 15 francs per 100 kilogrammes—the vessels of the principality being assimilated to those of Sardinia for payment of tonnage dues—the duty on French wines imported into the territory of the Prince of Monaco, in cask, being fixed at 3 francs 30 centimes per hectolitre, and at 10 centimes in bottle not containing more than a litre. By another decree, dated the 20th December, molasses from the French colonies, arriving by French vessels, is admitted free; when imported from countries out of Europe, at a duty of 3 francs, and from the entrepôts at a duty of 8 francs per 100 kilogrammes. When imported by foreign vessels, it is fixed at 13 francs per 100 kilogrammes.

On the 6th January of the current year, three decrees were published; one permitting the temporary importation of sheet copper into France by French vessels, or direct from the country where it is produced, free of duty; when it is intended for the manufacture of boilers or machinery. Its origin must be certified by the French consul at the place of its departure. Immediately on its arrival, the importer is bound to make a declaration at the custom-house, of the number and weight of the sheets, as well as of their length, breadth, and thickness. The custom-house, after having ascertained the correctness of such declaration, is enjoined to cause a stamp to be put on each sheet, in order to assure the exportation of the same copper; and a charge of 5 centimes for stamping, including the cost of the stamp, is made for every sheet so stamped. Bond must be given that the whole quantity of copper imported shall be used, and re-exported, or placed in the public stores (excepting such parts as may remain from cuttings or corners of sheets, in which the duty must be paid in the same proportion as if they were whole sheets), within six months; and the custom-house is enjoined to assure itself that the articles so manufactured are equal in quantity, kind, and quality, so that, temporarily admitted, sheet copper can only be exported from ports or places having public warehouses, or from places to which such articles are allowed to be sent in *transit*. By another, the temporary introduction of old cast iron belonging to foreign-built steamboats, which may put into France for repairs, is also admitted free of duty—the importers giving sufficient security for replacing in the entrepôts of France within six months, an equal quantity of iron, proper for ships' use, to that which may have been employed in such repairs. Iron imported under this decree, and the article manufactured therefrom, can only be exported from places having government warehouses; and the custom-house is charged to see that the iron imported and not used be broken up in such way as to render it impossible of being used, otherwise.

The third decree subjects foreign vessels at the island of Senegal to a simple tax of 50 centimes per ton, without the additional 10 per cent., but this is limited to the port of Gorée. A decree relative to French and foreign emigration was promulgated on the 15th of January, a copy of which, in *extenso*, with a translation into English, was forwarded by me to the Department on the 31st of that month. A circular, dated 15th January, exempts from the tax of *slombage*, or *leading*, certain articles of French origin, or foreign goods on which the duty imposed by law has been paid, when they are sent by water from one part of the empire to another, precautions being taken to assure the identity of the goods on their arrival at the port of destination. By a circular, dated 16th January, the decree of 20th December, prohibiting the importation of foreign molasses, extends to such only as is intended for distillation; and the exemption from duty on French molasses equally applies to such as is imported solely for distillation. Molasses so imported is always under the surveillance of the customs till after its completion at the place of distillation.

By another circular of the 27th of the same month, alcohol produced in Corsica, from the distillation of the bulbs of daffodils, figs of the cactus (prickly pears?), juniper and myrtle berries, and all other substances, with the exception of farinaceous (the distillation from which substances the circular continues to prohibit), are added to the number of articles admitted free of duty. A decree of the same date modifies the duty on juniper and myrtle berries, and also on table-fruits, and equalizes the duty on the bulbs of daffodils and figs of cactus. By a decree of the 31st of January, foreign wines of every description are admitted into the islands of Martinique, Guadaloupe, Guiana, La Réunion, and Senegal subject to a duty, when imported by French ships, of 25 centimes per hectolitre, and to that of 5 francs when imported by foreign vessels. A circular of the 1st of February exempts from examination, at the custom-houses of France, the baggage of foreigners arriving from foreign parts, to embark for places abroad; and a decree of the 10th allows the free importation of salt (foreign) intended for the mackerel fishery, which heretofore was confined to that of France, from the 15th February of every year; and another decree of the 14th extends the period for its introduction from the 1st of March to the 15th of June; previously to the date of that decree, it was only admitted between the 10th of March and the 15th of June. A decree of the 14th of February imposes a duty on sperm or whale oil, imported in French ships, from countries beyond Capes Horn and Good Hope, of 5 francs per 100 kilogrammes on the gross weight; from other countries than Europe, 7.50 francs, and by foreign vessels, 15 francs per 100 kilogrammes. By another decree of the same date, flour from Algeria is admitted free of duty into all parts of the empire.

On the 17th of February a decree was issued granting a drawback of 8.20 francs per 100 kilogrammes on white or mottled soap, composed of alkali and olive oil, or from vegetable oil, entering for at least one half in such composition, or for less than half if mixed with animal substances. On soap made wholly from animal substances, a drawback of 6 francs per 100 kilogrammes is allowed, and 4 francs per 100 kilogrammes on soap made from palm or cocoa oil, mixed with animal substances or rosin. A circular of the 28th of February specifies the objects which shall be considered as coming within the meaning of the treaty concluded with Spain on the 15th November, 1853, which are books, dramatic and musical compositions, paintings, drawings, engravings, lithographs, sculptures, geographical maps, and all other similar productions, with the exception of works of art applicable to agriculture and industrial manufactures; prohibits the reproduction of the works of either in the country of the other, and indicates the ports in France by which alone such works can be introduced. A decree of the 10th of March authorizes the introduction into Martinique, Guadaloupe, Cayenne, and La Réunion, of salted provisions of every kind, from whatever country or under whatever flag they may be imported, on the payment of an inward duty of 50 centimes per 100 kilogrammes. The same provisions are allowed to be introduced into Senegal (St. Louis), at the same duty, if imported by French vessels, whether from foreign countries or from the entrepôt at Gorée. No change is made in the law actually in existence, with respect to provisions arriving at Senegal under a foreign flag.

A decree of the 14th of April modifies the inward duty on wools, arriving direct from countries situated beyond Cape Horn and the Cape of Good Hope, when imported by French vessels, but leaving the duty actually existing unchanged when imported from other parts of the world. Another decree of the same date repeals the export duty of 5 centimes per 100 kilogrammes on lime; and by another decree, under the same date, the duty on liqueurs imported from the French colonies is fixed at 15 francs per hectolitre of liquid.

On the 23d of April an allowance of five per cent. for loss in weight, whether from water or decay, was authorized by decree on refined salt, if imported by sea and shipped in bulk at the place of production; and a second decree of the same date establishes the inward duty on nitrates of soda and potashes arriving by French vessels from countries situated beyond Cape Horn and the Cape of Good Hope, at 1 franc per 100 kilogrammes; from places in Europe, 6 francs per 100 kilogrammes; from entrepôts 8 francs per 100 kilogrammes.

Citric acids of all sorts imported from the colonies of France, in French ships, are admitted free of duty; by foreign vessels, at a duty of 11 francs per 100 kilogrammes.

A premium or bounty of 5 francs is allowed on the exportation of every 100 kilogrammes of net nitric acid, and one of 20 centimes on sulphuric acid. On the 24th of April a circular was issued authorizing the temporary free admission into France of machinery, glass (for resilvering), bronzes, and other similar works, and books, when imported separately, or in small quantities, for the purpose of being repaired or finished, on condition of their being re-exported within six months. By a decree of the 28th of April, iron work, in bars or sheets (without distinction of origin) fit for the construction of edifices or dwelling-houses, is allowed to be imported into Senegal by French vessels, free of duty, whether coming from the entrepôts of the metropolis or that of Gorée. Another decree, of the same date, fixes the duty on old worn-out type at 5 francs per 100 kilogrammes. An *arrêté* of May 5th orders the withdrawal from circulation of all gold pieces of the value of 10 francs, bearing the effigy of the present emperor, to take place on the 15th of October, 1855. By *ordonnance* of the 31st July and 4th December, 1816, all vessels arriving in France, in ballast, to take in salt, were exempted from tonnage dues. By a decree of the 16th of May, 1855, foreign vessels arriving with cargo enjoy the same privilege, but only in proportion to the quantity of salt taken by them; and by a circular of the 2d of June the export duty on salt is suppressed.

Alcohol distilled from daffodils in Algiera is admitted into France free of duty, by decree of May 23d. By a decree of the 2d of June, the delay fixed for the introduction of provisions into France is prolonged to the 31st of December, 1855; by another of the 5th, the free admission of ships importing grain, flour, rice, etc., is extended; and by a circular of the 11th, the exportation of these articles is prohibited during the same period. A decree of the 23d of June accords the privilege of transporting grain and flour between Algeria and France to foreign vessels, having left their port of loading on or before the 31st December, 1855. By another decree of the same date the exportation of corn and barley from Algeria, to foreign countries is prohibited, and by a third decree, the importation of carol beans by French vessels is admitted at a duty of 25 centimes per 100 kilogrammes, and of 1 franc per foreign vessels. A decree of the 7th July admits, free of duty, vanilla, imported by French vessels arriving direct from the French colonies, Cayenne and Mayottel. A circular of 10th July imposes a double décime on the amount of all government taxes, to remain in force till the 1st of January, 1858; increases the excise consumption duty on brandies, spirits, liquors, and brandy fruits, from 34 francs to 50 francs per hectolitre of alcohol, and from 50 francs to 66 francs, exclusive of the double décime, the tax on these articles on their admission into Paris, and further imposes a tax of 10 per cent. on the receipts of passenger money by railroad, and also on the conveyance of goods by fast or express trains. By a decree of the 14th July, molasses imported for distillation by French vessels from the colonies of France, India, South America, and the West Indies, is admitted free of duty, and from other ports at a duty of 2 francs per 100 kilogrammes. When imported by foreign vessels, the duty is 3 francs per 100 kilogrammes.

A decree of the 16th July makes many changes and modifications in the tariff of duties. They are too numerous to be imbodied in this communication. They will no doubt be published in one of the supplements to the *general tariff*, which shall be forwarded to the Department when published, with any others which may have preceded it, or by which it may have been followed. The avowed object of these modifications is to give additional encouragement to its maritime commerce by the total repeal of duty on the raw material of certain articles—the produce of distant countries—when imported direct by French vessels, for the purpose of contributing to the progress of their own manufactures, and by totally repealing the duty on certain articles of small productive revenue. Among the most important of these modifications is the alteration of the duty on caoutchouc. The duty on this article of 20 francs per 100 kilogrammes is continued when it is melted solely for articles of manufacture. Until the publication of this decree, when other substances were mixed with caoutchouc, or gutta percha, either for the purpose of giving color or adding strength to the article manufactured, the duty was 200 francs per 100 kilogrammes. This tax is now reduced to 50 francs. The duty of 200 francs will in future be payable only on articles composed of caoutchouc or gutta percha, with which other substances are combined, and when intended for other purposes than that of being melted. A decree of the 31st August accords the free admission of game, poultry, and shell-fish (*tortue*); and one of the 22d September prolongs to the 31st December, 1856, the exemption from tonnage duty of all vessels laden with grain, flour, rice, potatoes and dried vegetables.

The increase in the price of meats in France has been very great since 1848; so much so, that general complaint exists on the subject. From 1852 to 1854 there has been an increase of price from 40 to 45 per cent. The attention of the government of France having been called to this fact, its efforts have been not only to prevent a further increase, but to effect a diminution from present prices. To this end the tariffs have been revised, and very great reductions have been made upon the importation of foreign cattle, to wit: from $10 23 to 74 cents a head on beef, etc. Not only so, but the direct attention of the people of France has been called to the use of salt meat, and the experiment of opening the market is being made with much success. The duty upon this article has been successively reduced from $5 58 to $8 72, to $1 86, and in the month of October last, to 9½ cents the 221 pounds, or 100 kilogrammes. Under these reductions there has been an astonishing development in its importation. In 1854 the importation of meats, fresh and salt, reached only 3527 quintaux, or 777,844 58-100 pounds; while in the first month of the present year, the importation has reached 3720 quintaux, being more than in the whole year of 1852 by 203 quintaux, or 44,769 62-100 pounds. I transmit herewith an extract from the *Echo d' Agrical*, showing the usual mode of importing salt meats, with the respective values of the several qualities: "Prime pork is the most common kind in brine of gray salt; barrels of 331½lbs. gross, or 198 90-100 lbs. net; value from $14 80 to $15 81 the barrel. Mess pork is little imported and does not find a sale, being too fat. Prime mess, first quality, preserved in brine with white salt, from lean hogs, is from $18 60 to $19 53 per barrel. Hams salted, sugared, and smoked, sustain a comparison with the best we have in Europe, and find a ready sale. Shoulders, dry salted, find a good deal of favor in France. They come in dry barrels, of 994 40-100 lbs. net; value from $18 60 to $19 53 the 221 lbs., or 100 kilogrammes. Lard comes in barrels of 265 20-100 lbs., or in firkins of 46 62-100 lbs. net; value $13 the 110½ lbs., or 50 kilogrammes." The foregoing extract will indicate the kinds, manner of importation, and values, for the benefit of importers. By a decree of the 10th of this month (March) the rates of duties on salt meats into the French colonies have been reduced as follows: Into Martinique, Gaudaloupe, Guiana, and La Réunion, salt meats of foreign make, from whatever country imported, and under whatsoever flag, will pay a duty of 50 centimes (9½ cents) per kilogramme, or 221 lbs. The same duty is required at St. Louis, Senegal, but only when imported in French bottoms, either directly from abroad, or by extraction from the entrepôt of Gorée. Those meats imported into Senegal, under a foreign flag, are charged the duty in force before the decree.

French Colonies.

French Colonies.	Sq. miles.	Population.
ASIA.—Pondicberry, in the Carnatic; Karikal in Tanjore; Mache on the Malabar coast; the factories of Yamaon and Chandernagore, in Bengal; etc...	245	167,790
AFRICA.—The establishments on the Senegal, with the Islands of St. Louis and Gorée	....	19,678
The Island de la Réunion (Bourbon), 106,682; Ste. Marie at Madagascar, 5,000 inhabitants, etc...........	54	111,682
Algerie, in 1852—Europeans, 134,115; natives, in 1843, 82,423	5,000	216,538
AMERICA.—West Indies—The lesser Antilles, Martinique, 121,145; Guadaloupe, St. Martin, Marie, Galante, Desirade, and the group called the Saintes, 134,544..................	635	255,689
South America—A part of Guiana, with the Island of Cayenne..................	518	22,010
North America—The Isls. of St. Pierre and Miquelon, near Newfoundland.......	7	1,338
PACIFIC OCEAN.—		
The Marquesas. Tahiti.......... } taken possession in 1841....	24	20,200
New Caledonia..do. in 1853.		
Total................	6,483	814,925

In Africa the French possess Gorée and some factories near the mouth of the Senegal. In the East they have the Isle of Bourbon, and Pondicherry, Chandernagore, and some smaller factories on the mainland of India; and their vessels are, like the Americans, admitted to trade with Calcutta, Madras, and other British settlements, on payment of moderate dues. The retention of the Mauritius by England, at the peace of 1814, deprived them of the great receptacle for their privateers in the East; and on the continent of North America, they retain nothing since the cession of Louisiana to the United States in 1803. Since 1841, when the sovereign of the island of Mayotte placed himself under the protection of France, this island, situated at the extremity of the Mozambique Channel, is to all intents and purposes a French settlement. Mayotte is capable of feeding a population of 20,000 souls, and of regularly furnishing provisions to a squadron of ships. France also possesses an establishment in Australia, for since the 22d of March 1854, Captain Dubouzet has been commandant of the Marchesas and imperial commissary at the Society Islands and New Caledonia. There is also an unimportant French settlement at Madagascar, and an attempt at a penal colony has been made at Guiana, where, to the disgrace of the French government, political prisoners have been mixed with the refuse of the galleys. In the seas of Europe, Corsica is almost the only insular possession of the French. They have no great maritime fortresses, like Gibraltar or Malta, and no dependencies of the nature of the Ionian Islands.

Commerce, etc.—The commerce of France with her colonies is regulated by the same narrow maxims as the other branches of her foreign trade. The colonies and the mother country are mutually bound to trade exclusively with each other. The staple produce of the French West India colonies, as well as the Isle of Bourbon in the East, is sugar; and it appears that the price of this article in the European markets will not repay the expense of its cultivation in those countries. The colonists, therefore, insist that all other sugars shall be excluded by heavy duties from the markets of France; that they shall have the exclusive privilege of supplying these markets; and on a complaint that the duties imposed on foreign sugars were not high enough to give them the monopoly of the home market, an additional duty was, in 1822, on the suggestion of the director-general of the customs, imposed on all foreign sugars. In return, France possesses the exclusive privilege of supplying the colonies with all the manufactures and other European goods which they require. On this principle of mutual monopoly the trade is now conducted. The effect of this system is to levy a tax on the inhabitants of France, in order to indemnify the colonists for the losses which they incur in carrying on an unprofitable trade. They can not furnish a supply of sugar to France at the ordinary rate of the European market; and the price must therefore be artificially raised in that country, in order to enable them to carry on the cultivation of their estates; while, on the other hand, they are not at liberty to buy the goods which they require in the cheapest market, but must take them at whatever price they can be afforded by the mother country.

Another evil of this colonial monopoly is, that the colonies supply more sugar than France can consume. But it can not be sold in other countries at the price which is paid to the colonies by the mother country; and hence it becomes necessary to find out the means of forcing a sale of the surplus which can not be consumed at home. A bounty is accordingly granted on all sugar exported from France; and in 1831, while the duty on the importation of sugar produced £1,636,030, there was paid back for bounties £483,951, which was more than one fourth of the gross receipts. The loss which France has incurred since the peace of 1814 by this erroneous system is estimated in "Bowring and Villiers' Report," at £40,000,000 sterling; and in return for these great sacrifices, the colonies afford but a limited demand for the manufactures of the mother country; in 1852, it amounted to 23,482,000 kilogrammes; in 1853, to 26,481,000 kilogrammes; in 1854, to 33,297,000 kilogrammes.

Colonies.—The colonial possessions of France are quite unsuited to her greatness in other respects. The insurrection engendered by the first Revolution deprived her of the western half of St. Domingo, a rich and beautiful territory, containing formerly more negroes, and exporting more produce, than all the British West Indies together. The French government seems to have relinquished the hope of regaining this country, at least by military means, and to limit its ambition to the remaining colonies, Martinique, Guadaloupe, Cayenne, in the West Indies. The first two are, like most of our West India islands, cultivated to a considerable extent, but capable of much improvement. The petty island of Marie Galante is in a similar state; but Cayenne forms a part of a most extensive tract, of which one corner only is as yet rendered productive, and which may eventually become a great settlement; though on the score of health it is as unpromising as the adjacent colonies of Demerara and Surinam. Before the loss of St. Domingo the annual import into France amounted to 70,000 hhds. of muscovado or brown sugar, 60,000 hhds. clayed, and nearly 20,000 of fine clayed. Of this very large supply there were exported nearly 40,000 hhds. of brown, and above 60,000 hhds. of clayed, forming, exclusively of any duty, an annual value of between £2,000,000 and £3,000,000 sterling, and affording a most acceptable exchange for a number of imported commodities. The sugar thus imported from St. Domingo has long been lost to France, no sugar being now exported from that country.

Algiers.—Among the colonies of France is Algeria, which the government has retained since its conquest in 1830. Of this dependency Algiers is the capital, the seat of government, of a prefecture, and of a bishop's see since 1838. Algiers also possesses a government printing-office, an academy of public instruction, a court of appeal, a tribunal of first instance, a tribunal, and a chamber of commerce. A bank has been recently established. Several newspapers are published at Algiers. The *Moniteur* of Algiers is the official paper. There is also the *Akhbar*, the *Mobacher*, the official journal in Arabic, the *Atlas*, etc.

The population of Algiers, according to the last returns, amounted to 55,682 Europeans, of whom 23,147 were French, and 24,996 natives, of whom 17,858 were Mussulmans, 1380 negroes, and 5758 Jews. A Protestant church was commenced in Algiers in 1843 and finished in 1845. There are at Algiers four large mosques and about thirty lesser ones, two great and twelve lesser synagogues. There are few manufactories in the capital unless of silks, carpetings, woolen tissues, fire-arms, saddlery, jewelry, leather, etc. From the last published official returns there entered Algiers within the year 2279 ships, measuring 209,642 tons; of these 255 were government vessels, 1134 French commercial bottoms, and 120 native; the remaining vessels were under foreign flags. There sailed outward from Algiers, in the last year of which we have any official records, 2297 ships measuring 208,319 tons. Of these 249 were government ships, 1148 French ships, and 117 native. By a decree of the present Emperor of the French, a bourse was created at Algiers on the 16th of April, 1852. For a more detailed account, see ALGIERS.

GENERAL TRADE OF FRANCE WITH ITS COLONIES.

Colonies.	Year.	Importations.	Exportations.
Martinique	1853	£652,441	£765,577
Guadaloupe	1853	423,655	570,434
Bourbon	1853	851,647	684,946
Senegal	1853	287,236	392,369
Cayenne	1853	56,823	184,044
India	1853	669,723	21,384
Algiers	1853	1,132,304	3,695,966
St Pierre & Miquelon, &c	1853	817,031	278,687
Isles Mayotte and Madagascar	1853	8,627	36,584

The trade to Bourbon island, Guiana, Martinique, and Guadaloupe, out and home, employed in 1848, 492 ships; in 1849, 541; 1850, 486; 1851, 602; 1852, 677; 1853, 583. The mean of the first five years, 560 vessels.

The trade to Algiers, Senegal, India, Madagascar, out and home, in 1848, 1843 vessels; 1849, 1938; 1850, 1902; 1851, 2194; 1852, 2443; 1853, 2177; mean of the first five years, 2064.

All along the north coast of France, the fisheries consist of cod, mackerel, herrings, and pilchards. On the Atlantic, and still more on that of the Mediterranean, are caught great quantities of sardines, a fish of passage, which appears periodically in shoals, like the herring. The fishery of *sardines* is said to give employment to 3000 seamen, and the sales resulting from the produce amount to between 3,000,000 and 4,000,000 of francs. The tunny, a fish not known in northern latitudes, is found in the Mediterranean in the early part of summer. It varies in weight from 10 to 25 pounds, and is in like manner caught in shoals.

These home fisheries, little calculated for forming seamen, have been left to their natural progress, while repeated attempts have been made by government to extend the fishery in America; a design favored by the early possession by France of Newfoundland and Canada, as well as by the long peace that followed the treaty of Utrecht. Toward the middle of last century the French fisheries in America employed annually about 5000 seamen; but the unsuccessful contest with England in 1756 reduced them greatly, and deprived them of their principal station, Cape Breton. The peace of 1783 was concluded under better auspices. The islands of St. Pierre and Miquelon were ceded to France by the treaty of Versailles, and the rights of fishing and of drying fish from the Cape St. John to Cape Ray. In the Gulf of St. Lawrence her rights were subsequently recognized, by the treaties of 1802 and 1814, at 3 leagues' distance from the coasts belonging to Great Britain; but within the gulf, at a distance of 15 leagues from Isle Royale, and 30 leagues from New Brunswick.

Foreign Commerce of France with her Colonies and the Fishing Banks.

Years.	ENTERED.					
	FRENCH.		FOREIGN.		TOTAL.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
1853	9,210	1,065,688	11,569	1,685,011	20,779	2,750.699
1854	9,307	1,131,702	10,982	1,606,837	20,289	2,738,539
1855	9,574	1,247,452	13,442	2,057,313	23,016	3,304,765
	CLEARED.					
1853	6,625	796,350	8,856	1,058,315	15,481	1,854,665
1854	5,726	796,713	7,919	1,059,592	13,645	1,856,305
1855	5,756	934,598	8,054	1,100,057	13,810	2,034,655

For the encouragement of the French fisheries, enormous pecuniary sacrifices have been made. By the law of the 22d of July 1851, bounties are granted to the fisheries till 1861, at the rate of 120 francs the ton. A ship of 600 tons thus receives 72,000 francs bounty, which would be 2000 to 3000 francs per man. The only time they were ever in a prosperous state was, not when they were protected by the artificial encouragement of the mother country, but when the French colonists, being in possession of a large tract of the American sea-coast, were in consequence compelled to trust to prudence and economy alone for the success of their adventures. During the session 1833 of the Chamber of Deputies, a committee, appointed to inquire into this subject, made their report.

French Fisheries.—High bounties have, since the year 1767, been paid to those owning ships, and to men employed in the French fisheries. In pursuance of ordinances dated the 24th of June, and 9th and 12th of July, 1851, the following bounties were granted for the encouragement of the French fisheries. They came into operation on the 1st January, 1852, and are to remain in force until the 30th June, 1861:

"*Cod-fishery.—Premiums for Chartering and Equipping Vessels.*—For every man engaged in the fisheries, having drying or curing grounds, whether on the coasts of Newfoundland, Saint Pierre or Miquelon, or upon the great Newfoundland Bank, 50 francs. For every man engaged in the fisheries, not having drying or curing grounds, in the Icelandic Seas, 50 francs. For every man engaged in the fisheries, not having drying or curing grounds, on the great Newfoundland Bank, 30 francs. For every man engaged in the fisheries on the Dogger Bank, 15 francs.

"*Bounties on the Produce of Fisheries.*—On the importation into the French colonies, whether in America or on the other side of the Cape of Good Hope, of every quintal of dried codfish, the produce of French fisheries on the coasts of Newfoundland, Saint Pierre, or Miquelon, or which may be taken from entrepôts in France, 20 francs. On the importation into the above colonies, of every quintal of dried codfish, the produce of French fisheries, if the fish shall be exported from the French ports without having been there warehoused, 16 francs. On every quintal of dried codfish, the produce of the Franch fisheries, and imported direct from the same or from French entrepôts, into such foreign Mediterranean ports (except those of Sardinia and Algeria) in which a French consul may reside, 16 francs. On every quintal of dried codfish, the produce of the French fisheries, forwarded direct either from those fisheries or from French ports, and imported into Sardinian and Algerian ports, 12 francs. For every quintal of cod-sounds that the fishing-vessels may bring into France, the produce of their fishery, 20 francs."

Vessels departing for the fisheries with drying grounds, whether on the coasts of Newfoundland, Saint Pierre, Miquelon, or the great Bank of Newfoundland, shall have a crew whose minimum is to be fixed by a royal ordinance.

Whale-fishery.—The bounties granted in pursuance of the laws of 24th June, and 9th and 12th July, 1851, for the encouragement of the whale-fisheries, shall be fixed as follows, to date from the 1st January, 1852, and to continue in force until the 30th June, 1861:

"*Bounties on the Departure of Vessels.*—For every ton of shipping outward bound, with crews composed entirely of French sailors, 70 francs; and for vessels with crews composed partly of French and foreign sailors, agreeably to the provision that the foreigners exceed not one third either of the officers or crew, 48 francs.

"*Bounties on the Return of Vessels.*—On each ton of shipping where the crew is composed entirely of French sailors, 50 francs. On each ton of shipping with a mixed crew, 24·5 francs."

Under the conditions that the vessels shall have fished either beyond Cape Horn, or to the east of the Cape of Good Hope, as far as 62° of latitude, and shall have been out at least 16 months. In addition to the above, there shall be allowed to vessels especially manned for the sperm-whale (*cachalot*) fishery, in the Pacific Ocean, after they have been at sea for the space of at least 30 months, and during which time they may have reached as far as 28° of north latitude, an additional bounty of 15 francs upon the sperm oil, etc., which they shall bring home. The bounty on the produce will only be accorded for an amount not exceeding 600 tons.

Colonial Tariffs.—The navigation between France and her colonies is confined to French vessels measuring not less than 40 tons, in which the officers, and at least three fourths of the crew are French.

French Guiana (Cayenne).—The tariff of this colony is established by decrees of the local authority, sanctioned by the metropolitan government.

Duties on Imports.—French merchandise (with the exception of that admitted free), imported direct from ports of France or her colonies, in French bottoms, pays 2 per cent. ad valorem. Foreign merchandise (with the exception of that admitted free) permitted to be imported, both under French and foreign flags, viz.:

"Beef, salted;* butter; codfish, green, dried, and salted; fish-oil; wheat flour, rye flour, and corn meal; lard; vegetables, fresh and dry; lime, slacked; salt pork; rice; salt; staves; stone coal; tallow, and tallow candles; tobacco, in leaves; whalebone and whale-oil; wood, and pitch-pine, pay 5 per cent. ad valorem. All articles not enumerated above, 10 per cent. ad valorem."

---

* By a late decree, salted provisions under all flags and from all countries pay 50 centimes per 100 kilogrammes.

The following articles are prohibited importation for consumption, and are only admitted in entrepôt (*entrepôt fictif*).*

"*From French Colonies in French Vessels.*—Cocoa, cinnamon, cloves, coffee; cotton, raw; indigo, and prepared roucou; all spirituous liquors, with the exception of brandy, French and Martinique cordials; Kirschenwasser and gin; nutmegs, pepper; sugar, raw and whitened, and wool.

"*From Foreign Countries and in Foreign Vessels.*—Clothes, ready made, comprising hats and all articles for the feet; cotton, spun; gunpowder; sugar, refined; tissues of cotton, silk, wool, and, hemp."

The following articles are admitted free of duty, without reference to their source, under all flags:

"Animals, living; agricultural instruments imported for trial; machines, and similar articles necessary for colonial industry; specimens of natural history; precious metals in bullion and coin; quick-lime."

By French Vessels Arriving Direct from France.—Utensils and implemants of husbandry, especially shovels, hoes, hatchets, plows, pruning-hooks, and harrows; salt beef; boilers for sugar factories; codfish and other salted fish; flour and all other farinaceous provisions; vegetables, fresh and dry; salt pork, red herrings.

Duties on Exports.—All products of the colony (except those which are free) exported to France or to French colonies, in French vessels, ½ per cent. ad valorem. The same exported to foreign countries in French vessels, 2 per cent. ad valorem.

The following products of the colony are subject, on exportation, to the following additional duty, called (*contribution foncière*) "ground-tax:"

Denomination of merchandise.	Number, weight, or measure.	In national vessels.	In foreign vessels.
Annatto or roucou.	100 kilos. or 220 lbs.	$0 55·8	$0 55·8
Cocoa	" "	8·33	33·33
Cloves, flowers....	" "	43·5	90·7
" stalks......	" "	2	7·5
Coffee............	" "	46·8	1 02
Cotton	" "	37 2	64 8
Molasses..........	" "	9·3	9·3
Ox-hides..........	Each.............	1	4
Taflia (rum).......	1,000 litres = 264 gal	9 3	9·3
Sugar, raw or white	220 pounds........	12·9	24

"Foreign prohibited goods having been seized and re-exported, 2 per cent. ad valorem. Foreign prohibited merchandise on leaving the "*entrepôt fictif*," ¼ of 1 per cent. ad valorem."

The following articles are exempt from all exportation duties, whether for France or foreign countries:

"Cinnamon; eggs, fresh; ginger-root, indigo, nutmegs, pepper, pimento, simarouba, specimens of natural history, turmeric, turtles, vanilla, and wood."

Charges for Nationalizing Foreign Vessels.—For a vessel of 100 tons and under, $11 23·5; 101 to 200 tons, $13 88·8; 201 to 300 tons, $16 66·6; over 300 for each additional 100 tons, $2 80·8.

Clearance Duties.—For the long course (foreign voyage) per vessel, $3 70·33; for the great and small coasting trade, $2 80·8; inscription duty (registration free) for changing the proprietorship, $1 11·6.

Pilot Dues.—If the vessel anchors in the roads or in the harbor:—For a vessel under 50 tons, great and small coasting trade, $5 55; 50 to 99 tons, $7 40·7; 100 to 149 tons, $9 30; 150 to 199 tons, $11 23·5; 200 to 299 tons, 13 88; 300 to 399 tons, $16 66·6; 400 tons and upward, for each additional 100 tons, $0 80·8. If the vessel casts anchor in the roads:—Pilots' services in the roads, on demand of the captain, when not retained for conducting the vessel into port, for one tide, $1 86; charges of anchorage in the harbor of Cayenne, $1 11·6; delay of pilot on board of a vessel, either on demand of the captain, or because of quarantine, independent of board, which is to be furnished to him at the expense of the ship, for 24 hours, $1 11·6; pilotage from the harbor of Cayenne to the Point of Moncouria, without respect to the tonnage of the vessel, $5 55·5.

The pilot dues are the same for clearing as for entering the port.

Mayotte and Dependencies.—There are only pilot dues to be paid at Mayotte.

Senegal and Dependencies.—Foreign vessels pay in Senegal 4 francs, or 74·4 cents, and in Gorée only 50 centimes per ton. They can, however, neither export nor import (except through Gorée), as the whole trade is open only to French shipping and French manufactures, and is prohibited to all other nations.

French Settlements in the East Indies.—The ports of these dependencies are free, and therefore open to all nations.—*Navigation Act of September* 21, 1793.

Tariff.—Pondicherry, Karikal, and Mahé, tonnage duty, without distinction of flag, 4 cents per ton. (1847.) Pondicherry alone, light-house dues, without distinction of flag, 3 cents per ton. Pondicherry alone, ferriage dues, without distinction of flag, 88·8 cents for one vessel.

St. Pierre and Miquelon.—Before 1846, American vessels were allowed to import into these islands only such goods as the French trade could not supply, and which were required by the necessities of the population. These restrictions were abolished by a decree of the governor, of May 7th, 1846. American ships sailing direct from the United States for Miquelon and St. Pierre, either in ballast or loaded, enjoy the same privileges as French vessels coming from the United States, and pay no more duty than the said French vessels, with the exception only of a compensation for the interpreter—which, however, by another decree of June 26, 1847, has become entirely optional: that is, if the captain or any one else on board understands the French language, he is not obliged to take an interpreter. The duties for American vessels are, therefore, as follows:

Designation of vessel.	DUTIES.				
	NAVIGATION.				
	Tonnage, per ton.	Pilotage, per vessel.	Light-house, per vessel.	Hospital dues, per vessel.	Custom-house duties on the valuation of [illegible].
Under 30 tons....................	Exempt.	Exempt.	Exempt.	Exempt.	1 per cent. ad val.
30 to 49 "	$0 7¼	$2 80·8	$1 86	$1 86	1 per cent. ad val.
50 to 79 "		4 68			
80 and upward....................		6 48			

Oceanie.—The ports of the French dependencies in the Pacific Ocean are free ports.

Tonnage Duties.—For vessels over 10 tons, 28·0 cents per ton; for vessels under 10 tons, 13·8 cents per ton.

Duties for Nationalizing.—For vessels under 100 tons, $1 67; from 100 to 200 tons, $3 33·3; from 200 to 300 tons, $4 44; for each 100 tons additional, $1 11·6.

Duties for Clearance.—Decked vessels, $1 11·6; without deck, $0 18·6.

These are duties both for American and French vessels coming or going direct from or to the United States, in virtue of the above-mentioned decree. If, however, trading indirectly, they are subjected to the same duties as all other ships, for which, both French and foreign, the duty is as follows:

---

* "*Entrepôt fictif*," a private storehouse where goods are under the sole supervision of the depositor.

TARIFF OF 1847.

DESIGNATION OF VESSELS.	DUTIES.					OBSERVATIONS.
	Pilotage, per vessel.	Tonnage, per ton.	Light-house, per vessel.	Hospital, per vessel.	Custom-house dues.	
French vessels.						
From 30—49 tons.....	$1 25	$0 04¼	$1 86	$1 86		
From 50—149 tons.....	2 03					
150 and upward.......	2 50					
Foreign vessels.						
30 tons and less.....	$3 70⅓	$0 11¼	$1 86	$1 86	1 per cent. on the valuation of the cargo.	French vessels arriving from the ports of the U. S. are subjected to the same duties as American.
31—49..............						
50—79...............	5 55½					
80 and upward........	7 40					

TARIFF DUTIES ON IMPORTATION OF SPIRITS IN FOREIGN VESSELS, BY A DECREE OF NOVEMBER 14, 1847.

Denomination of merchandise.	Number, weight or measure.	Rate of duty.
Wines, French, in casks...........	Per barrel..	$1 86
" " in bottles..........	Per dozen...	37·2
Liquors, cordials, and all alcoholic wine, in casks.................	1 litre, or 1¾ pint......	11·25
The same, in bottles...............	Per dozen...	74·4
Absynthe, "	" ...	1 48
Beer, "	" ...	37·2

The same articles pay, in French or Tahitian vessels, only one half of these duties. (1853.)—*Com. Rel. U. S.*

French West Indies.—The French colonial possessions in the West Indies formerly comprised a domain of great extent and value, agriculturally and commercially. The war consequent upon the great Revolution in France terminated in an almost total destruction of her power in the New World. Hayti was then wrested from her. Her necessities compelled her to dispose of Louisiana. At the close of the war in 1815, the naval power of Great Britain had enabled her to seize every one of the French islands, and drive the fleet of France from the seas. By the treaty of peace consummated in 1814, and confirmed in 1815, England released to her some of the captured islands. Her possessions in that quarter now consist of Martinique, Guadaloupe and adjacent islands, and the north side of St. Martin.

The intercourse between the United States and the French islands (San Domingo being then included) was originally regulated by an *arrêté* of the French government, dated the 30th of August, 1784. American vessels of at least 60 tons were admitted into certain ports in these islands, laden with lumber of all kinds, dye-woods, live stock, salt beef, salt fish, rice, raw hides, peltry, rosin, pitch, and tar, which they exchanged for rum and molasses, and goods of French manufacture, paying thereon the local duties, and one per cent. ad valorem on all imports and exports. A further duty of three livres was imposed on ever hundred weight of salt beef and fish, to form a fund for premiums to be given for fish from the French fisheries. The colonial legislatures were authorized, in times of scarcity, to suspend this law. Prior to the French Revolution, the policy of France was in contrast with that of England. That of England was to monopolize the carriage of the articles exchanged; that of France, to monopolize the articles themselves. The former was willing that the United States should have sugar and coffee, provided they were carried in British bottoms; the latter was willing that the United States should supply her sugar and coffee plantations with certain articles she was unable to furnish herself, but would not allow them to receive in return, the most valuable productions of the colonies. They were reserved for consumption in the mother country, and to augment the national wealth. Under these regulations, the United States were prompt in availing themselves of the advantages of the carrying trade to and from the French islands.

In 1786, our exports, domestic and foreign, to the French West Indies, were of the value of 13,263,000 livres; and our imports from thence of the value of 7,263,000 livres;* and the American vessels engaged in the trade had an aggregate of 5095 tons' burden. Upon the declaration of war against Great Britain, in 1793, France opened a free trade with all her colonies. She offered the United States the monopoly of this trade, on condition of a guaranty of her possessions, which was wisely declined. Our trade with the islands during the war was nevertheless much augmented. Our proximity enabled us to seize the advantages in advance of other countries. The following table exhibits the imports from and exports to the French West Indies for the years designated:

Years.	Imports.	Exports.
1795......................	$15,751,758	$4,954,952
1796......................	15,743,774	8,408,946
1797......................	14,030,337	8,565,053
1798......................	15,380,091	5,344,690
1799......................	2,022,929	2,776,694
1800......................	9,385,111	5,123,433
1801......................	13,593,255	7,147,972

The exports of our domestic produce duing the years 1804, 1805, 1806, and 1807, were of the average value of $2,800,000, and of foreign produce between $3,000,000 and $4,000,000. Our imports during the same period were of much greater value; but the principal part of them were re-shipped to France and other countries. About the latter part of the year 1807 the English had become possessed of nearly all the French islands; and they were not restored to France until 1814, and then with the loss of the most important one—San Domingo. Its loss greatly reduced the amount of commerce of those islands with the United States, as is exhibited by the subjoined statement of imports and exports from 1821 to 1833:

Years.	Imports.	Exports.	Years.	Imports.	Exports.
1821..	$900,619	$896,435	1828..	$896,651	$1,024,771
1822..	969,509	961,002	1829..	777,992	1,072,407
1823..	938,613	867,595	1830..	518,687	805,769
1824..	884,084	811,732	1831..	671,842	717,877
1825..	848,968	1,011,956	1832..	578,857	624,975
1826..	973,270	956,174	1833..	511,242	618,719
1827..	921,330	1,040,853			

The conditions of our commercial intercourse with the French West Indies were again changed by a royal ordinance bearing date the 5th February, 1826, and an act of Congress bearing date the 9th May, 1828. By the former, it is ordained that, after the 1st July following, all vessels, either foreign or national, may import into Guadaloupe and Martinique certain articles of merchandise, specified in the table accompanying the ordinance, on paying the duties therein required, without regard to their flags. This ordinance also annuls all then existing tariffs. The act of Congress admits all French vessels "coming directly from the islands of Martinique and Guadaloupe, and laden with articles the growth and manufacture of either of said islands, and which are permitted to be exported therefrom in American vessels," into the ports of the United States, on payment of no higher duty on tonnage or on cargoes than are imposed on American vessels, and on cargoes imported in American vessels. The French ordinance exempts foreign vessels also, importing the articles thus authorized, from any other duties or tonnage, or any port charges, but those to which the vessels of France are subjected. The importation of other articles than those specified by the ordinance, by foreign vessels, is prohibited; and articles allowed to be imported can only be re-exported from one colony to another by French vessels. The imports and exports under the seregulations have already been given, up to the year 1833. The following table exhibits them from the year 1844 up to the close of the year 1855, inclusive, embracing a period of 12 years:

---

* The livre was a coin of France prior to 1797; 81 livres being equal to 80 francs.

Years.	Imports from French West Indies.	Exports to French West Indies.
1844	$374,695	$617,546
1845	415,082	564,103
1846	848,236	685,621
1847	151,366	603,764
1848	127,039	489,924
1849	71,469	194,998
1850	75,684	287,668
1851	22,909	310,281
1852	46,287	455,444
1853	52,304	398,259
1854	161,085	612,027
1855	44,434	409,701

On the 8th of December, 1849, the tariff of 1826 was somewhat modified by slightly enlarging the imports; but the equal conditions upon which national and foreign vessels were placed in respect to tonnage and port charges were not disturbed. The prospects of an increase of our trade with the French West India possessions, and the motives to impel us to strive to obtain it, will be found in a brief summary of their natural resources and the conditon of their population.

The island of Guadaloupe lies between 15° 58′ and 16° 13′ north latitude, 20 miles north of Dominica. Its dependencies are Marie Galante, La Desirade, Les Saintes, and a portion of St. Martin. The aggregate area of the whole of them is 309 square miles, and the populations of all 135,000. The central ridge of Guadaloupe is a chain of volcanic mountains 3000 feet high. From its base a multitude of rivulets descend, watering the low lands to the sea. The Saintes are three small islands situated between Guadaloupe and Marie Galante; Desirade is 10 miles long and five miles broad. Marie Galante approximates to a circle, and is 14 miles in diameter. The soil of Guadaloupe is light, and easy of tillage. The climate is excessively hot, but much tempered by the sea-breeze. About 86 inches of rain falls during the year. About one half its surface is planted in sugar-cane. The improvement in machinery has added much to its productive powers. The live stock consists of black cattle, sheep, and mules. Guinea-grass is the only forage grown. The annual value of all the produce exported averages 25,000,000 francs, and consists chiefly of raw sugars, rum, and molasses, with some coffee, dyewoods, cotton, copper, etc. Nearly all these exports go to France. The imports consist of salt meats and fish; flour, olive oil, cotton, linen, and silk fabrics; wine, perfumery, etc.; the annual value of which equals that of the exports. About 500 vessels, measuring an aggregate of 50,000 tons, enter and depart during the year.

Martinique is situated between latitude 14° 23′ and 14° 52′ north. It is about 28 miles long, and 10 in average breadth, with an area of 290 square miles, and a population of 15,000. Mountains occupy its centre, sloping into plains toward the sea-shore. About one third of the island is level land, and cultivation ascends 1500 feet along the mountain-sides. The staple product is sugar; its other products are like those of Guadaloupe. The annual value of its exports is a little under 20,000,000 francs, and the imports are of a like value. About 750 vessels, French and foreign, are engaged in the trade. Both these islands are divided into arrondissements, and have a governor and legislative council, and judicial tribunals. Slavery was abolished in all the French colonies some years since. The larger portion of their population is black.—*Com. Rel. U. S.*

French vessels from the French islands of Martinique, Guadaloupe, St. Pierre, Miquelon, and Cayenne in French Guiana, were exempted from tonnage duty under the special act of Congress of the 9th May, 1828, and, as to St. Pierre and Miquelon, by the proclamation of the President of the United States, dated the 20th of April, 1847, consequent on the removal by France of the restrictions on vessels of the United States in said islands.

A French vessel bringing fish from the banks of the British colony of Newfoundland, being the product of the waters of that colony, is not exempt from tonnage duties; the act of the 3d of March, 1845, exempts from such duties only French vessels coming directly from the islands of Miquelon and St. Pierre, either in ballast or laden with articles the growth or manufacture of either of said islands, and there is no other provision of law or treaty authorizing an exemption.

French Colonies.—Decree of September 29th, 1856.—The Emperor Napoleon, has decreed as follows:

ARTICLE 1. The extension fixed by the decree of September 19th, 1856, for the operation of the modifications in the tariff of customs in the colonies of Martinique, Guadaloupe, the island of Reunion, and of Senegal, in all that relates to grains, breadstuffs, and dried pulse, is continued to December 31st, 1857.

ARTICLE 2. Our ministers, secretaries of state, etc., will see to the execution of this decree which will also be published in the "*Bulletin des Lois.*" The United States' consul at Paris communicates to the State Department, under date November 10th, 1856, as follows: "I beg to point out to your notice a modification in the duties on wool, as published in the *Moniteur* of the 8th instant (which I herewith inclose), and of which the following is a translation: 'Viewing the law of the 27th July, 1856, which has modified the importation tariff on wool in bulk.'" Considering that it is necessary to place the duties established on the importation of combed and dyed wool in unison with the existing duties on wool in bulk, it is decreed:

ARTICLE 1. The custom-house duties on the importation of combed wool and dyed wool are fixed as follows:

			Fr.
Combed wool	By French vessels,	per 100 kilo's	70
"	By foreign vessels,	" "	80
Dyed wool of all sorts	By French vessels,	" "	100
" "	By foreign vessels,	" "	115

"ST. PIERRE, January 22d, 1857.

"Since my last report there has been a considerable change in the duty on tobacco imported from the United States. It has been raised from 20 francs, or about $3 75 per 220 lbs., to the enormous figure of 60 francs, or about $11 25 per 220 lbs., making an augmentation of 200 per cent.

"Some slight ameliorations have been made with respect to the importation of pork and hams, which heretofore had to pass through a French port before admission, but which can now be imported direct from the United States under a duty merely nominal.

"It is much to be desired that the French government should extend this privilege to all articles indiscriminately that could be imported here from the United States.

"The importation of flour from the United States into this island has been much greater this year than during previous years. From the 30th June to the 31st December, 1856, upward of 10,000 barrels have been imported direct from the United States, and about an equal quantity of United States' flour has been imported by way of French ports. This may be accounted for by the duty having been temporarily reduced, and it is much to be regretted the measure is not a permanent one. The new duty (which expires to give place to the old one on the 31st December, 1857) is, on every 220 lbs. of flour, 2 francs, or about 37½ cents. The old one is, on every 220 lbs. of flour, 20 francs, or about $3 75, a duty that of course rendered the importation of flour impossible so long as it existed. You will observe from the returns, that this island exports almost nothing to the United States. The staple products are sugar, rum, coffee, and these are not allowed to be exported except to France. Some years ago there was a considerable exportation of molasses to the United States; but this branch of commerce has completely died out, owing to the great extension of distilleries in the island and the consequent scarcity of molasses.—*Consular Returns.*

In order to present an English view of the commerce and finances of France of late years, we add from TOOKE's "History of Prices" (vol. vi., London, 1857) the following "Conclusions arising out of the Inquiry as to the Finances and Credit Institutions of France," contributed by WILLIAM NEWMARCH, Esq., to the new volumes of that work.

"That the revolution of February, 1848, occurred at a period when, by the operation of numerous causes, the finances of the French government were already seriously embarrassed; that among the most important of these causes were the laws of 1841 and 1842, under which the State had taken upon itself the responsibilities and the expenditure entailed by the construction throughout France of an extensive net-work of trunk lines of railway; the unproductive expenditure for a long series of years of large annual sums in Algeria; the unproductive expenditure of considerable sums on public works, yielding no adequate return either direct or indirect; and the maintenance for a long period of an excessive annual outlay on the army and marine; and that in immediate aggravation of all these causes of financial disorder, there had occurred in France, in the closing months of 1846, and throughout the greater part of 1847, a commercial crisis (taking its origin in the serious failure of the harvest of 1856) more severe and disastrous than had been experienced in France for 20 or 30 years.

That the suspension of cash payments by the Bank of France, adopted in March, 1848, and maintained for two years and a half, till August, 1850, was a measure wholly unavoidable, in consequence of the prevalence in March, 1848, of extreme internal discredit, which admitted of being met in no other form; that the prevalence, during these two and a half years, of a very low price of corn in France; of a state of the external trade of France which established a large yearly balance in favor of that country; and of the absence of any political causes which rendered it necessary for the government to require excessive advances from the Bank of France, rendered the suspension practically unproductive of any depreciation or inconvenience; and led to its removal in August, 1850, by the spontaneous accumulation in the Bank of France of an amount of treasure quite equal to the amount of notes in circulation.

That among the important circumstances which have contributed to strengthen the position of the Bank of France since 1848, and to aid the government in its plans for fostering credit, has been the extension by £12,000,000 or £14,000,000 sterling of the disposable means of the Bank of France in consequence of the addition of that amount in the form of small notes to the former average circulation of the establishment.

That under the autocratic government, established in December, 1851, there have been introduced into France a set of financial principles; and there have been placed in course of trial a series of financial experiments, distinguished by a novelty which finds no sanction in any successful precedent; by a hardihood which set at naught almost every established canon of finance; and by a disregard of the future, which purchases present popularity at any cost.

That the earliest purposes to which the new financial policy was devoted were the reduction, in March, 1852, of the interest on the French 5 per cent. debt; the imposition on the Bank of France of a new charter which compelled it at once to lower the rate of discount to 3 per cent. and to make large advances on stock-exchange securities; the concessions, on conditions more or less onerous to the State, of a large number of lines of railway; and the introduction of several joint-stock companies, encouraged by every State appliance to foster the application of credit to purposes of speculation.

That between the early part of 1852 and the autumn of 1853, the prosperity and progress which seemed to prevail in France were chiefly the results of the artificial measures.

That the difficulties of various kinds which have occurred in France since the close of 1853; and more especially the difficulties experienced by the Bank of France in the autumns of 1855 and 1856, have arisen in a principal degree—allowing, of course, for the war and the scarcity—from the embarrassments and disorders entailed by the policy which has forced upon France enterprises and speculations disproportionate to its resources of available capital.

That these embarrassments and disorders would have become altogether overwhelming if it had not been for the springing up, since 1849, chiefly in the gold countries, and in consequence of the gold influx, of a demand for French manufactures and produce, so large and continuous that, during the 9 years 1848–'56, the balance of trade in favor of France has amounted to not much less than £80,000,000 sterling.

That neither the apparent success of the reduction of the French 5 per cents. in March, 1852, nor the apparent success for some time of the enforced maintenance of a low rate of discount; nor the setting up of popular discount and loan banks; nor the apparent alacrity with which the subscription lists of the war loans of 60,000,000 were filled up; nor the maintenance for a long period of the schemes of selling bread at an artificially cheap price; nor the multiplication of railway companies by means of guarantied dividends; nor the apparent prosperity created by public works and credit institutions, afford the smallest support, when examined minutely and fully, to the financial principles and the financial practices which have held the supreme place in France since December, 1851.

That of the two great credit institutions called the Crédit Foncier and the Crédit Mobilier, the former is directed to a useful and laudable object, but is degraded and disfigured by the introduction of elements of gambling, empirical and pernicious; and the latter, the Crédit Mobilier, seeking to obtain large profits by exciting violent fits of stock-jobbing, and to obtain large funds by the issue of obligations practically not payable in specie, approaches, in design and machinery, nearer than any institution of recent times, to the model afforded by Law's Bank of 1716, and the Compagnie des Indes of the three following years.

That as the result of the whole investigation concerning the financial policy of France since 1847, there have been made apparent three principal facts, namely: 1st. That between 1847 and 1851, it was the abundant harvests and low price of food in France, which contributed in the largest degree to preserve order, to restore cash payments, and to re-establish an equilibrium between the income and expenditure. 2d. That between 1851 and 1857, it has been the £100,000,000 sterling, made available to France by the economy of its metallic circulation, and by the demand for its silks and wines in the gold countries, which has so far carried it through the perils of war, scarcity, and extravagance; and, 3d. That the reckless and socialistic financial policy introduced since December, 1851, has already exposed France to failures and perils quite as formidable as any that were threatened by the revolution of 1848, and unless subjected to early and severe restraints, will assuredly produce the most disastrous consequences." See TOOKE's *History of Prices*, vol. vi., London, 1857, pp. 130–134.

Frank, the name by which the Turks, Greeks, Arabs, etc., designate a Christian. It probably originated during the crusades, in which the French (descendants of the German Franks) particularly distinguished themselves. Europe itself, too, was named *Frankistan*, or the country of the Franks.

The Frank language, *Lingua Franca*, is a jargon which is spoken in the Levant, as the common medium of communication between Europeans and the inhabitants of the East. Its chief ingredient is Italian, and it probably originated during the crusades, which brought so many different nations together.

Frankfort-on-the-Maine (Ger. *Frankfurt Am Maine*), one of the four free cities of Germany, and so called to distinguish it from the Prussian town of Frankfort-on-the-Oder. It took its name *(Franken Furt)* from the river being fordable at this point; and is supposed to have been founded by the Franks in the fifth century.

From the earliest times Frankfort has been closely connected with the other free cities of Germany. During the ancient empire the cities formed together one corporation at the Imperial Diet, and enjoyed one vote in the public affairs. Up to the dissolution of the German empire, in the year 1804, there existed a great number of free towns, which had preserved their sovereignty and independence against the surrounding princes, depending only on the empire, and enjoying various privileges granted to them by the emperors. These disappeared, for the greater part, with the events of the Revolution. Of those which had survived the German empire the towns of Hamburg, Bremen, and Lubec were incorporated with the French empire; while Frankfort became the seat of the Grand Duchy of the same, created by Napoleon, and placed under the rule of the Prince Primat Archbishop of Ratisbon. The overthrow of the French conqueror in 1813 restored these towns to their former independence, and they were received as sovereign members of the confederation. The towns of Hamburg, Bremen, and Lubec once belonged to the Hansa, that celebrated league which was formed in the thirteenth century. Its real object was the protection and extension of commerce; but its power and influence increased in such a way that it at length included eighty-five towns; it equipped fleets, and declared war on neighboring States. England and other powers concluded treaties with the Hansa, and were glad to enjoy its friendship. This league, however, was dissolved in 1630, when the last of its diets was held at Lubec; and from that time the three cities of Hamburg, Bremen, and Lubec remained alone, as the properly-called Hanse Towns. These, with Frankfort-on-the-Maine, form the four free cities of the German Confederation. These four free cities are represented in the German Diet by one minister, and have together one common voice. Notwithstanding this joint representation, each one of the four cities has its own particular representative at the seat of the Diet. Hamburg is represented by Mr. Kirchenfrauer, Bremen by Burgomaster Smidt, Lubec by Senator Elder, and Frankfort by DeHarnier, senator and eldest burgomaster. The joint vote of the four cities is alternately intrusted to each of the towns for the period of a year. The free cities likewise have in common a supreme court of appeal for law cases, and political questions, too, sitting at Lubec; and the control over which is alternately exercised by one of the four cities. Besides that, there exists between them a similitude of political institutions. Their form of government is that of a republic, the basis of which (excepting the short period of 1848-'50) has, nevertheless, always been rather more of an aristocratical than of a democratical character. Their interests are closely united; they have the same political friends and opponents.

The chief manufactures are carpets, table-covers, oil-cloth, cotton, woolen, and silk fabrics, jewelry, tobacco, playing-cards, etc. Frankfort was made a free port in 1831, and is also one of the four great emporiums for supplying Germany with merchandise. The river Maine, which is navigable to Bamberg in Bavaria, where commences the Donau-Maine Canal leading to Kelheim on the Danube, and the numerous railways which centre in Frankfort, render it the industrial and commercial centre of the south-west and west parts of Germany. No German city, with the exception of Berlin, is the centre of so great a number of railways. Four great lines, and seven others of a more local character, meet in the city. The Maine-Necker railway leads southward to the Grand Duchy of Baden, whence railways proceed to Switzerland, Wurtemberg, and Bavaria. The Taunus railway leads west and north-west to Mayence, and to Wiesbaden. From Mayence a railway goes to Ludwigshafen, the harbor of the Bavarian Palatinate opposite Manheim, thence to Strasbourg, and therefrom to Paris as well as to Switzerland, Another branch from Ludwigshafen meets the Strasbourg and Paris railway at Nancy. From Wiesbaden a line is now (1855) in course of construction to Coblentz. The Main-Weser railway passes through the greater part of the two Hesses to Cassel, and communicates with Hanover, Bremen, Hamburg, etc. On the right its branches lead to Berlin and Saxony, and on the left a line will soon be opened to Cologne. The Hanau railway connects Frankfort with Hanau and the chief places on the Maine to Bamberg, from which southward with Nuremberg, Augsburg, Munich and Austria, and in another direction with Leipsic, Dresden, and Bohemia. There are also local lines to Offenbach, the chief manufacturing town of Hesse Darmstadt, to Soden, a much-frequented bathing-place, and to near Romburg, one of the famous spas of Germany. Frankfort, however, is chiefly indebted for its great wealth to being the seat of extensive banking, commission, and funding transactions. In proportion to its size, it is probably the richest city in the world. There are about twenty first-class banking houses; among these are the Rothschilds, Grunelius, Metzter, and others, well known in the commercial world. The number of those in the stock and exchange business amounts to at least 200. A city bank, with a capital of 10,000,000 florins, was established last summer, and has just (1855) commenced business operations. The two fairs of Easter and Michaelmas are still much frequented. Goethe was born here in 1749. Civil population (1852) 62,361, being 47,100 Protestants, 10,661 Catholics, and 4600 Jews; military, 5650—1717 being Austrians, 1713 Prussians, 1391 Bavarians, and 829 natives. The population of Frankfort is but slowly increasing, on account of the old illiberal laws still in force as to admission to citizenship. Only such are admitted as can prove their ability to maintain a family; so no merchant can be admitted unless he prove that he possesses at least 5000 florins, and generally persons possessing that sum, or even more, are not admitted unless they marry a citizen's daughter, in which case the law is more favorable. The ancient law is also still in force, that none shall mend a shoe or drive a nail unless he be a master and member of one of the corporations, and he can not become a member unless he be the son of a citizen, or marry a citizen's daughter. The restrictions to which the Jews were long subject have now mostly been removed. They are entitled to vote at the elections of members to the legislative assembly, and may return four of their own number; they are also admissible to all offices not connected with the senate, the permanent assembly of the citizens, law, religion, or education. The inhabitants of Sachsenhausen are mostly of Saxon descent, and distinguished from their fellow-citizens in manners, dress, and language, as well as occupations, being mostly employed in gardening, fishing, etc.

The city, with a small territory of thirty-eight square miles lying immediately around it, constitutes the free state of Frankfort. The government is vested in a senate, a legislative assembly, and a permanent committee of citizens. The senate, which exercises the executive power, is composed of 44 members, divided into three branches—justices, senators, and counselors, and having two presidents, one chosen from each of the two first-mentioned benches. The legislative assembly is composed of 94 members, of whom 20 are senators, 20 members of the permanent committee of citizens, 45 chosen annually by the citizens collectively, and 9 deputies from the rural districts. The permanent committee consist of 60 members chosen from among the citizens of all ranks. The legislative assembly meets annually in the month of November, and sits for six weeks; and its sanction is requisite to all new laws, the budget, etc. With the free cities of Lubec, Bremen, and Hamburg, Frankfort occupies the seventeenth place in the Germanic Confederation. It enjoys one vote in the general assembly (*Plenum*), and furnishes a contingent of 683 men to the federal army. Population of the State (1852) 77,971.

Frankfort-on-the-Oder, a town of Prussia, province of Brandenburg, and capital of the government of Frankfort, stands on the left bank of the Oder, fifty miles east by south of Berlin, with which, since 1842, it has been connected by railway. The town is regularly built, and surrounded by old walls with towers and ditches. It has three suburbs, one of which stands on the opposite bank of the river, and communicates with it by means of a wooden bridge. The university founded here in 1506 was removed to Breslau in 1810. Frankfort has a Roman Catholic and six Protestant churches, a synagogue, gymnasium, obstetric school, orphan asylum, work-house, theatre, etc. Being the capital of a government, it is the seat of a superior and other judicial tribunals, of boards of taxation, agriculture, etc. Though inferior to its namesake on the Maine, it is a place of considerable commercial activity, being situated on the high road from Berlin to Silesia, and on a navigable river communicating by canals with the Vistula and the Elbe. It has three annual fairs in the months of February, July, and November, attended by merchants not only from Germany, but also from other parts of Europe. It has manufactures of woolen and silk goods, stockings, gloves, leather, tobacco, sugar, brandy, mustard, etc. Immediately beyond the bridge is a monument to Prince Leopold of Brunswick, who was drowned here in 1785 while attempting to rescue an unfortunate family from an inundation of the Oder. At Kunnersdorf, in the vicinity, Frederic the Great was defeated with great loss by the Austrians and Russians on 12th August, 1759. Population (1849) 29,969.

Freebooters (Fr. *flibustiers*), a name given to a class of piratical adventurers of all nations, but especially of France and England, who have obtained a place in history by the courage and intrepidity they displayed in executing the most difficult enterprises. The origin of their history is involved in obscurity, nor has the derivation of their name been precisely determined; but the *flibustiers* of the French historians correspond to the *bucaneers* of our own writers. (See BUCANEERS.) The South American islands formed the chief theatre of their exploits; and such was the relentless hostility they exercised against the Spaniards, that during the latter half of the seventeenth century their commerce in those seas was almost utterly ruined. At the commencement of the following century these daring adventurers sustained a series of disasters which sensibly diminished their numbers; and their name, which during a period of 50 years had been so redoubtable and dreaded, ceased to be formidable from that time. The term freebooter has been applied in a general sense to robbers and other plunderers. See BUCANEERS.

Free Imperial Cities.—This appellation was bestowed, under the German empire, on certain cities which acknowledged no head but the emperor, and were governed by their own magistrates. Some of these cities, as Worms and Cologne, acquired various privileges and immunities at an early period, in consequence of the assistance they rendered the emperors in repressing the arrogance of the nobles; and commerce and manufactures gradually contributed to their importance. In this manner the imperial cities originated in the middle of the twelfth century. It would appear, however, that there were free cities in Germany which had existed from the time of the Romans, though possessing little in common with those of later times, and which in the beginning of the sixteenth century lost their most valuable privileges, and even the name of free cities, through the ignorance and carelessness of their magistrates. As to the nature of these privileges it will be sufficient to remark that they were such as to constitute them nothing less than independent republics. The cities of Lombardy, enriched by commerce and encouraged by the popes, often ventured to resist their masters the emperors; and their example was followed by those of Germany. In the middle of the thirteenth century two important confederacies were established for common objects—the Hanseatic League in 1241, and that of the Rhenish cities in 1246. The powerful Hanseatic League lasted nearly 400 years, and its dissolution was effected by several causes in 1630. The remnants of this league, with the former confederacy of cities which had its representatives in the German Diet, as well as the free cities of Hamburg, Bremen, and Lubec, were incorporated with the French empire in 1810. As these cities co-operated vigorously in the recovery of German independence, they were acknowledged, together with Frankfort, as free cities by the congress of Vienna; and as such they joined the German confederacy, June 8th, 1815, and obtained the right of a vote in the Diet. See also HANSE TOWNS.

Free Trade. A nation, possessing all necessary physical resources, but imperfectly developed, like England a century ago, like the United States now, may do one of two things. It may resolve to produce for itself, or resolve to let others produce for it. If it resolve to use its own products, it must resolve not to use the products of other nations. Now, what is a protective tariff, which prevents the sale of foreign products, but this resolution expressed by legislation? Two things are necessary: 1st. Not to use the products of others. 2d. To produce for one's self. The first is protection. Now it is true, that without industry at home, protection from abroad will avail nothing, for there is nothing to protect. And without resources, neither protection nor industry will avail any thing. We admit the necessity, first, of natural resources; second, of industry; we claim, third, the necessity of protection.

Protection, then, is the resolution of a nation *not* to use foreign products; this is the negative side of the policy of home industry. A resolution to produce for itself is the affirmative side, and is necessary to complete it. Such a resolution in a nation is like self-control in an individual, and protection is no more unnatural in the one than self-control in the other.

It is a domestic policy, designed to keep foreign goods out of the home market. Now, a nation may say it will not buy of others. This is protection. It can not say others shall buy of itself. This is beyond the power of protection; and England reached this point years ago, we think as early as the beginning of the century. During the European war she enjoyed the most effectual protection, for we admit the fling of the free-traders, that protection is a sort of war, thus far, that it involves mutual exclusion. England's fleets swept the seas, conveying around the world her merchantmen that carried the raw materials to her factories, and carried it back manufactured to the ends of the earth. No other nation but the United States pretended to share the carrying trade, and we then, favored by like protection, first began to manufacture.

England commanded the markets of the world. What had she to fear for the market at home? Protection had done its perfect work—it was *functus officio;* and yet, when England, thirty-five years after, when they had become useless, ventures to throw off some of the restrictions that swathed her industry, we are told she had abandoned the principle, convinced it was a mistake.

GROSS REVENUE FROM CUSTOMS OF GREAT BRITAIN, AFTER DEDUCTION OF DRAWBACKS, WITH STATEMENTS OF CUSTOMS DUTIES REPEALED, REDUCED, OR EXPIRED EACH YEAR, AND THOSE IMPOSED, FROM 1815 TO 1855.

YEAR.	CUSTOMS.	ESTIMATED ANNUAL PRODUCE OF CUSTOMS DUTIES	
		Repealed.	Imposed.
1815	£23,488,000	£223,000	£424,000
1816	19,845,000	53,000	90,000
1817	22,111,000	1,000	7,000
1818	22,369,000	....	....
1819	21,952,000	472,000	1,260,000
1820	22,104,000	....	5,000
1821	22,572,000	20,000	....
1822	23,500,000	153,000	....
1823	24,841,000	211,000	....
1824	24,711,000	1,418,000	46,000
1825	24,660,000	2,768,000	....
1826	22,855,000	773,000	189,000
1827	23,202,000	2,000	21,000
1828	22,866,000	36,000	2,000
1829	22,620,000	126,000	....
1830	22,914,000	575,000	85,000
1831	21,612,000	1,066,000	626,000
1832	21,978,000	248,000	23,000
1833	21,253,000	347,000	....
1834	21,564,000	306,000	17,000
1835	22,146,000	33,000	....
1836	23,046,000	143,000	1,000
1837	22,063,000	....	....
1838	22,365,000	....	....
1839	23,184,000	5,000	....
1840	23,342,000	....	1,060,000
1841	23,515,000	27,000	....
1842	22,523,000	1,499,000	161,000
1843	22,647,000	171,000	....
1844	24,107,000	286,000	....
1845	21,706,000	3,603,000	....
1846	22,278,000	735,000	2,000
1847	21,656,000	345,000	....
1848	22,594,000	586,000	....
1849	22,269,000	389,000	....
1850	22,020,000	334,000	....
1851	22,197,000	801,000	....
1852	21,791,000	96,000	....
1853	22,152,000	1,500,000	16,000
1854	22,017,000	983,000	440,000
1855	22,227,000	....	2,226,000

"We have seen that, apart from foreign trade, the population of every country supply their own wants to the extent of from 90 to 99 per cent. of their whole consumption; that the business of furnishing this supply is by extreme division of labor, apportioned among four fifths of a people; that their internal trade consists in distributing these products of industry; that this distribution is substantially an exchange among the whole individuals of a population, of products for products, or products for services, or, in the last analysis, of labor for labor; that this exchange is made by the agency of merchants, and takes the shape of sales and purchases, that is, leaving out of view the medium of exchange, men pay with their own labor for what they need of the labor of others; that all the agency of merchants, brokers, banks, and credit, is merely a means of effecting this exchange, that the commodities or labor thus exchanged, are estimated at prices expressed in money of account, which prices are mainly governed by the price of labor; that upon the regular movement of this exchange, mainly depends the well-being and comfort, the energy and productiveness of labor; that if this movement proceeds rapidly and undisturbed, production and consumption will go hand in hand, until individuals reach the full power of both, and a greater degree of general comfort and competency be enjoyed than has yet been known. We have seen that one of the great disturbing causes of this system of domestic distribution, of the comforts and necessaries of life, was found in the occasional derangement of the commercial agencies by which it is effected; and we have remarked upon the necessity of reforming that agency with a view to the interests of humanity.

"We now proceed to consider another disturbing cause. We remark first, however, that neither the labor nor the products of labor, nor the distribution, nor the means by which it is effected are the primary objects of consideration. The first consideration is the people, then, in their order, their labor, their products, and the distribution of them. The whole object of their industry is their well-being. As they can only purchase by their own labor what they need of the labor of others, it is absolutely necessary for all to work; whatever deprives men of the opportunity of labor, deprives them of bread, and of every other comfort and necessary of life. Men consume freely and largely when they are fully paid for their labor; that is, when they can purchase for their labor an equal quantity of the labor of others; in this case, the nominal rate is of little account, because it is labor for labor. If the 25,000,000 of people in the United States, are consuming $10 worth each of domestic woolen goods annually, upon the manufacture of which 250,000 of the people are dependent for their entire living, and if it be found that these same goods, which cost at home $3, can be purchased at $2 per yard in Europe, then, at first sight, it would seem but reasonable, that the cheaper article should be imported from Europe. To import $250,000,000 worth is impossible, because we can not pay for them, as we are constantly importing more than we can pay for, and that sum is the figure of our whole imports. We import, then, say 10 per cent., or $25,000,000 worth of woolen goods, and sell them in our great commercial marts, where prices are chiefly made, 33 per cent. cheaper than the domestic article. Consumers fly to the cheaper article, and the domestic goods must come down to the same price. The annual domestic product must fall in price 33 per cent., and instead of bringing its manufacturers $250,000,000, it will only bring them $166,000,000; their consumption of the products of others must be reduced one third. The effects of this reduction will extend until they are felt throughout a whole nation. The importation of 25,000,000 of cheaper woolens, would thus inflict a direct loss by reduction of price upon the woolen manufacturers of $83,000,000, and this loss is multiplied many times by indirect results in the reduction of consumption. The average consumption of cotton goods is about the same as that of woolens, and the same illustration is applicable. The introduction of cheaper goods, of a kind which our country must, after all, chiefly manufacture for itself, is introducing against our own labor, the price of which is $1 per day, the labor of other countries, the price of which is less than 50 cents per day. This can not but inflict a serious blow upon the whole system of our internal industry, and if continued, must lead to the utter prostration of the domestic manufacture thus attacked, and the utter poverty and ruin of the hundreds of thousands depending on it for a living. The effect of this in the case of woolen goods, would be a reduction in the average consumption of woolens, of from $10 to $5, for the whole population, and a rise in the prices above the original domestic rates. While, therefore, it may at first sight appear to be very plainly better to import certain goods which can be offered to consumers at lower prices than the corresponding domestic article, several questions must be asked before such a policy is adopted. As, Will the importation seriously injure any home manufacture? Will it throw many people out of employment? It is a great mistake to suppose that such measures affect only employers: in woolen and cotton manufactories, there are hundreds of men, women, and children, depending upon every employer. If we lessen our domestic production, will not our increased demand produces peculation, and a higher foreign price for the article imported? If we resolve upon importing our whole supply of a necessary article, are we sure that we can increase our exports to a sufficient extent to pay for the additional importation? Are we sure that we shall not, by this policy, deprive the poor of their supply of a needful domestic product, and convert it into a foreign product, chiefly supplied for the consumption of the rich? What mode can be adopted to secure a supply of these needful articles in time of war, or interrupted commercial intercourse? All these, and many more inquiries, should be made and faithfully studied, before any branch of domestic industry is broken up, under the temptation of buying cheaper goods abroad. On the contrary, it should be well understood in every country, that many sacrifices may, with advantage, be endured, to introduce the manufacture of any article of general consumption, even though it can not be made as cheap as elsewhere. A manufacture can only grow and flourish in a country where the people are willing to consume its products, and they can only consume them where their labor will purchase them. A people can consume largely of a domestic product even at a high price, but may not be able to consume even a small proportion of a corresponding foreign article at a low price. Let any one think of the innumerable articles which figure in our internal trade, and which go to pay for, as well as to make up our consumption of home commodities, and he will see the difference betwen purchasing abroad and at home."—List's *Pol. Ec.*, by S. Colwell.

Those who wish to examine the literature of *free-trade*, will find the principles fully discussed in the following works: Hunt's *Mag.*, vol. iv., 227 (S. G. Arnold), 425 (H. Greeley), v., 166 (H. Greeley), vi., 220 (C. C. Haven), viii., 407 (L. Woodbury), ix., 161 (J. B. Fisher), x., 399, 522, xi., 227, xxiv., 53 (S. Beman), 569, xxiii., 79, 110, xxii., 635 (Bacon), 406 (Sulley), xxv., 322; *N. Am. Rev.*, xl., 122 (A. H. Everett); *Am. Quar.*, x. 444; *Dem. Rev.*, vii., 341, ix., 329, xiv., 391, 447, xxxiii., 97; *Dublin Univ.*, xxix., 785, xxxv., 270; *Edinb. Rev.* xxxiii., 331, lxxviii., 1, xc., 70; *Am. Whig Rev.*, v., 201, xiii., 233, 329, 443, xii., 518, 633; Niles' *Reg.*, xxviii., 186, xxix., 289, xli., 135, 156; Fraser's *Mag.*, v., 577, viii., 103, 222, 604, ix., 356, vi., 593 (Galt); vii., 106 (Galt), xliii., 716; *Quar. Rev.*, lxxxvi., 80; *For. Quar.*, ix., 261, x., 68; xi., 140; *Westminster Rev.*, xii., 138, xviii., 366, xix., 269, xxii., 226, xl., 1; Blackwood, xvii., 551, xix., 474, xxi., 1, xxiv., 370, xxvii., 553, xliv., 317, lv., 259, 385, lxvii., 94, 222, 447, lxx., 106, 123, 448, 629, lxviii., 123.

Freight, the sum paid by the merchant or other person hiring a ship, or part of a ship, for the use of such ship or part, during a specified voyage or for a specified time. The freight is most commonly fixed by the charter-party, or bill of lading; but in the absence of any formal stipulations on the subject, it would be due according to the custom or usage of trade. In the case of a charter-party, if the stipulated payment be a gross sum for an entire ship, or an entire part of a ship, for the whole voyage, the gross sum will be payable although the merchant has not fully laden the ship. And if a certain sum be stipulated for every ton, or other portion of the ship's capacity, for the whole voyage, the payment must be according to the number of tons, etc., which the ship is proved capable of containing, without regard to the quantity actually put on board by the merchant. On the other hand, if the merchant have stipulated to pay a certain sum per cask or bale of goods, the payment must be, in the first place, according to the number of casks and bales shipped and delivered; and if he have further covenanted to furnish a complete lading, or a specific number of casks or bales, and failed to do so, he must make good the loss which the owners have sustained by his failure. If an entire ship be hired, and the burden thereof be expressed in the charter-party, and the merchant bind himself to pay a certain sum for every ton, etc., of goods which he shall lade on board, but does not bind himself to furnish a complete lading, the owners can only demand payment for the quantity of goods actually shipped. But if the merchant agree to load a full and complete cargo, though the ship be described as of less burden than she really is, the merchant must load a full cargo, according to the *real burden* of the ship, and he will be liable for freight according to what ought to be loaded.

The delivery of goods at the place of destination is in general necessary to entitle the owner to freight; but with respect to living animals, whether men or cattle, which may frequently die during the voyage, without any fault or neglect of the persons belonging to the ship, it is ruled, that if there be no express agreement whether the freight is to be paid for the lading, or for the transporting them, freight shall be paid as well for the dead as for the living: if the agreement be to pay freight for the *lading*, then death certainly can not deprive the owners of the freight; but if the agreement be to pay freight for *transporting* them, then no freght is due for those that die on the voyage, because as to them the contract is not performed. These distinctions have been made in the civil law, and have been adopted into the modern systems of maritime law. Freight is most frequently contracted to be paid either by the whole voyage, or by the month, or other time. In the former case the owners take upon themselves the chance of the voyage being long or short: but in the latter the risk of the duration falls upon the merchant; and if no time be fixed for the commencement of the computation, it will begin from the day on which the ship breaks ground and commences her voyage, and will continue during the whole course of the voyage, and during all unavoidable delays *not occasioned by the act or neglect of the owners or master*, or by such circumstances as occasion a suspension of the contract for a particular period. Thus, the freight will be payable for the time consumed in necessary repairs during a voyage, provided it do not appear that the ship was insufficient at the outset, or that there was any improper delay in repairing her.

In the absence of an express contract to the contrary, the entire freight is not earned until the whole cargo be ready for delivery, or has been delivered to the consignee according to the contract for its conveyance. If a consignee receive goods in pursuance of the usual bill of lading, by which it is expressed that he is to pay the freight, he, by such receipt, makes himself debtor for the freight, and may be sued for it. But a person who is only an agent for the consignor, and who is known to the master to be acting in that character, does not make himself personally answerable for the freight by receiving the goods, although he also enters them in his own name at the custom-house. In some cases freight is to be paid, or rather an equivalent recompense made to the owners, although the goods have not been delivered at the place of destination, and though the contract for conveyance be not strictly performed. Thus, if part of the cargo be thrown overboard for the necessary preservation of the ship and the remainder of the goods, and the ship afterward reach the place of destination, the value of this part is to be answered to the merchant by way of general average, and the value of the freight thereof allowed to the owner. So, if the master be compelled by necessity to sell a part of the cargo for victuals or repairs, the owners must pay to the merchant the price which the goods would have fetched *at the place of destination;* and, therefore, are allowed to charge the merchant with the money that would have been due if they had been conveyed thither.

When goods are deteriorated during a voyage, the merchant is entitled to a compensation, provided the deterioration has proceeded from the fault or neglect of the master or mariners; and of course he is not answerable for the freight, unless he accept the goods, except by way of deduction from the amount of the compensation. On the other hand, if the deterioration has proceeded from a principle of decay naturally inherent in the commodity itself, whether active in every situation, or in the confinement and closeness of a ship, or from the perils of the sea, or the act of God, the merchant must bear the loss and pay the freight; for the master and owners are in no fault, nor does their contract contain any insurance or warranty against such an event. In our West India trade, the freight of sugar and molasses is usually regulated by the weight of the casks at the port of delivery here, which, in fact, is in every instance less than the weight at the time of the shipment: and, therefore, the loss of freight occasioned by the leakage necessarily falls upon the owners of the ship by the nature of the contract.

Different opinions have been entertained by Valin, Pothier, and other great authorities as to maritime law, with respect to the expediency of allowing the merchant to abandon his goods for freight in the event of their being damaged. This question has not been judicially decided in this country. "The only point," says Lord Tenterden, "intended to be proposed by me as doubtful, is the right to abandon for freight alone at the port of destination; and in point of practice, I have been informed that this right is never claimed in this country."—*Law of Shipping*, part iii., c. 7. Freight being the return made for the conveyance of goods or passengers to a particular destination, no claim arises for its payment in the event of a total loss; and it is laid down by Lord Mansfield, that "in case of a total loss with salvage, the merchant may either take the part saved, or abandon."—*Abbott*, part iii., c. 7. But after the merchant has made his election, he must abide by it.

It often happens that a ship is hired by a charter-party to sail from one port to another, and thence back to the first; as, for example, from London to Leghorn, and from Leghorn back to London, at a certain sum to be paid for every month or other period of the duration of the employment. Upon such a contract, *if the whole be one entire voyage*, and the ship sail in safety to Leghorn, and there deliver the goods of the merchant and take others on board to be brought to London, but happen to be lost in her return thither, nothing is due for freight, although the merchant has had the benefit of the voyage to Leghorn; but, *if the outward and homeward voyages be distinct*, freight will be due for the proportion of the time employed in the outward voyage. "If," said Lord Mansfield, in a case of this sort, "there be *one entire voyage out and in*, and the ship be cast away on the homeward voyage, no freight is due, no wages are due, because the whole profit is lost; and by express agreement the parties may make the outward and homeward voyage one. Nothing is more common than two voyages: *wherever there are two voyages and one is performed*, and the ship is lost on the homeward voyage, freight is due for the first."—*K. B., Trin. Term.* 16 *Geo.* 3.

It frequently happens that the master or owner fails to complete his contract, either by not delivering the whole goods to the consignee or owner, or by delivering them at a place short of their original destination; in these cases, if the owner or consignee of the goods *derive any benefit from their conveyance*, he is liable to the payment of freight according to the proportion of the voyage performed, or *pro ratâ itineris peracti:* and though contracts of this nature be frequently entire and indivisible, and the master or owner of the ship can not, from their nature, sue thereon, and recover a ratable freight, or *pro ratá itineris;* yet he may do so upon a fresh *implied* contract, for as much as he deserves to have unless there be an express clause in the original charter-party or contract to the contrary. A fresh implied contract is inferred from the owner's or consignee's acceptance of the goods. Many difficulties have, indeed, arisen in deciding as to what shall amount to an acceptance: it is not, however, necessary actually to receive the goods; acceptance may be made by the express or implied directions, and with the consent, of the owner or consignee of the goods, but not otherwise.

It sometimes happens that the owner of the ship, who is originally entitled to the freight, sells or otherwise disposes of his interest in the ship: where a chartered ship is sold *before* the voyage, the vendee, and not the vendor or party to whom he afterward assigns the charter-party, is entitled to the freight. But where a ship has been sold *during* the voyage, the owner, with whom a covenant to pay freight has been made, is entitled to the freight, and not the vendee. A mortgagee who does not take possession, is not entitled to the freight.

The time and manner of paying freight are frequently regulated by express stipulations in a charter-party, or other written contract; and when that is the case, they must be respected; but if there be no express stipulation contrary to or inconsistent with the right of *lien*, the goods remain as security till the freight is paid; for the master is not bound to deliver them, or any part of them, without payment of the freight and other charges in respect thereof. But the master can not detain the cargo on board the vessel till these payments be made, as the merchant would, in that case, have no opportunity of examining the condition of the goods. In England, the practice is, when the master is doubtful of payment, to send such goods as are not required to be landed at any particular wharf, to a public wharf, ordering the wharfinger not to part with them till the freight and other charges are paid. No right of lien for freight can exist, unless the freight be earned. If the freighter, or a stranger, prevent the freight from becoming due, the ship owner or master's remedy is by action of damages.

For further information and details with respect to this subject see the article CHARTER-PARTY; *Abbott* (Lord TENTERDEN) *on the Law of Shipping*, part iii., c. 7; CHITTY'S *Commercial Law*, vol. iii. c. 9, etc.

Freight is a common subject of insurance. In common conversation, this word means sometimes the cargo carried, and sometimes the earnings of the ship by carrying the cargo. The latter is the meaning in mercantile law, and especially in the law of insurance. It includes the money to be paid to the owner of a ship by the shipper of goods, and the earnings of an owner by carrying his own goods, and the amount to be paid to him by the hirer of his ship, and the profits of such hirer, either by carrying his own goods or by carrying for pay the goods of others.

An interest in freight begins as soon as the voyage is determined upon and the ship is actually ready for sea, and goods are on board or ready to be put on board, or are promised to be on board by a contract binding on the owner of the goods.

If a ship is insured on a voyage which is to consist of many passages, and sail without cargo, but a cargo is ready for her at the first port she is to reach and sail from, the owner has an insurable interest in the freight from the day in which he sails from his home port.

If one makes advances toward the freight, he is to pay, and this is to be re-paid to him by the ship-owner; if the freight is not earned, the advancer has no insurable interest in what he advances; but if he is to lose without repayment, if the ship be lost, or the freight not earned, he has an insurable interest.—PARSONS'S *Mercantile Law;* Boston: p. 418.

If the hirer takes the whole vessel, he may put the goods of other ship-owners on board (unless prevented by express stipulation); but whether he fills the whole ship or not, he pays for the whole; and what he pays for so much of the ship as is empty is said to be paid for dead freight. This is calculated on the actual capacity of the ship, unless she is agreed to be of specified tonnage. If either party is deceived or defrauded by any statement in the charter-party, he has, of course, his remedy against the other party.—Page 358.

The freight is totally lost when the ship is totally lost or made unnavigable, or is subjected to a detention of such a character as to break up the voyage. If there be a construtive total loss of the ship, the owner may abandon the freight with the ship; but if the ship be actually lost, the freight may not be; for the master has the right, and is under the duty, of transmitting the goods, if he can; and if he does, the owner of the ship is entitled to the whole of his freight, and the expense of the transmission is all his loss. If the master might have done this, and fails to do it, the estimated expense of transmission is still all the loss for which the insurers are responsible.

So, if the ship can be repaired, and go on again and finish her voyage, the owner would have the right to hold on to the goods, and finally carry them, and earn his freight. And he has this right although the delay would be very long, and even if the goods are injured, and it would cost time and money to put them in a condition of safety for the residue of the voyge. Still, the ship-owner, by his agent, may do all this, and then earn his freight; and, therefore, if it can be done, whether it is done or not, all the claim which the insured on freight can make on the insurers is for the expense of doing it. The rule of 50 per cent. applies to freight also. If, therefore, freight *pro ratâ* be paid, it will be a total loss by construction if less than half be paid. So if the ship be injured, and part of the cargo be lost, but the ship may be repaired and carry the remaining goods on, if that part would pay more than half of the whole freight, it has been held not to be total; and otherwise, it is.

Freight is fully earned if the goods remain substantially in specie, and are so delivered to the consignee, although there be a very great deterioration; but freight is lost, and the insurers are responsible, if nothing is left of the goods but the mere products of decomposition, so that they are lost in fact.

If, after some freight is earned, there is an abandonment of the ship, and, after the abandonment, more freight is earned, the American cases hold that the freight earned before the abandonment goes to the insurers on freight, while that earned after the abandonment goes to the insurers of the ship. But the French law is the reverse, and pursues the rule in England.

By the French law, an abandonment of the ship gave to the underwriters the benefits of the freight pending at the time of the loss. In the United States it seems now to be well settled that the freight earned prior to the loss goes to the underwriter on freight, and that earned subsequent, to the underwriter on the ship. Thus it has been decided in the Massachusetts Supreme Court (15 Mass., 346): "Until the loss happens, the property remains in the assured, and the freight, or her earnings, belong to him till that time, if he stands his own insurer for the freight; otherwise, to the insurer on the freight; but after the loss has happened, the insurers, in virtue of the abandonment, become the owners, and are liable for the repairs and expenses, and entitled to the earnings of the ship."—*Ibid*, 478.

Charter.—There are two kinds of contract for the carriage of goods. First, The contract of affreightment by charter-party. Secondly, The contract for the carriage of goods in a general ship. The first is where the whole or the chief part of a ship is let out to hire. There is nothing to prevent this contract from being verbal, but in practice it is always reduced to writing, and the written instrument containing the terms of it is called a charter-party. It may be under seal or not. If so, it takes effect from the day when it was sealed and delivered, unless it appear on the face of it to take effect from the day of date, when that is a different time. The construction of it is to be reasonable and so as to give effect to the intention of the parties and also the usage of trade, both in general and of the particular department in question; and where terms are introduced relating to a usage, evidence of course may be given to prove what that usage is. But this will not admit of a construction being introduced which is not consistent with the plain and obvious meaning of the words. The parties to it are the owners if present where the contract is made, and generally also the master, or the master alone if the owners are absent; and the merchant who hires the ship, or his agent. If the charter-party is by deed and executed by an agent, he should be authorized by deed, or letter of attorney, to sign for his principal, and must sign in his name. If the agent signs in his own name, actions on the charter-party will have to be brought by or against the agent. The merchant hiring is called the charterer or freighter. The letting is for one or more voyages or some period of time: the money to be paid for the hire is called freight. This may consist of one sum for the whole ship or part let, or so much for each ton or each piece of merchandise, etc., the freighter undertaking to find a full cargo.

If the payment is to be made by the ton there should be provision for payment at the same rate for a less quantity. Again, the payment may be by a sum in gross for the whole time of the ship's employment, or at a certain rate per month or other period of time. A month is understood to mean a calendar month. The charter-party expresses the register tonnage of the ship more frequently by both the old and the new modes of measurement; and when the ship is chartered by the month the hire is paid for the number of tons, commonly old measurement, at which she is registered. When the freighter is to pay by the ton, freight is to be paid only for the actual tonnage of the goods without any reference to the register tonnage; but the goods must be in suitable packages, or otherwise the owner can claim for the lost room as dead freight. The words, or thereabouts, are generally understood to mean about 5 tons; but in one case where a ship was described as of the burden of 261 tons or thereabouts, and the freighter undertook to find a full cargo, and no fraud was imputable to the owner, the freighter was held bound to find an actual full cargo, though the ship carried 400 tons. Goods, however, may be packed according to the custom of the loading port, and so may form a full cargo although it may be possible to pack them in less compass. Thus sugar may be packed in hogsheads if such is the custom, though it would take less room in tierces.

A charter-party being an agreement drawn up at the discretion of the parties, they may of course introduce any terms they agree upon. The usual undertakings, however, as said by Lord Tenterden, are on the part of the owners that the ship shall be tight, and strong, furnished with all necessaries for the voyage, ready by a day appointed to receive the cargo, and wait a certain number of days to take it on board. But the obligation to remain the whole of the running days may be dispensed with by a distinct intimation from the merchant that no cargo will be provided, and that it is useless to wait. That after lading she shall set sail with the first fair wind and opportunity, to the destined port (the dangers of the sea excepted), and there deliver the goods to the merchant or his assigns in the same condition as they were received on board; and further, that during the course of the voyage the ship shall be kept tight, and staunch, and furnished with sufficient men and other necessaries, to the best of the owner's endeavors. If the ship prove not to be tight, staunch, and sufficient, the owners will, nevertheless, be liable although they themselves believed her to be so. The merchant undertakes to load or unload within the time appointed, or within a reasonable time, and to pay the freight. Provisions are also often introduced relative to demurrage, which will be explained hereafter. The ship, and freight, and cargo, are also often bound in a penalty by the owners or master, and the freighter respectively, for the performance of their undertakings. But these clauses seem in this country, at least, to be of no utility, for in an action for the failure of the undertaking the plaintiff would recover to the amount of the injuries he had suffered, and in no case, whatever penalty might be introduced, could he recover more. Neither could these clauses give any direct remedy as against the ship, or freight, or cargo.

If either party be not ready by the time agreed on, the other may seek a ship or cargo elsewhere, and also bring an action for the insufficiency; or if the merchant appears to be insolvent he may safely make up a cargo from other quarters. When the goods have been put on board, bills of lading are signed by the master. These are evidence that the particular goods are shipped as the charter-party is of the contract for conveyance. The ship owner has a lien upon goods in respect of which a payment is due to him, and may therefore detain them till the payment is made. But he can not by virtue either of the general law of lien, or of the clauses above alluded to, detain the goods because of the merchant's failure to perform his undertakings generally, as for instance his undertakings to pay demurrage or port dues, etc. Moreover, a party can have no lien unless he has possession of the property over which he claims to exercise it. An absolute owner, therefore, of a ship who has so completely parted with the possession and control of her as to cause the hirer to become the temporary owner, will not have the right of lien over the goods conveyed on board his ship. Owners ought carefully to consider this consequence, because if they part with the possession of their ship, and the hirer of it be not a responsible person, they will cease to have in their hands one very convenient and direct means of securing remuneration. Special terms of course may be introduced in the contract by which the right of lien may either be entirely released, or it may be extended beyond what is conferred by the general rule of law. By the following agreement the owner was held to have created for himself a right of lien for the balance due to him under the charter-party as to all the lading, though part had been transferred by endorsement of a bill of lading independently of the general rule of law, or the question whether he remained in possession of the ship. The agreement between the parties was that ownership of the ship "should remain firmly and be fully vested in the owner, and that he should at all times during the said intended voyage and service, have a full and complete lien upon the lading of the ship as well as for all losses and damage which the said owner might sustain or be put to in consequence of non-payment of any of the bills to be given for freight, etc., and should have full power and authority to hold and retain the said goods until full payment of all such losses, charges, damages, and arrears of freight paid for on account of the charterer, and which he of right ought to pay agreeably to the true intent of the charter-party."

The freighter may either fill the ship with his own goods or relet the whole or part to others. Where a ship has been let to hire at so much a month and the freighter lets at so much a ton, the owner has no right to detain the cargo for the amount the freighter has agreed to give him. The actual shippers are only liable for what they have agreed to give the freighter. The owner, therefore, may have no right to detain the goods of the actual shippers for the freight stated in the charter-party, but he may for that which is mentioned in the bill of lading. And he has a right to that in preference to the freighter. The bankruptcy of the charterer or any pledge or assignment made by him will not affect the owner's right of lien.

Sailing with the first wind, is held to mean sailing without unnecessary delay. "Leave Amsterdam," does not necessarily mean to sail thence on the voyage. But "final sailing" means the final departure from port and being at sea, ready in all respects to proceed on the voyage. (See chapter on Marine Insurance.) If either party be not ready by the time agreed on, the other may seek another ship or cargo and bring action for the damages caused by the delay. A deviation on the voyage will not deprive the owner of his right to freight, though it may subject him to action if it causes a loss of the insurance to the freighter.—*Mercantile and Maritime Guide, London*, 1856.

Freight, in the common acceptation of the term (according to **Kent's** *Commentaries*—see vol. iii., chap. xlvii.), means the price for the actual transportation of goods by sea from one place to another, but in its more extensive sense, it is applied to all rewards or compensation paid for the use of ships, including the transportation of passengers. The personal obligation to pay freights rests either on the charter-party or on the bill of lading, by which the payment of freights is made a condition of delivery; and the general rule is, that the delivery of the goods at the place of destination, according to the charter-party, is necessary to entitle the owner of the vessel to freight. The conveyance and delivery of the cargo form a condition precedent, and must be fulfilled. A partial performance is not sufficient; nor can a partial payment or ratable freight be allowed, except in special cases; and those cases are exceptions to the general rule, and called for by the principles of equity.

The amount of freight is usually fixed by agreement between the parties; and if there be no agreement, the amount is ascertained by the usage of the trade, and the reason of the case. If the hiring be of the whole ship, or for an entire part of her, for the voyage, the merchant must pay the freight, though he does not fully load the ship; but if he agrees to pay in proportion to the amount of goods put on board, and does not agree to provide a full cargo, the owner can demand payment only for the cargo actually shipped. If the merchant agrees to furnish a return cargo, and he furnishes none, and lets the ship return in ballast, he must make compensation to the amount of the freight; and this is sometimes termed dead freight, in contradistinction to freight due for the actual carriage of goods.

It is supposed to be the doctrine of the case of *Bell* v. *Pullen*, that the master would be entitled to freight for bringing back the outward cargo, if it could not be disposed of, though the charter-party was silent as to the return cargo. It would stand upon the equity of the claim to dead freight. The French law, in such a case, allows freight for bringing back the cargo because it could not be sold, or was not permitted to be landed. Mr. Justice Story, in the case of the ship *Hooper*, United States' Circuit Court, Massachusetts, May, 1839, 3 Sumner, 542, laid down the general rule that freight for the entire voyage could only be earned by a due performance of the voyage; and that the only acknowledged exception is when there is no default of the carrier-ship to perform the voyage, and the ship-owner is ready to forward them, but there is a default on the part of the owner of the cargo, or he waives a further prosecution of the voyage.

If part of the cargo be sold on the voyage from necessity, the owner, as we have seen, pays the value at the port of delivery, deducting the freight equally as if the goods had arrived. But if the goods be prohibited on entry by the government of the country, and such prohibition takes place after the commencement of the voyage, and the cargo be brought back, the freight for the outward voyage has been held to have been earned; and the case was distinguished (though I think the distinction not very obvious) from that of a blockade of the port of destination, and decided on the authority of the French ordinance of marine. "Nothing can be more just," observes Valin, "than that the outward freight should be allowed in such a case, since the interruption proceeds from an extraordinary cause, independent of the ordinary marine perils. The case of a blockade of, or interdiction of, commerce with the port of discharge, after the commencement of the voyage, is held to be different; for, in that case, the voyage is held to be broken up, and the charter-party dissolved: and if the cargo, by reason of that obstacle, be brought back, no freight is due. The same principle applies if the voyage be broken up and lost by capture upon the passage, so as to cause a complete defeasance of the undertaking, notwithstanding there was a subsequent recapture, as in the case of the *Hiram*. On the other hand, an embargo detaining the vessel at the port of departure, or in the course of the voyage, does not, of itself, work a dissolution of the contract. It is only a temporary restraint, which suspends for a time its performance, and leaves the rights of the parties in relation to each other untouched. If the ship be laden, and be captured before she breaks ground, and afterward recaptured, but the voyage be broken up, the ship-owners are not entitled to any freight, though, by the usages of the trade, the ship was laden at their expense.

It is requisite that the ship break ground to give an inception to freight. It is the same thing with a blockade or hostile investment of the port of departure. Such an obstacle does not discharge the contract of freightment, because it is merely a temporary suspension of its performance; and the ship-owner may detain the goods until he can prosecute the voyage with safety, or until the freighter tenders him the full freight. This was the decision in the case of *Palmer* v. *Lorillard*, in which the doctrine was extensively examined; and it was shown, by a reference to the foreign ordinances, and the soundest classical writers on maritime law, that the master, in the case of such an invincible obstacle, of a temporary nature, to the prosecution of the voyage, is entitled to wait for the removal of it, so that he may earn his freight, unless the cargo consists of perishable articles which can not endure the delay. He stands upon a principle of equity which pervades the maritime law of Europe, if he refuses to surrender the cargo to the shipper without some equitable allowance in the shape of freight for his intermediate services.

When the goods become greatly deteriorated on the voyage, it has been a very litigated question, whether the consignee was bound to take the goods, and pay the freight, or whether he might not abandon the goods to the master in discharge of the freight. Valin and Pothier entertain different opinions upon this question. The former insists that the regulation of the ordinance holding the merchant liable for freight on deteriorated goods, without the right to abandon them in discharge of the freight, is too rigorous to be compatible with equity. He says the cargo is the only proper fund and pledge for the freight, and that *Casaregis* was of the same opinion. Pothier, on the other hand, was against the right of the owner to abandon the deteriorated goods in discharge of the freight; and this is the better opinion, and the one adopted in the case of *Griswold* v. *the New York Insurance Company*. It is in accordance with the ordinances of the marine, and of Rotterdam, and with the new commercial code of France; and the latter puts an end to all further doubts and discussion on the subject in France. The ship-owner performs his engagement when he carries and delivers the goods. The right to his freight then becomes absolute, and the carrier is no more an insurer of the soundness of the cargo, as against the perils of the sea, or its own intrinsic decay, than he is of the price in the market to which it is carried. If he has conducted himself with fidelity and vigilance in the course of the voyage, he has no concern with the diminution of the value of the cargo. It may impair the remedy which his lien affords, but it does not affect his personal demand against the shipper.

If casks contain wine, rum, or other liquids, or sugar, and the contents be washed out, and wasted, and lost, by the perils of the sea, so that the casks arrive empty, no freight is due for them; but the ship-owner would still be entitled to his freight, if the casks were well stowed, and their contents were essentially gone by leakage, or inherent waste, or imperfection of the casks.

Should the cargo consist of live-stock, as is frequently the case in voyages from this country to the West Indies, and some of the horses or cattle, for instance, should die in the course of the voyage, without any fault or negligence of the master or crew, and there be no express agreement respecting the payment of freight, the general rule is, that the freight is to be paid for all that were put on board. But if the agreement was to pay for the transportation of them, then no freight is due for those that die on the voyage, as the contract is not, in that case, performed. The foreign marine law allows freight paid in advance to be recovered back, if the goods be not carried, nor the voyage performed, by reason of any event not imputable to the shipper. The reason is, that the consideration for payment, which was the carriage of the goods, has failed. But the marine ordinances admit that the parties may stipulate that the freight so previously advanced shall, at all events, be retained. In *Watson* v. *Duykinck*, the rule of the marine law was recognized, though it was not applied to that case, because the contract there appeared to be, that the freight was paid for receiving the passenger and his goods on board; and, in such a case, the payment is to be retained, though the vessel and cargo be lost on the voyage. The general principle of the marine law was admitted in the fullest latitude in *Griggs* v. *Austin*; and whether the price previously advanced is to be retained or returned becomes a question of intention in the construction of the contract. The French ordinances require a special agreement to enable the ship-owner to retain the freight paid in advance; and Valin says that many authors on maritime jurisprudence, as Kuricke, Loccenius, and Straccha, will not allow even such a special agreement to be valid. The English law is not so scrupulous, and does not require any such express stipulation, and allows the intention of the parties to retain the previously advanced freight to be more easily inferred. In *De Silvale* v. *Kendall*, the Court of King's Bench adopted a directly opposite principle, and observed, that if the charter-party was silent, the law would require a performance of the voyage before freight was due; but the parties might stipulate that part of the freight be paid in anticipation, and be made free from subsequent contingency of loss by reason of loss of the subsequent voyage. If freight be paid in advance, and there be no express stipulation that it shall be retured in the event of freight not being earned, the inference is that the parties did not intend that the payment of the part in advance should be subject to the risk of the remainder of the voyage; and without some provision of that kind, a new implied contract to that effect could not be raised. See **Kent's** *Com.*, vol. iii.; **Parsons** *on Contracts*, Boston; *Merc. and Marit. Guide*, London, 1857.

Fresco Painting, a method of painting with water-colors on fresh plaster while it is still in a soft state, by which means the colors are incorporated with the plaster, and become as permanent as the material on which they are spread. The Italians, from whom we borrow the term, call it *fresco* (literally *fresh*), either because it is executed upon fresh plaster, or because it is used on walls, alcoves, and other buildings in the open air. Vitruvius (vii. 4) calls it painting *udo tectorio.* Painting in fresco is a very ancient art. It was practiced by the early Greeks, and may be traced even to Egypt. It is generally executed on walls and vaults, the plaster being laid on in successive portions, or so much only at one time as the painter can dispatch before it dries. The design is usually drawn previously on paper, to be chalked and transferred to the wall about half an hour after the plaster has been laid. From the difficulty of making alterations on the work when the colors are once absorbed, the design should be previously prepared with the greatest accuracy. When an alteration must be made, the part is usually cut entirely away, and relaid with fresh plaster. The ancients painted on stucco; and we may remark in Vitruvius what infinite care they took in making the incrustation or plastering of their buildings, to render them beautiful and lasting; though the moderns find a plaster of lime and sand preferable for fresco painting, both because it does not dry so hastily, and on account of its subdued and agreeable tint. The pigments chiefly employed in this kind of painting are earths, because their colors are not liable to be affected by the burning qualities of the lime. White is made of lime slacked some time previously, or of white marble dust; and the other substances used are red and yellow ochre, verditer, lapis-lazuli, black chalk, etc. These only require to be ground and mixed up with water. The brushes and pencils should be long and soft, otherwise they are apt to rake and raise the surface. In order that the work may come out in all its beauty, the colors must be laid on quickly, while the plaster is still moist; nor should they ever be retouched dry with colors mixed up with white of egg, size, or gum, as is sometimes done; because such colors grow blackish, and soon tarnish.

Freshes, in sea language, the increased current of an ebb tide by means of a flood of fresh water flowing out into the sea, by which its waters are often discolored for a great distance from the coast.

Fresnel, Augustin Jean. The inventor of the light now generally used throughout Europe and in various parts of the United States, for light-houses. He was distinguished for his practical application of optics to the useful arts with which his name will ever be honorably associated. At least as early as 1819 it occurred to him that lenses might be substituted for mirrors, for the purpose of directing parallel rays of light from light-houses, and thus preventing in a great measure the natural weakness, in consequence of its divergence, of light seen at a distance. It further occurred to him that lenses of large size, and of moderate thickness, might be *built up* of segments of lenses. This last idea was not indeed new, for Buffon had proposed to diminish the weight and thickness of lenses by grinding them into zones which should have a common focus; and Condorcet proposed to construct these zones of separate segments. Sir David Brewster suggested, in 1811, a similar construction, unaware, it appears, of what Condorcet had written. But all of these writers described their contrivances as applicable to burning instruments for concentrating the solar rays. Fresnel appears to have been unaware of what his predecessors suggested, but he has the far greater merit of actually applying the suggestion to the important purpose of light-house illumination. It was first carried into effect in France, where *polyzonal lenses* were made by M. Soleil, and have gradually been introduced into other countries, first into Holland, and then into Scotland. See article LIGHT-HOUSES. Not content with this great improvement, Fresnel exerted remarkable ingenuity in contriving further improvements in the mode of distributing light for the purposes of navigation under almost every conceivable circumstance; and he made copious use of the principle of the total reflection of light in glass, which had never before been applied to such purposes. In 1819 he was nominated upon the light-house commission; and in July, 1823, the Corduan Light-house, at the mouth of the Garonne, was completed upon the new plan.—E. B.

He was the author of various works on the *Diffraction of Light*, on the *Influence of Heat on Colors*, on the *Influence of the Earth's Motion*, on the *Mutual Action of Polarized Light*, etc. Through the instrumentality of Messrs. E. and G. W. Blunt, of New York, the Fresnel light was adopted in the United States in the year 1838, and is now in use generally in the light-houses of this country and of Europe.

Fresnel was born May 10, 1788, at Broglie, in the department Ure, Normandy, and died at Ville d'Avray, France, on the 14th July, 1827, aged 39 years.

Frigate (Fr. *frégate* (?); Lat. *aphractus*, a long undecked vessel); a ship of war, usually of two decks, designed for swift sailing. Frigates mount from 20 to 44 guns, and sometimes more. The name was originally applied to a long kind of vessel navigated in the Mediterranean with sails and oars. *Frigatooon*, a Venitian vessel with a square stern and without a foremast, having only a main-mast, mizzen-mast, and bow-sprit.

Frith, or **Firth** (Lat. *fretum*, a narrow sea), is a term chiefly applied to a narrow and deep inlet of the sea upon a river, as the Firth of Forth, in Scotland. This term corresponds to the *fiord* of the Danes and Norwegians, who, in all probability, borrowed it from the English. Both Latin and Teutonic are derived not improbably from the same root, *fahren*, to pass over; whence ferry, ford, furt (Germ.), as in Frankfurt, Erfurt, etc.

Frobisher, Sir Martin, a celebrated English navigator of the sixteenth century, was born (in what year is not known), at Doncaster, in Yorkshire. He was the first Englishman that sailed in quest of the north-west passage to China and the Indies. "Being thoroughly furnished of the knowledge of the sphere and all other skills pertaining to the art of navigation, and being persuaded of a new and nearer passage to Cataya than by Capo de Buona Sperança, which the Portugals yearly use, and knowing this to be the only thing of the world that was yet left undone, whereby a notable mind might be made famous and fortunate," he applied to various English merchants to assist him in his projected enterprise, but for 15 years without success. At the end of that period he was enabled, through the assistance of Dudley, Earl of Warwick, and others, persons of rank and fortune, to set out on the expedition. He sailed from Deptford, June 15th, 1576, with three small vessels, two of them, the *Gabriel* and the *Michael*, barks of 25 tons each, and the third a small pinnace of 10 tons. As they passed Greenwich, the Queen, who happened to be there with her court, "commended them, and bade them farewell with shaking her hand at them out of the window." After passing the Shetland Islands they came in sight of "Freeseland" (July 11th), where they were unable to land on account of the ice, and on the 28th of the same month they reached that part of Greenland which Frobisher named "Meta Incognita." On the 11th August they sailed through a strait which Frobisher called by his own name. Pursuing their way they passed several islands, to which they gave names, and came on the 18th to Butcher's Island, where they lost a boat and part of their crew through the treachery of the natives. After this they turned their prows homeward, and reached England September 7th. Frobisher had taken possession of the various places he touched at in the name of the Queen; and in token of this he ordered his men to put on board ship whatever they first laid hands on. Among other things thus secured was a lump of black stone, which when Frobisher returned home, was accidentally discovered to contain gold. This discovery was soon noised abroad and in the following spring Frobisher readily found the means to fit out another expedition, partly scientific and partly with a view to prosecuting the search for gold. The Queen lent him from the royal navy a ship of 200 tons, with which, and two smaller barks, he sailed from Harwich, May 31, 1577. On arriving at the scene of their former discoveries they found that little of the gold ore remained, but they opened forthwith communications with the natives for the purposes of traffic. One of these, "a man of large corporature and good proportion," they carried away with them neither in a very just nor handsome manner. They also caught an old woman, "whom they took for a devil or a witch," and stripped off her buskins "to see if she were cloven-footed." After discovering and naming a good many places, and procuring a good deal of ore, he turned his prow southward, August 23d, and reached home in the end of September. The ore when smelted was found to pay the expenses of the voyage and more; a third expedition was fitted out in 1578, which, however, through stress of weather and other circumstances, had no sooner reached the gold country than he was obliged to return from the lateness of the season. This was the last of Frobisher's polar voyages. It is not known how he was occupied during the next seven years, but in 1585 he accompanied Sir Francis Drake on his expedition to the West Indies, and three years later did such good service against the Spanish armada as to be rewarded with the honor of knighthood on board his own ship by the lord high admiral. In 1594, after various exploits against the Spaniards, he was sent to assist Henri IV. of France against the Spaniards, and the members of the league. The enemy had fortified themselves strongly in Croyzon, near Brest; and in an attack on their position Frobisher was mortally wounded. He lived to take his fleet safely home, and shortly after died at Plymouth.—*Biog. Brit.*; HAKLUYT's *Collect. of Voyages*; STOW's *Annales*, etc., etc.

Frobisher Strait, an arm of the sea in British North America, between Hudson Strait and Northumberland Inlet. It extends in a westerly direction from the entrance to Davis' Strait.

Fruit (Ger. *Obst. Früchte*; Du. *Ooft*; Fr. *Fruit*; It. *Frutta, Frutte*; Sp. *Fruta*; Rus. *Owoschtsch*; Lat. *Fructum*). This appellation is bestowed by commercial men upon those species of fruit, such as oranges, lemons, almonds, raisins, currants, apples, etc., which constitute articles of importation from foreign countries. Gardening was undoubtedly among the first of the arts to which the attention of man was directed. If we would ascend into remote antiquity, we can have recourse only to conjecture; for although, in the sacred writings, and in the earliest profane authors, allusions to gardens occur, little is told us either of their productions or their culture. Judging, though, from the literature of the present day, we shall scarcely find any art which receives more attention.

Several varieties of fruit are mentioned as having been introduced into Italy, 70 B. C., *et seq.* Exotic fruits and flowers of various kinds, previously unknown in England, were brought thither in the reigns of Henry VII. and VIII. and of Mary and Elizabeth, between the years 1500 and 1578. See GARDENING, *Ency. Brit.* Among others of less note, were musk-melons, plum-trees, and currant-plants of sundry sorts, the musk and damask roses, tulips, etc.; also saffron, woad, and other drugs for dyeing, but these last were attempted to be cultivated without success. HAKLUYT; LORD KAMES. The following are among the fruits whose introduction into England has been traced (HAYDN):

FRUITS, ETC.

	From	A. D.
Almond-tree	Barbary	1548
Apples	Syria	1522
Apple, the custard	North America	1736
Apple, the Osage	" "	1818
Apricots	Epirus	1540
Cherry-trees	Pontus	100
Cornelian cherry	Austria	1596
Currants	Zante	1533
Currant, the hawthorn	Canada	1705
Fig-tree	South of Europe, before	1548
Fig, the Botany-bay	New South Wales	1789
Gooseberries	Flanders before	1540
Grapes	Portugal	1528
Lemons	Spain	1554
Limes	Portugal	1554
Lime, the American	before	1752
Melons	"	1540
Mock orange	South of Europe, "	1596
Mulberry	Italy	1520
Mulberry, white	China, about	1596
Mulberry, red	North America, before	1629
Mulberry, paper	Japan, before	1754
Nectarine	Persia	1562
Olive, the Cape	Cape	1730
Olive, the sweet-scented	China	1771
Oranges		1595
Peaches	Persia	1562
Pears	Various climes	..
Pine-apple	Brazil	1568
Pippins	Netherlands	1525
Plums	Italy	1522
Plum, the date	Barbary	1596
Pomegranate	Spain before	1548
Quince	Austria	1573
Quince	Japan	1795
Raspberry, flowering	North America	1700
Raspberry, Virginian	" " before	1696
Strawberry	Flanders	1530
Strawberry	Oriental Levant	1724
Walnut, the black	North America, before	1629

The art of gardening became well understood in England about A. D. 1500; before which time many of our vegetables were imported from Brabant. The era of the art was the reign of Elizabeth; but the modern mode of gardening was introduced about 1700. The following came from the countries respectively named:

ROOTS AND VEGETABLES.

	From		From
Rice	Ethiopia	Lentils	France
Buckwheat	Asia	Chervil	Italy
Borage	Syria	Celery	Flanders
Cresses	Crete	Potatoes	Brazil
Cauliflower	Cyprus	Tobacco	America
Asparagus	Asia	Cabbage	Holland
Lettuce	Brabant	Anise	Egypt
Artichokes	Holland	Parsley	Egypt
Garlic	The East	Carrots	Flanders
Shallots	Siberia	Brocoli	Cyprus
Horse Radish	China	Beans	Greece
Kidney Beans	E. Indies	Peas	Spain
Gourds	Astracan		

FLOWERS.

	From		From.
Jasmin	Circassia	Pink	Italy
Elder-tree	Persia	Povence rose	Marseilles
Tulip	Cappadocia	Convolvulus	Canaries
Daffodil	Italy	Arctopus	Cape
Lily	Syria	Bell-flower	Canaries
Tuberrose	Java, etc.	Passion-flower	Brazil
Carnation	Italy, etc.	Rosemary	Italy
Ranunculus	Alps	Laburnum	Hungary
Damask rose	Damascus	Laurel	Levant
Hops	Artois	Lavender	Italy
Gooseberries	Flanders	Weeping Willow	Levant
Gillyflowers	Toulouse	Fennel	Canaries
Musk rose	Damascus		

The damask rose was brought hither by Dr. Linacre, physician to Henry VIII., about 1540. The musk rose was brought from Italy by Lord Cromwell. The tamarisk plant was brought from Germany by Archbishop Grindal, about 1570; and about Norwich, the Flemings planted flowers unknown in England, as gillyflowers, carnations, the Provence rose, etc., 1567. Woad came originally from Toulouse, in France; tulip roots from Vienna, 1578.

Fuca, Juan de, Strait of, Washington Territory, including the waters of Admiralty Inlet, Hood Canal, and Puget Sound, with the Archipelago of Arro up to the 49th parallel, were all surveyed by the United States' Exploring Expedition. The whole is unsurpassed by any estuary in the world. They comprise many fine harbors and safe anchorages, are entirely free from dangers, and cover an area of about 2000 square miles. The country by which these waters are surrounded is remarkably salubrious, and offers every advantage for the accommodations of a vast commercial and military marine, with conveniences for docks, and many sites for towns and cities, at all times well supplied with water, and capable of being provided with all needful supplies from the surrounding country, which is well adapted for agriculture. This strait is 95 miles in length; average width 11 miles (entrance 8 miles in width). No dangers exist, and it may be safely navigated throughout. The winds blow for the greater part of the year from the westward, and at times strongly. The shores are bold, and anchorage is to be found in but few places; at some parts no bottom is to be obtained, even within a boat's length of the shore, with 60 fathoms of line. The north shore (Vancouver Island), is rocky, and composed of conglomerate and a reddish granite. On this side there are several inlets, in which are anchorages: among them Port San Juan and Victoria. Victoria is a snug harbor and a most important position. There is an inner and an outer basin, sufficiently commodious for large ships of war. Vancouver Island rises abruptly, and is very much broken by mountain ranges, but well covered with timber. It is 240 miles long, and 30 miles wide.

The Gulf of Georgia and Johnson Strait are not well adapted for navigation, in consequence of the rapidity of the tides, and the many sunken rocks at the northern outlet. The harbors within them, both on the main land and Vancouver Island, are useless on account of the great depth of water and the perpendicular banks. Not a shoal exists within the Strait of Juan de Fuca, Admiralty Inlet, Puget Sound, or Hood Canal, that can in any way interrupt their navigation by a 74 gun ship. The shores of all the inlets and bays are remarkably bold—so much so, that in many places a ship's side would strike the shore before the keel would touch the ground. Some few of them have creeks emptying into them, with water sufficient to turn mills. These creeks all have extensive mudflats at their entrances, with fertile prairies at their heads and along their banks. The spring tides rise 18 feet, those of the neap 12 feet, affording every facility for the construction of dry-docks, etc. The country on all these salt water inlets is said to be remarkably healthy. The winter is represented to be mild and but of short duration, and the channels and harbors are never obstructed by ice.

Fuel (from the French *feu*, fire, akin to the Latin *focus*, a hearth or fire-place), a word applied to certain substances which are used in the generation of heat, such as wood, peat, coal, etc., and also sometimes applied to the substances employed in generating light, such as oil, spirits of wine, naphtha, etc. In the present article the former application will alone be considered; for information respecting the latter, see GAS, LAMP, etc.

The abundance and consequent cheapness of fuel has a great influence on the prosperity, habits, and manners of a nation. Where fuel is scarce, factories languish, and commerce declines. In cold climates scarcity of fuel is individually a great calamity, for it abridges the hours of labor, causing persons to spend those hours in sleep which under other circumstances would have been turned to profitable account; it also causes persons to crowd together for the sake of warmth in a way that is injurious to health and morals. Abundance of fuel, on the contrary, with good roads and a system of inland navigation for its distribution, forms the basis of national prosperity, not only ministering to the useful arts, but enabling the occupier of every house to create an artificial climate suited to his wants and wishes.

The most common and widely-distributed description of fuel is *wood*, a term applied to the trunk, roots, and larger branches of trees. Recently-felled wood consists chiefly of woody fibre, sap, and water. The woody fibre is a compound of carbon, hydrogen, and oxygen, and forms the chief bulk of plants; both it and the sap are combustible—that is, are capable, at a high temperature, of combining rapidly with the oxygen of the atmosphere and forming gaseous compounds. It is in the act of this formation that heat is generated. The sap, which forms only a small proportion of the bulk of wood, varies in different kinds of trees: the sap of the pine tribe contains resin; that of the oak, tannin; that of the beech and birch, extractive. The quantity of water in wood varies greatly with the kind of tree, and with the time of year when it is felled, it being least in winter. As the water is not combustible, but must be got rid of at the expense of the heat generated by the parts which are so, it is obviously desirable to store the wood in a dry and airy situation before using it as fuel. By this means 100 pounds' weight of wood have been known to lose 20 pounds' weight in 10 or 12 months. Wood, as commonly used for fuel, contains about one third of its weight of water. Wood also contains earthy and alkaline salts in the proportion of 1-30th to 1-70th, and these remain as an incombustible ash.

Wood is distinguished from all other fuel by the valuable property of reproduction, and also by the fact that it often passes through the various stages of beauty and utility to man before it becomes converted into fuel. The heating power of wood is considerable, in consequence of its excess of hydrogen, which, in burning and forming water, requires for equal weights three times as much oxygen as the carbon does in forming carbonic acid; and it gives out in burning nearly four times more heat than the carbon. The lighter woods contain more hydrogen than the heavier, so that they burn with flame longer than they incandesce as charcoal; they also burn more easily and give out their heat more quickly than the hard woods. During the combustion of wood its volatile parts undergo some complicated chemical changes. When wood is burnt out of contact with the air, the carbon is preserved in the form of charcoal (see CHARCOAL), which is a very useful fuel when an incandescent heat free from flame and smoke is required; but when some of the volatile products are to be collected, the wood is placed in iron retorts, which are gradually raised to a red heat. The volatile products form carburetted hydrogen, carbonic acid, carbonic oxyd, and other gases, and also certain vapors which condense into liquid or solid products. Some of the liquids are soluble in water, such as pyroxylic spirit, pyroligneous acid, etc.; the insoluble products form tar and certain oily substances.

In most countries deposits of *peat* occur of greater or less extent. In Holland, the north of Germany, Ireland, etc., peat deposits are of immense extent. The origin of peat has been accounted for in those districts where clay occurs near the surface by supposing muddy pools to have formed, round the edges of which aquatic plants have taken root and gradually extended themselves into the centre, thus forming a bed where mosses accumulate, and new plants take growth, while the old are decaying and becoming compressed into a solid mass below. This process goes on until the pools are filled up with vegetable matter, and the surplus water is discharged over the neighboring lands, where the process is repeated until a peat bog is formed. Even in mountain districts, where the soil is impervious, clouds and mists may supply moisture, and a bog be formed by the growth of one generation of vegetable matter on the ruins of its predecessor. As the plants which form the peat are in different stages of decomposition at various depths, the character of the peat varies greatly. Near the surface it is light-colored, spongy, and the vegetable character but little changed; lower down it is brown and dense; while at the base of some bogs, which may be as much as 40 feet in depth, the peat is black, almost as dense as coal, and resembling coal in chemical composition.

On the banks of the Rhine, peat is cut by means of a spade into blocks, and exposed to the air to dry, the upper layer being first separated from the lower and denser portion. In Holland the peat is scooped out by means of spades; or if a considerable quantity of water be present, an instrument is used consisting of a sharp iron ring attached to a handle, a net or cloth being fastened to the ring for draining off the water. The muddy peat thus collected is trodden out by the feet of men, raked, and the stones picked out; it is then thrown into shallow wooden boxes, strewed with hay to prevent the peat from adhering, and the remaining water is allowed to drain off. In the course of a few days, when the mass has attained a certain consistence, women, with flat boards strapped to their feet, stamp down the peat until it has attained such a consistency as not to take an impression from a common tread. It is next stamped with beaters, and the cake, which is eight or nine inches thick, is divided by means of long laths into squares of about four inches, which are removed a few at a time from each box. The cakes are then dried by placing the first taken out transversely on the second, the third upon the fourth, reversing the order when the pieces are piled up in store.

The value of peat depends greatly upon its dryness, density and firmness; if porous and brittle, it crumbles during carriage or after it is stacked, and thus becomes nearly worthless. In many cases the value of peat depends on its capability of being alternated with the substances to be heated. Porous and almost valueless peat has been rendered valuable by being passed through a press, in which case a lump of peat may lose as much as one fourth of its weight of water. Peat may be nearly valueless as a fuel from the quantity of ash which it affords, consisting of vegetable salts and the earthy matter of peat, and amounting in some cases to one third of the weight of the peat. When this large quantity of ash occurs in peat it renders the fuel very dusty, and in smelting processes it is objectionable on account of its chemical action. It is remarkable that the carbonates of the alkalies are not found in this ash, but phosphates, sulphates, etc. In some large towns, peat, or *turf*, as it is also called, is imitated by employing the refuse bark of the tan-yard, which is made into flat cakes, and chiefly used as fuel by the poor.

In the sandy plains of the East, camels' dung is dried and used as fuel; it was from the use of such fuel in Egypt that sal ammoniac originated, the salt subliming during combustion. Hakluyt, in his *Voyages*, vol. i., p. 348, says, "We were forced to use for fewell the dung of horses and camels, which we bought deare of the pasturing people." A substance in the form of long sticks, said to be made of camels' dung, is sometimes imported from the East under the name of *chutnee*, and is occasionally used instead of the ordinary match for lighting pipes and segars. It burns slowly without flame, and gives out an odor not unlike that of the burning cuttings of trees and shrubs. Other descriptions of excrement are also used as fuel. The Chinese have long been accustomed to mix cow dung and other refuse vegetable matter with soft clay and the dust of coal to form balls which when dried in the sun become a cheap and useful fuel, burning with very little smoke. These balls are largely manufactured in the coal districts of China, and are distributed over the empire by means of the canals. It is a curious fact that Sir Hugh Platt, in 1594, indicated a method of making coal balls with loam, and that Ray, in 1663, observed this kind of fuel at Liège (*Journey through the Low Countries, etc.*, 1673, p. 58), where they were called *hot shots*, serving to slake the heat of a fire and keep the coals from burning out too fast. We are informed that in some parts of Wales stone coal culm is made into balls with clay, and is a common form of fuel in Pembrokeshire. The combustion is slow, and a long steady heat is kept up, well adapted for lime burning. In 1853 a patent was taken out in England by M. Ducayla of Bordeaux for the manufacture of fire-balls of such materials as cinders or ashes, wood or lignite, anthracite coal, pit coal, animal black, calcareous earth or clay, mold, etc.

The fuel, in every respect the most interesting, and one of the chief sources of wealth and prosperity, is *coal*. The very abundance of this article causes it to be used in so lavish and extravagant a manner, that any general attempts to economize it, and to fix its value as a fuel, scarcely interest the public. There are, however, particular cases in which it is desirable to economize coal as far as possible, as in the case of a steamship of a thousand horse-power, a single journey of which may require upward of 2000 tons of coal, or more than 80,000 cubic feet. Hence it is obvious from the details given of the various descriptions of coal in the article COAL, that some varieties of coal are better fitted for the purposes of steam navigation than others. A few years ago, when the British government was establishing a steam navy, Sir H. de la Beche and Dr. Lyon Playfair were requested to examine and report on the coal suited to the steam navy. The inquiry was conducted with great ability, and has resulted in two reports published in 1848 and 1849, which the reader interested in the subject will do well to consult. We will, however, state a few of the chief points elicited by this inquiry.

Bearing in mind the object of the inquiry, the commissioners considered that the chief test of the value of any coal submitted to their examination was its power of converting water into steam, so that if a given weight of coal in a certain time converted a larger proportion of water into steam than the same weight of another coal in the same time, the evaporative power of the one would be greater than that of the other. It was found, however, that the coal best adapted to steamships of war, should also combine other qualities; for example, the fuel should burn quickly, so that steam may be raised in a short time; it should not be bituminous, lest its smoke should betray the position of the ship when it might be desirable to conceal it; it should have such a cohesive power as not to be broken into fragments by the rolling motion of the vessel; it should have such a density and structure as to bear stowing away in a comparatively small space (a condition which in coals of equal evaporative value was found to involve a difference of more than 20 per cent.); lastly, the coal should not contain a large proportion of sulphur, nor be subject to rapid decay, or it might in either case lead to spontaneous combustion. But it was not found possible to unite all these conditions in the same coal. Anthracite, for example, has high evaporative power, but not igniting easily its action is not quick; it is not easily broken by the motion of the ship, but not being a caking coal, it would not cohere in the furnace, and would escape through the grate-bars during the rolling of the ship in a gale; it gives off no smoke, but from the intensity of its combustion, it causes the iron of the grate-bars and of the boiler to oxydize rapidly; hence, with many advantages, anthracite has a few defects sufficiently prominent to preclude its use under ordinary circumstances. It was thought that a patent fuel might be formed with some of the anthracites of Wales, which should combine the advantages and elude the defects above referred to; but it was found that the cementing tar of the patent fuel burnt so much more rapidly in the furnace than the anthracite, that the latter accumulated on the bars and obstructed the draft, or escaped through the grate unburnt.

The commissioners found that the qualities which distinguish particular kinds of fuel are very varied, so that it is difficult to deduce general results. But the data furnished by their experiments enables us to contrast the actual value of a particular coal with its theoretical value, supposing its combustion to be attended with no loss of heat. The actual duty obtained by one pound of coal from the boiler employed, may be expressed by the number of pounds raised to the height of one foot, a result which may be obtained by the formula $W\eta + 965{\cdot}7 \times 782 = x$, in which W represents water, of which η pounds are evaporated by one pound of coal. This formula is deduced from the fact that η pounds of coal multiplied by 965·7, or the coefficient for the latent heat of steam at 212°, indicates the number of pounds of water which would be raised 1° Fahr.; and the number 782 arises from experiment on the mechanical force denoted by the elevation of one pound of water 1° Fahr.; that force being equal to 782 pounds raised to the height of one foot, according to the experiments of Mr. Joule. The best Cornish engines are said to be capable of raising 1,000,000 pounds to the height of one foot for every pound of coal consumed, but this is only about one eighth of the actual force generated, and only one eleventh or one twelfth of the theoretical force. Experiments on the evaporative power of coal made by different observers give very dissimilar results. Smeaton, in 1772, evaporated 7·88 pounds of water from 212° with one pound of Newcastle coal; Wall, in 1788, evaporated 8·62 pounds; Wicksteed, in 1840, evaporated 9·493 pounds of water from 80° with one pound of Merthyr coal, which is equal to 10·746 pounds from 212°. In some experiments made at the United Mines in Cornwall, it was found, after a trial of six months, that every pound of coal evaporated 10·29 pounds of water from 212°; and according to some experiments made in Cornwall, at the request of the commissioners, it was found that 11·42 pounds of water were evaporated by every pound of Welsh coal of similar chemical composition to that of Mynydd Newydd.

At ordinary temperatures coal undergoes a slow combustion under the action of the oxygen of the atmosphere, evolving carbonic acid, nitrogen, and inflammable gases, and in some cases leading to dangerous explosions. This slow combustion is facilitated by the higher temperature of hot climates, and by the presence of moisture. If the coal contain much sulphur or iron pyrites the chemical action may become so intense as to ignite the coals. In stowing coals it is therefore important that they should be as dry as possible, and such a variety should be selected as is least liable to this progressive decomposition. When coal is kept in iron bunkers, and is liable to be wetted with sea-water, the iron rapidly corrodes from the carbon or coal forming a voltaic circuit with the iron, and thus promoting oxydation.

In the great exhibition of 1851, Messrs. Berard & Co., in the French department, No. 51, exhibited "small purified coals, and residue of the same, the produce of a system for purifying coals, patented in France, England, Belgium, and Germany." This plan appears to be well adapted to the purification of sulphurous coal, or coal containing much iron pyrites; also where the coal deposits are in numerous small seams, and can not be got out without being mixed with slaty and stony matter. The coal used on the Chemin de Fer du Nord was so sulphurous as to injure the locomotives; but by using the purified coal, the evil was for the most part remedied; the quantity of ash was also greatly reduced. The apparatus employed for purifying the coal is similar in principle to the jigging-machine used in dressing ores, which, after being stamped, in order to separate stony matter, are agitated in water and allowed to rest, when the various portions become arranged in layers, according to their specific gravities. This purified coal yields a very pure coke.

Mr. Grace Calvert, of Manchester, has taken out a patent for purifying coke from sulphur. It consists in mixing the coal, before coaking, with from 1½ to 5½ per cent. of common salt, the proportion varying with the quantity of sulphur. The coking is then conducted as usual. By this contrivance, coal, which was formerly unserviceable in smelting operations, can now be used with effect.

The following table, by Dr. Ure, shows the quantity of water raised from 32° to 212° by one pound weight of the different combustibles enumerated in the first column; it also shows the number of pounds of boiling water, which the same weight of fuel will evaporate, and the quantity of atmospheric air absolutely consumed during combustion. The quantity of air, however, as given in the last column, is much less than would be necessary in practice, where much of the air passes the fuel without coming into contact with it so as to have its oxygen consumed. The heating power also, as represented by this table, can seldom be *practically* attained.

Combustible.	Pounds of water which a pound can raise from 32° to 212°.	Pounds of boiling water evaporated by one pound.	Weight of atmospheric air at 32° required to burn one pound.
Dry wood........	35·00	6·36	5·96
Common wood.....	26·00	4·72	4·47
Charcoal...........	73·00	13·27	11·46
Pit coal...........	60·00	10·90	9·26
Coke..............	65·00	11·81	11·46
Turf...............	30·00	5·45	4·60
Coal gas...........	76·00	18·51	14·51
Oil, wax, or tallow..	78·00	14·18	15·00
Alcohol............	52·00	5·56	11·60

As various kinds of fuel afford different amounts of heat, and as heat can not be measured or weighed, and its quantity ascertained by direct experiment, the relative values of fuels are ascertained by comparing them with each other under similar circumstances. The heating power of a fuel is the quantity of effect produced by it in a certain time, and this in conjunction with its market price gives its value as a fuel. One fuel may produce a certain greater or less effect than another fuel, and thus its relative superiority or inferiority may be accurately ascertained, although the actual amount of heat furnished by it may be entirely unknown. Lavoisier and Laplace fixed these values by making the substance under examination act on ice, and the quantity of ice melted gave the value in each case. Count Rumford measured the value of fuel by the increased temperature which it produced in a given quantity of water. Now, as the same quantity of heat which melts one pound of ice at 0° Cent. is sufficient to raise the temperature of as much water 79° Cent., or 0·79 lb. of water 100° Cent., so also an equal weight of aqueous vapor of any given temperature and elasticity is always formed from the same amount of heat, and always contains the same quantity of heat, and the quantity of heat which water at 100° Cent. renders latent in order to become steam is 5·5 times sufficient to heat the same weight of water from 0° to 100° Cent., hence the water converted into vapor by the heat required to melt one pound of ice is the 5·5th part of the same pound, that is, it can convert into vapor 0·154 lb. of water.

It was found by Despretz and Welter that the quantities of fuel which require equal amounts of oxygen for combustion, give out equal quantities of heat; thus, 1 lb. of oxygen in combining respectively with hydrogen, charcoal, alcohol, etc., raised 29 lbs. of water from 32° to 212°. A given weight of the different combustibles has its heating power represented by the number of pounds of water raised in temperature, as in the following table. (See *Journal* *of the Franklin Institute*, Philad., 1855–7; also SILLIMAN'S *Journal of Science*, New Haven, Conn., 1854–6.]

	lbs. of water.		
1 lb. of pure charcoal raised...	78	from 32°	—212°
" common wood charcoal	75	"	"
" baked wood..........	36	"	"
" wood holding 20 per cent of water.......	27	"	"
" bituminous coal.......	60	"	"
" turf.................	25—30	"	"
" alcohol..............	68	"	"
" oil. wax..............	90	"	"
" ether.................	80	"	"
" hydrogen.............	236	"	"

More recent researches have, however, cast considerable doubt upon the law that any given quantity of oxygen evolves the same quantity of heat with whatever combustible body it may combine. From a series of tabulated results given in GMELIN'S *Hand-Book of Chemistry*, vol. i., p. 292 (Cavendish Society's translation), it would rather appear that oxygen develops a larger quantity of heat the stronger its affinity for the combustible substance.

Such experiments as the above tend to confirm the modern view of combustion which regards oxygen as a combustible as much as the fuel with which it combines (see CHEMISTRY, vol. v., En. Br); so that when oxygen burns by means of any fuel, the heat evolved increases with the quantity of oxygen consumed. It was on this view that Berthier based his process for detecting the quantity of oxygen required for combustion, and the heating power of the combustible in one experiment. His plan is to heat to redness a known quantity of the combustible with a considerable excess of pure litharge until the combustible is entirely consumed by the oxygen of the oxyd of lead. On weighing the lead reduced by this process the amount of oxygen consumed is ascertained, and also the heating power of the fuel under examination. In calculations of this kind, it will be remembered that 6 parts, or 1 equivalent of carbon, require 16 parts, or 2 equivalents of oxygen, for combustion; that 1 part of hydrogen requires 8 parts of oxygen; that by subtracting from the hydrogen a quantity corresponding to the oxygen in the coal, the calculation can be made for the carbon only. Now, 1 part of pure carbon requires for combustion 2·666 of oxygen, and is capable, according to Despretz, of heating 78·15 parts of water from freezing to boiling. By multiplying each part of lead obtained by 2·265, the weight of water is obtained which is capable of being heated between these temperatures by a unit of the coal used in reducing the litharge.

The heating power of a particular fuel is the same, however that fuel may be burnt. It is true, that the power may be more or less economically applied; the power may be expended with greater or less rapidity, greater, for example, in a furnace than in an open grate, but as the fuel during combustion combines with equivalent portions of oxygen, the same amount of heat is liberated whether the combination be rapid or slow. The rapidity of combustion depends not only upon the mode of arranging the draught or supply of air to the fuel, but also on the state of division of the fuel itself. A given weight of wood in the state of shavings will, from the large extent of surface exposed, burn rapidly, and produce its full heating effect in a few minutes, while the same weight of wood, in the form of a log, may keep up a moderate temperature for some hours. The division of a fuel may, however, be carried so far that the air necessary for its combustion can not penetrate it. Such is the case with saw-dust, powdered charcoal, or peat, slack coal, etc. If the powdered coal be of caking quality, it may be burnt into compact coke, and thus be more useful than a fuel which in its first form is compact, but which falls to powder on being heated in the furnace. Small fuel may sometimes be advantageously applied by covering the furnace-bars with pieces of sand-stone or lime-stone for the purpose of preventing the fuel from falling through, and for distributing the supply of air among it. In the roasting of copper ores in South Wales a flaming coal is necessary in the reverberatory furnace where the operation is carried on. But as the flameless anthracite is much more abundant in this district than the bituminous coal, it is turned to account in an ingenious manner. When burnt under ordinary circumstances it crumbles to powder, as already noticed, and either slips through the bars of the grate, or chokes them up. But when anthracite is raised to a very high temperature it forms a vitreous scoria or clinker, which in the ordinary furnace combines with the iron of the bars and chokes up the grate. In the Welsh furnaces, the clinkers themselves are ingeniously arranged so as to perform the office of grate-bars, namely, to support the fuel, and to limit the supply of air from below. The clinkers are supported on iron bars placed at a considerable distance apart, and are arranged in a layer 12 or 16 inches in depth. Above this layer the fuel of the furnace is in full combustion; this fuel consists of anthracite mixed with about one fourth of its weight of small bituminous coal, and also forms a layer of a depth about equal to that of the clinkers: it is in this the hottest part of the fire that fresh clinkers are being continually formed, and while forming they cake with the numerous fragments of bituminous coal heaped up above them. As fresh portions of the fuel come into operation the clinkers descend toward the bottom of the grate, where, meeting with the numerous jets of air which stream up through the bottom, the vitrified mass splits and cracks in all directions, forming new channels for the ascent of the draught, but not large enough to allow the small coal to escape. As the calciner-man heaps up fresh fuel above, he hooks out a few clinkers from the bottom to make way for the descent of others. Under this arrangement the oxygen of the air traversing the multitude of channels formed by the cracks in the clinkers, combines with a portion of the fuel and forms carbonic acid, which is uninflammable, but before reaching the vault of the furnace it is deprived of a portion of its oxygen, and becomes converted into carbonic oxyd which is inflammable. But in order that this gas may undergo combustion, air is admitted through apertures in the sides of the furnace just above the ore, and in this way the whole surface of the ore, occupying an area of nearly 23 feet square, is played upon by a thin sheet of flame, produced from fuel which gives scarcely any flame at all.

Common coal gas is sometimes used as fuel, in which case it is calculated that 1 lb, or 24 cubic feet thereof, in burning, will raise 76 lbs. of water from the temperature of freezing to that of boiling. Extending this comparison to the other forms of fuel, it is stated that 1 lb. of dry wood will similarly heat 35 lbs. of water, but only 26 lbs. if the wood be not dry, or contain moisture to the extent of from 20 to 25 per cent. One lb. of good dry charcoal will similarly heat 73 lbs. of water, but if exposed to the air it absorbs at least 10 per cent. of moisture, and in burning gives a flame of carburetted hydrogen (or rather, probably, a mixture of carbonic oxyd and hydrogen), arising from the decomposition of the moisture. One lb. of good pit coal is said to raise 60 lbs. of water from freezing to boiling, 1 lb. of coke 65 lbs., and 1 lb. of turf or peat from 25 to 30 lbs.—B. E. See COAL.

Fuels, Artificial. — It is curious to note how many new "patent artificial fuels" there now are. As experimenters tell us that different kinds of coal and other natural fuel possess different qualities, an inducement is offered for the exercise of ingenuity in devising various imitative compositions. The hydraulic press is brought into singular requisition in this art. Thus, Azalay's hard shining blocks of artificial fuel are simply formed of coal-dust, subjected to intense compression. Warlich's patent fuel, in large-sized bricks weighing about 12 pounds each, is made by mixing together the dust of various kinds of coal; the bricks are dense and well made; the fuel kindles slowly, but gives off very little smoke while burning. Warlich's series comprises Welsh steam fuel, north-country fuel, household fuel, and locomotive coke-fuel —differing in the kind of coal-dust used, and in the amount of tar with which the dust is agglutinated. Warlich's patents are worked by a company, who have establishments at Deptford, Swansea, and Middlesborough. The Bideford Anthracite Company makes artificial fuel, in brick-form pieces, by a particular mode of treating anthracite. Oram's patent fuel is a condensed mixture of small coal, bitumen, and sand. Williams's fuel is a mixture of dried peat and bitumen. So of numerous other kinds; small coal, bitumen, or peat, or two out of the three, are mixed with various other substances to form a compost fuel. It must be owned, however, that such fuel is not yet much used, even in places where natural fuel is scarce.—*Inventions in Arts.*

Fuhchau, or **Fou-tchow-foo.** See Fou Chow.

Fullers' Earth (Ger. *Walkererde*; Du. *Voläarde*; Fr. *Terre à foulon*; It. *Terra da purgatori*; Sp. *Tierra de batan*; Rus. *Schiffernaia*; Lat. *Terra fullonum*), a species of clay, of a greenish white, greenish gray, olive and oil green, and sometimes spotted color. It is usually opaque, very soft, and feels greasy. It is used by fullers to take grease out of cloth before they apply the soap. The best is found in Buckinghamshire and Surrey. When good, it has a greenish white, or greenish gray color, falls into powder in water, appears to melt on the tongue like butter, communicates a milky hue to water, and deposits very little sand when mixed with boiling water. The remarkable detersive property on woolen cloth depends on the alumina, which should be at least one fifth of the whole, but not much more than one fourth, lest it become too tenacious.—Thomson's *Chemistry*; Jameson's *Mineralogy*.

Fulling, the art of cleansing, scouring, and pressing cloths, stuffs, and stockings, to render them stronger, closer, and firmer. It is otherwise called *milling.* Pliny (vii. 56) relates that one Nicias, the son of Hermias, was the first inventor of the art of fulling; and it appears by an inscription, quoted by Sir G. Wheeler in his *Travels through Greece*, that this same Nicias was a governor in Greece in the time of the Romans. The asperities upon the surface of wool render the spinning of it and the making it into cloth difficult operations. In order to spin wool, and afterward convert it into cloth, its fibres must be cóvered with a coating of oil, which, filling the cavities, renders the asperities less sensible; in the same way that oil rubbed on the surface of a very fine file renders it less rough. When the piece of cloth is finished, it is carried to the fulling-mill, where it is beaten with heavy stampers in a trough full of water in which some fuller's earth has been mixed, for the purpose of cleansing it from the oil. The clay combines with the oil, which it separates from the cloth, and both are washed away together by the fresh water which is brought to it by the machine. But the scouring of the cloth is not the only object in view in fulling it. The alternate pressure given by the stampers to the piece of cloth occasions (especially when the scouring is pretty far advanced), an effect analogous to that which is produced upon felt by the hands of the hatter. The fibers of wool which compose one of the threads, whether of the warp or the woof, assume a progressive movement, introduce themselves among those of the threads nearest to them, then into those which follow; and thus, by degrees, all the threads, both of the warp and the woof, become felted together. The cloth, after having by this means become shortened in all its dimensions, partakes both of the nature of cloth and of that of felt, and may be cut without being subject to ravel. Lastly, the cloth has acquired a greater degree of thickness, and forms a warmer clothing. Knit worsted also may thus be rendered less apt to run in case a stitch happen to drop.

The fulling of cloths and other stuffs is performed by a kind of water-mill, thence called a *fulling* or *scouring mill.* These mills, excepting in what relates to the mill-stones and hopper, are much the same with corn-mills; and there are even some which serve indifferently for both purposes. The principal parts of the fulling-mill are the wheel, with its trundle, which gives motion to the tree or spindle, whose teeth communicate it to the stampers, which are thereby raised and made to fall alternately, as its teeth catch or quit a kind of latch in the middle of each stamper. The stampers and troughs are commonly of wood; but sometimes the stampers are made of polished iron, and the cloth is exposed during the process to the action of steam; by which means the appearance of the cloth, when finished, is said to be greatly improved. These improvements formed the subject of a patent in 1825. In the course of the operation the fuller sometimes makes use of urine, sometimes of fuller's earth, and sometimes of soap. To prepare the stuffs to receive the first impressions of the stamper, they are usually laid in urine, then in fuller's earth and water, and lastly in soap dissolved in hot water. Soap alone would do very well, but it is expensive, and fuller's earth is scarcely inferior to it; but then it must be well cleared of all gritty particles, else it is apt to make holes in the stuff.

Method of fulling cloths and woolen stuffs with soap. —A colored cloth of about 45 ells is to be laid in the usual manner in the trough of a fulling-mill, without first soaking it in water, as is commonly practiced in many places. To full this trough of cloth, 15 pounds of soap are required, one half of which is to be melted in two pails of river or spring water made as hot as the hand can well bear it. This solution is to be poured by degrees upon the cloth, as it is laid in the trough; and thus it is to be fulled for at least two hours, after which it is to be taken out and stretched. This done, the cloth is immediately returned into the same trough, without any new soap, and there fulled two hours more. It is then taken out and well wrung, to express all the grease and dirt. After the second fulling, the remainder of the soap is dissolved as in the former, and cast four different times on the cloth, which is taken out every two hours to stretch it, and undo the plaits and wrinkles it has acquired in the trough. When it is perceived to be sufficiently fulled, it is well scoured in hot water. With regard to white cloths, these full more easily and in less time than colored ones, and thus require only a third part of the soap.

Fulminating Compounds.—Fulminates are of several kinds, being detonating compounds of the fulminic acid with various bases. Such are the fulminates of gold, mercury, silver, etc. The old fulminating powder is a mixture of nitre, sulphur, and potash. The fulminate of mercury is largely used as a priming to the percussion-caps for guns. See Chemistry, vi., p. 474.

Fulta, a large village of Hindoostan, province of Bengal, on the east bank of the Hooghly, 20 miles S.S.W. in a straight line from Calcutta, but much more by the windings of the river. It has safe anchorage for ships, where they are protected from the swell of the sea, and where the anchors hold fast, the bottom being stiff clay. Lat. 22° 18', long. 88° 10'.

Fulton, Robert, a distinguished American engineer and mechanician, among the first who successfully applied steam to the propulsion of vessels, was a native of the State of Pennsylvania. At a very early age he gave decided indications of mechanical genius.

While still a mere youth he began life in the city of Philadelphia as a portrait and landscape painter; and in his 22d year, with a view to improving himself in art, he visited England, where he remained for several years under the roof of his countryman West. He states that in 1793 he had conceived the design of propelling vessels by steam, but his numerous engagements prevented him from carrying it into effect at that time. His time was completely engrossed in devising a plane of double incline that should supersede the locks on canals, for which he obtained a patent from the British government in 1794. In the same year he obtained patents for flax-spinning and rope-twisting machines, and various other mechanical inventions, bearing chiefly upon the construction of canals, on which latter subject he published a treatise. In 1797 he removed to Paris, and remained for seven years in the house of Joel Barlow, the American minister at the court of Napoleon I., prosecuting his scientific studies. During that period he projected the first panorama ever exhibited in Paris, and made important experiments on submarine explosives. It was also at this time that he first succeeded, after repeated trials, in propelling a boat through the water by the aid of steam. In 1806 he returned to America, and repeated the experiment on a larger scale and with more decided success. In 1809 he took out his first patent, and seemed to be on the high way to wealth and prosperity, when his rights were disputed, and he became involved in legal proceedings, which embittered the remainder of his existence, and prevented him from reaping the rich harvest to which his industry and genius fairly entitled him. Fulton died February 24, 1815. A minute account of his life and inventions is given in his biography by Cadwallader D. Colden. See Steam Navigation.

Fulton has, perhaps, contributed more than any other man of the present century, to the progress of commerce throughont the world. The impetus given by his genius to the adoption of steam navigation, has been equally extended (if not more so), to the increase of sailing vessels. At the present day the stock of mechanical and practical knowledge, handed down by tradition, or preserved by means of the press, has become so enormous, that the most brilliant discovery in the useful arts bears but a small proportion to the whole extent of human knowledge. In remote times, the aids, which modern inventors derive from the records of the reasonings, and combinations, and even the abortive attempts of others, were wholly wanting; and if no one of the inventions of antiquity, when taken by itself, can rank in apparent importance with some of modern date, the former were in many instances far more conspicuous as steps in the progress of human improvement. In the dawn of civilization, inventions were usually unexpected, and though often calculated to supply the most pressing wants, excited surprise, because the wants themselves had not been perceived. At the present day discoveries often appear as the almost inevitable result of previous improvement. The highest degree of merit is to be awarded, in the present age, to those who, aware of the wants of the community, or of the world at large, set to themselves as a task the discovery of the means of supplying these wants. If we consider Fulton as an inventor, it may be difficult to say in what exact particular his merits consist; but if we contemplate him in the light of a civil engineer, confidently building a finished and solid structure upon the incomplete foundation left by others, we must rank him, in the extent of his usefulness to mankind, as second to Watt alone. See *Life of Fulton*, by J. Renwick.

Robert Fulton was born at Little Britain, in Lancaster county, Pennsylvania, in the year 1765. His parents were respectable, though far from affluent; his father a native of Ireland, his mother descended from an Irish family. Fulton himself attached no importance to circumstances of birth, and took pride in being the maker of his own fortune. Except so far as elementary education was concerned, he was under little obligation to his progenitors; being left without patrimony at the death of his father, when three years old. Aware that he was to trust to his own exertions, even for means of subsistence, he cultivated from an early age a taste for drawing, in the hope of qualifying himself for the profession of a painter. From a familiar acquaintance with his performances as an artist at a later date, when he applied to the easel merely as a relaxation, it may be stated that there is little doubt that had he devoted himself to the profession of painting, he must have become highly distinguished as a professor of that art. At the early age of 17 he went to Philadelphia, for the purpose of practicing as a painter of landscapes, and was so successful as not only to support himself, but to lay up sufficient funds to purchase a small farm in Washington county, Pennsylvania, and to aid his widowed mother. His patrons in Philadelphia were at first among the humbler classes, but afterward he formed acquaintances who were both able to appreciate his promise as an artist, and to facilitate his plans of improving himself as a painter. By their advice he went to England, and through a favorable introduction to West, he was treated by that great artist with even more than his usual liberality, and became an inmate of his house, and remained his guest and pupil for several years. After leaving the family of West, Fulton proceeded to Exeter, where he lived two years, during which time his intelligence and ability gained him many useful acquaintances. Among these, the most important were the Duke of Bridgewater and Earl Stanhope. It appears to have been at the instance of the former that he abandoned painting as a profession, and entered that of a civil engineer. We find him next residing in Birmingham, engaged in the construction of canals, though probably in a subordinate station. Fulton's residence in Birmingham brought him into communication with Watt, who had just succeeded in giving to his steam-engine that perfect form which fits it for universal application as a prime mover. While in Birmingham, Fulton issued a number of patented inventions and several published works. In 1793 he took out a patent for the introduction of the inclined plane in inland navigation, and three years later embodied it, with other projects of a similar nature, in a work on Inland Navigation. This work can be quoted as exhibiting a high degree of originality, ingenuity, and talent, but as inapplicable to any useful purpose. To his instrument for destroying vessels of war, he gave the name of the *Torpedo.* It consisted of an oval copper case, charged with gunpowder. To this he proposed to attach a lock, regulated by clock-work, which, after any required time, might cause the lock to spring and thus communicate fire to the charge. But Fulton met with so much opposition in bringing this into practice during the war with Great Britain, that the only proofs of its value we can cite, were the sleepless nights and anxious days of many British commanders, who felt that the vicinity of Fulton's operations was attended with danger which could only be prevented by unremitting diligence and attention.

Before proceeding to the more important subjects which attracted the attention of Fulton, we have to mention some other fruits of his ingenuity. In 1794 he took out patents for a mill for sawing marble; a method of spinning flax and making ropes; and of excavators for digging canals. The latter object may still remain a desideratum in practical mechanics; the two former at least served as steps in the career of improvement, and have been guides and landmarks to subsequent inventors. Fulton undertook the construction of a vessel which might move either at or beneath the surface of the water, and made the passage over the estuary of the Linn with ease and safety.

The art with which Fulton's name is inseparably connected as the principal agent in its creation, is that of navigation by steam. His application of steam was founded on the properties of Watt's double-acting engine, and could not be used until that instrument had received the last finishing-touch of the inventor. When the properties of this engine became known to the public, many hastened to apply it to navigation. Among others, were Miller, of Dalswinton, aided by Symington, who put a boat in motion on the Forth and Clyde, in 1801. In the United States, experiments were made by Fitch and Rumsey; and in 1791, John Stevens, of Hoboken, commenced his researches, which he engaged in for nine years, when he became the associate of Chancelor Livingston and Nicholas Roosevelt; to this association was added Brunel, the inventor of block machinery, and engineer of the Thames tunnel. The efforts of this association were unsuccessful, and were broken up by the appointment of Livingston as embassador to France, where he became intimate with Fulton, and offered to provide him with funds necessary for an experiment, and to aid in introducing the method in the United States, if the experiment were successful. Fulton had confirmed his original impression of the superiority of the paddle-wheel over any other means of propulsion, and, late in the year 1803, commenced building a vessel 66 feet in length and 8 in breadth. To this an engine was adapted, and the experiment so satisfactory, as to leave little doubt of final success. Measures were immediately taken to construct a steamboat on a larger scale in the United States. An engine was ordered from England, from Watt & Bolton, in 1803; its form varied from their usual models in conformity to sketches furnished by Fulton. At the same time, an application made to the Legislature of New York for an exclusive privilege of navigating the waters of that State by steam was granted. Before the engine ordered from Watt was completed, Fulton visited England, and directed the construction of it in person. It was completed at last, and reached New York in 1806; the vessel was finished and fitted with her machinery in August, 1807. An experimental excursion was made, and a few minutes served to convince the most skeptical and doubtful that the long-desired object was obtained. Within a few days of the first experiment, a voyage was undertaken in it to Albany. This city is distant from New York, by the channel of the river, nearly 150 miles. In a few remarkable instances the sloops which navigated the Hudson had performed the passage in 16 hours; but the average time was four days. Fulton's steamboat went up in 36 hours, and returned in 30. Fulton, complying with the wishes of the public, made regular voyages until the end of the season. Many of the minor arrangements for the convenience of passengers, the facility of working, and safety from accident of the machinery, were yet wanting; some of the difficulties were removed at the time, and others remained until the boat should be laid aside for the winter. The next winter of 1807–8 was occupied in remodeling and rebuilding the vessel, to which the name of *Clermont* was given. Fulton provided such accommodations for passengers, as, in regard to convenience and splendor, had never been approached in other vessels of transportation. This was almost improvident liberality; for a debt was contracted which new demands never permitted him to discharge. The *Clermont*, thus converted into a floating palace, commenced her course of passages for the month of April. The first voyage was a complete failure; the boiler, provided by Watt, was not suitable, and Fulton had been persuaded to replace it by one planned by Livingston, composed of wood and copper, which emitted steam from the joints soon after leaving New York, and gave way completely, on the return passage, near that city, after a voyage prolonged for 56 hours. But a few weeks sufficed to build a new boiler, and in June, the *Clermont* was again under way. In the hour of departure from New York or Albany the utmost regularity was observed, which required no little perseverance and resolution at first; but the benefit of this punctuality was soon perceptible, and the same system was copied by other steamboat lines. At the end of the second summer the boat became far too small for the passengers, who crowded to avail themselves of this new mode of transport, and Fulton begun a second boat, called *The Car of Neptune*.

The most formidable opposition made to the privilege of Fulton, for the exclusive navigation of the waters of New York, was founded upon the discoveries of Fitch, who had constructed a boat which traveled between Trenton and Philadelphia. Fulton, assailed in his exclusive privileges, took, for further protection, a patent from the general government in 1809, and another in 1811. Grants were made to Fitch by the State of New Jersey, and as a compromise could not be agreed upon by the two contending parties, the controversy, which often interrupted the communication by steam between Philadelphia and New York, was not adjusted until the grant, made to Fulton by the State of New York, was declared unconstitutional. A form of ferry-boats was soon after invented by Fulton, which, with the substitution of a single hull for the twin boat, has in its arrangement and distribution undergone little or no change. The steamboats on the Hudson were increased in number, before Fulton's death, to five. A sixth was built, under his direction, for the Sound, which plied for some time on the Hudson. In the construction of this boat he had, in his opinion, exhausted the power of steam in navigation—having given it a speed of nine miles an hour.

When death arrested Fulton in his great career, he was engaged in constructing an improved form of submarine vessel, but as he had made no one a confidant in his plans, at his death no person was found willing or able to undertake the completion of the vessel. By exposure in his visits to the Navy Yard, in Brooklyn, he took a severe cold, which his constitution, enfeebled by constant labors and anxieties, could not resist. He died on the 24th of February, 1815. Rarely has it happened that the natural death of any citizen excited so general mourning as that of Fulton. Cut off in the very height of his usefulness, and in the zenith of his reputation, his countrymen felt it as a loss almost irreparable. See Life of Fulton, by James Renwick, LL.D.; *Anal. Mag.*, v. 394, x. 177; Sparks's *Am. Biog.*, x. 3; *Quar. Rev.*, xix. 347; Littell's *Mus.*, xxxiii. 340; Niles's *Reg.*, xiii. 51, xxxiii. 15; Hunt's *Mer. Mag.*, xv. 468. A suitable monument to the memory of Fulton has not yet been erected either by the United States, by any one State, or by any association. It yet remains for his native State (Pennsylvania), or for the State which fostered his early efforts (New York), to place in some great thoroughfare, an appropriate column in memory of one who has so largely contributed to the growth of commerce throughout the civilized world.

Fumigation is the employment of fumes or vapors to purify articles of apparel, and goods or apartments supposed to be imbued with some infectious or contagious poison or fumes. The vapors of vinegar, the fumes of burning sulphur, and explosion of gunpowder, have long been prescribed and practiced; but they have, in all probability, little or no efficacy. The diffusion of such powerful agents as chlorin gas, muriatic acid gas, or nitric acid vapor, should alone be trusted to for the destruction of morbific effluvia.

Funds. To the Venetians is ascribed the orign of the funding system, in A. D. 1171. Public funds were raised by the Medici family, at Florence, in 1340. The English funding system, or the method of raising the supplies for the public service in England, by anticipation of the public revenues (the origin of the national debt), was introduced at the Revolution, 1689.—Mortimer's *Broker.* The funding system is coeval with the commencement of the Bank of England.—Anderson. The three per cent. annuities were created in 1726. The three per cent. consols were created in 1731; the three per cent. reduced, 1746; three per cent. annuities, payable at the South Sea House, 1751; three and a half per cent. annuities created 1758; long annuities, 1761; four per cent. consols, 1762; five per cent. annuities, 1797 and 1802; five per cents. reduced to four, 1822. See *National Debt.*

The following table has been calculated in order to show in which of the public funds money may be invested so as to yield the greatest interest. It gives the prices, differing by one per cent. from 50 to 93 for three per cents., etc., at which they all must be to yield the *same* interest; so that supposing the three per cents. to be at 80, a sum invested in them, or in the 3½ per cents., will yield the same interest, provided the latter be at 93⅓; if the 3½ per cent. be *below* this sum, it will, of course, be more advantageous in so far at least as interest is concerned, to invest in them than in the three per cents,; while, if they be *above* 93⅓, it will be less advantageous.

To get the *true value* of the different funds at any particular period, in order to compare them accurately together, it is necessary to deduct from each the amount of interest accruing upon it from the payment of the last dividend.

Table showing the Prices the different Funds must be at to produce an equal Interest; and also the Annual Interest produced by £100 sterling invested at any of those Prices.

3 per cent price.	3 1-2 per cent. price.			4 per cent. price.			5 per cent. price.			Interest.		
£	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
50	58	6	8	66	13	4	83	6	8	6	0	0
51	59	10	0	68	0	0	85	0	0	5	17	7
52	60	13	4	69	6	8	86	13	4	5	15	4
53	61	16	8	70	13	4	88	6	8	5	13	2
54	63	0	0	72	0	0	90	0	0	5	11	1
55	64	3	4	73	6	8	91	13	4	5	9	0
56	65	6	8	74	13	4	93	6	8	5	7	1
57	66	10	0	76	0	0	95	0	0	5	5	3
58	67	13	4	77	6	8	96	13	4	5	3	5
59	68	16	8	78	13	4	98	6	8	5	1	8
60	70	0	0	80	0	0	100	0	0	5	0	0
61	71	3	4	81	6	8	101	13	4	4	18	4
62	72	6	8	82	13	4	103	6	8	4	16	9
63	73	10	0	84	0	0	105	0	0	4	15	2
64	74	13	4	85	6	8	106	13	4	4	13	8
65	75	16	8	86	13	4	108	6	8	4	12	3
66	77	0	0	88	0	0	110	0	0	4	10	10
67	78	3	4	89	6	9	111	13	4	4	9	6
68	79	6	8	90	13	4	113	6	8	4	8	2
69	80	10	0	92	0	0	115	0	0	4	6	11
70	81	13	4	93	6	8	116	13	4	4	5	8
71	82	16	8	94	13	4	118	6	8	4	4	6
72	84	0	0	96	0	0	120	0	0	4	3	3
73	85	3	4	97	6	8	121	13	4	4	2	2
74	86	6	8	98	13	4	123	6	8	4	1	0
75	87	10	0	100	0	0	125	0	0	4	0	0
76	88	13	4	101	6	8	126	13	4	3	18	11
77	89	16	8	102	13	4	128	6	8	3	17	11
78	91	0	0	104	0	0	130	0	0	3	16	11
79	92	3	4	105	6	8	131	13	4	3	15	11
80	93	6	8	106	13	4	133	6	8	3	15	0
81	94	10	0	108	0	0	135	0	0	3	14	0
82	95	13	4	109	6	8	136	13	4	3	13	2
83	96	16	8	110	13	4	138	6	8	3	12	3
84	98	0	0	112	0	0	140	0	0	3	11	5
85	99	3	4	113	6	8	141	13	4	3	10	7
86	100	6	8	114	13	4	143	6	8	3	9	9
87	101	10	0	116	0	0	145	0	0	3	8	11
88	102	13	4	117	6	8	146	13	4	3	8	2
89	103	16	8	118	13	4	148	6	8	3	7	4
90	105	0	0	120	0	0	150	0	0	3	6	8
91	106	3	4	121	6	8	151	13	4	3	5	11
92	107	6	8	122	13	4	153	6	8	3	5	2
93	108	10	0	124	0	0	155	0	0	3	4	6

The public debt of the United States, which amounted, at the close of the last war with Great Britain, to $158,713,049, was entirely paid off in 1835. This proceeding, so honorable to the United States, naturally tended to raise the character of American securities in the English market, and enabled the government to contract the loans required to carry on the late war with Mexico on very favorable terms. The debt of the Union, existing on the 20th November, 1851, amounted to $62,560,395, and is at present (1856) about $45,000,000.

But in addition to the debt of the Union, most part of the States, and several, also, of the principal cities, have contracted peculiar debts of a less or greater amount. In most cases these were incurred to promote the execution of some public undertaking, such as the construction of canals or railways, the excavation of docks, the erection of buildings, the establishment of banks or insurance companies, and so forth. Some of the debts so contracted have been advantageously laid out; but a large portion borrowed in 1835, and other periods of wild excitement, were contracted on very disadvantageous terms, and expended on projects some of which have turned out extremely ill. This, however, was the affair of the States themselves, and did not afford so much as the shadow of an excuse for the conduct of those States which have declined to provide for the payment of their debts. It was not, indeed, to be wondered at that in the distress into which the Union was thrown by the crash of 1837, and the depression following thereon, some of the States should have been compelled to suspend payment of their debts; but a necessity of this sort could be temporary only. The indebted States are all rich, and eminently flourishing and prosperous communities, and it might have been expected that they would have made every effort to resume payment in full of their debts at the earliest possible moment. But this, we are sorry to say, has not been the case with some of them.

Fundy, Bay of, an inlet of the Atlantic, sets up between Cape Sable, the south point of Nova Scotia, and Mount Desert Island, in Maine, a distance of 150 miles. From Eastport to St. John, N. B., is 60 miles. The bay is divided, in its north-east part, into two branches, the north called Chignecto Bay, the head of which is 170 miles from Eastport. The south-east part is called the Basin of Mines, 150 miles from Eastport. Passamaquoddy Bay opens into it on the north-west, near its mouth. Gypsum is obtained on the Basin of Mines, and grindstones on Chignecto Bay. This bay is very peculiar; its shores, on both sides, are rocky and abrupt, while near its head, the tide, pressed and confined within diminished limits, rushes with much violence over extensive and wide-spread mud-flats, and rises generally 60 feet or more. Its fisheries are valuable and extensive. (See Perley's valuable report on its fisheries.) There are 16 light-houses on the coasts of the Bay of Fundy, viz., eight on the New Brunswick side, and eight on the Nova Scotia side.

Furl, in navigation, to roll the sail up, and confine it closely to the yard: the sail being gathered up by the men on the yard, the leech or edge is passed along the yard to the middle or *bunt*, where the body of the sail, the foot and clews, are collected. In this way the sails of a man-of-war are removed nearly out of view in an almost incredible short space of time.

Furlong, an English measure of length, containing the eighth part of a mile.

Furs, in commerce, the skins of different animals, covered, for the most part, with thick, fine hair, the inner side being converted, by a peculiar process, into a sort of leather. Furs, previously to their undergoing this process, are denominated *peltry*.

Beaver fur, from its extensive use in the hat manufacture, is a very important commercial article. That made use of in this country is almost entirely brought from North America. It is gradually becoming scarcer and dearer, being now obtainable only in considerable quantities from the most northerly and inaccessible districts. The fur of the middle-aged or young animal, called cub-beaver, is most esteemed. It is the finest, most glossy, and takes the best dye. Fitch, or the fur of the fitchet or polecat, is principally imported from Germany; it is soft and warm, but the unpleasant smell which adheres to it depresses its value.

Marten and mink, a diminutive species of otter, are principally imported from the United States and Canada. The fur of the musquash, or muskrat, a diminutive species of beaver, is imported in vast quantities from our possessions in North America, which also supply us with considerable quantities of otter-skins. Nutra-skins are principally brought from Buenos Ayres. The more valuable furs, as ermine, sable, etc., come principally from Russia.

Fur Trade.—There is, perhaps, no branch of commerce that has drawn forth a more daring and adventurous spirit, or given rise to a more patient and courageous endurance of personal dangers, privations, and hardships, than the fur trade, as is manifest throughout its whole history. By its means we have become accurately acquainted with nearly three fourths of the continent of North America. The indefatigable exertions of the fur merchant, stimulated by the prospect of large gains from his hazardous pursuits, have made known numerous tribes of men and nations partially acquainted with the arts and refinements of civilized life, who otherwise might have remained many ages, or forever, immersed in heathen darkness, and sunk in barbarity. Nor are the general advantages derived from the fur trade confined to a more accurate geographical knowledge of a vast range of country, and the extension of the arts of peace and social happiness. The adventurous fur trader has often been the precursor of the gospel missionary, and has enabled him to pursue his important labors with comparative security and success.

Whence Furs were Introduced.—The use of furs seems to have been introduced into Europe by the northern invaders of the Roman empire. In the sixth century the skins of sables were brought to Rome from the shores of the Arctic Ocean through the intervention of numerous parties, so that the cost to the consumer was very high. During several centuries after that time, furs were not at all common in western Europe. In 1252, A.D., Marco Polo mentions, as a subject of curiosity, that he found the tents of the khan of Tartary lined with the skins of sables and ermines, which had been brought from countries far north, "from the land of darkness." In less than a century, however, from that time, the wearing of furs as a part of fashionable dress, had become rather prevalent in England, since, in 1337, Edward III. commanded that all persons among his subjects should be prohibited the use of furs unless they could spend £100 per annum.

Arctic Regions.—Early in the 17th century the shores of the Arctic seas were found tenanted by furred animals of great value; and the idea of forming a settlement was suggested by Groseliez, a Frenchman. The suggestion was made first to his own government, but as it was coolly received, he obtained, through the English embassador, an interview with Prince Rupert, before whom he laid his plans. The prince warmly entered into the project, and assisted in fitting out a vessel, which reached, in September, 1668, the river then called Nemisco, to which the adventurers gave the name Rupert, in honor of the prince. After wintering there, with less difficulty and suffering than they had anticipated, they returned, and gave so favorable a report that Prince Rupert, the Duke of Albemarle, the Earl of Craven, Lord Ashley, and others, formed themselves into a Company, and subscribed £10,500 for the purpose of commencing a traffic in furs. A charter of incorporation was granted by Charles II. in 1670, giving to the Hudson's Bay Company full possession of "all the lands and territories upon the countries, coasts, and confines of the seas, bays, lakes, rivers, creeks, and sounds, in whatsoever latitude they shall be, that lie within the entrance of the straits, commonly called Hudson's Straits, that are not already actually possessed by or granted to any of our subjects, or possessed by the subjects of any other Christian prince or state." And the charter proceeds to grant further, that "the whole and entire trade and traffic to and from all havens, bays, creeks, rivers, lakes, and seas into which they shall find entrance by water or land out of the territories, limits, or places aforesaid; and to and with all the natives and people inhabiting, or which shall inhabit within the territories, limits, and places aforesaid; and to and with all other nations inhabiting any of the coasts adjacent to the said territories, limits, and places which are not already possessed as aforesaid, or whereof the sole liberty or privilege of trade and traffic is not granted to any other of our subjects." On Rupert's River the Company immediately formed a settlement; and in 1674 stations were settled on Moose River, and a few years later on the Albany, and soon after two more on the Nelson and the Severn.

French Settlements and Seizures.—By these vigorous measures the French court was awakened to a sense of its neglect, and Grosseliez, already detached from the English service, was sent out, in the year 1682, to found a factory on the River Hayes, which he accomplished, and also surprised the British factory on the Nelson. After this time hostilities became frequent between the French and the English settlers; yet notwithstanding immense losses sustained by the Company from 1682 to 1688 (amounting to £118,014), they were able, in 1684, to pay to the shareholders a dividend of 50 per. cent. Again, in 1688, an equal dividend was made, and in 1689, one of 25 per cent. In 1690, without any call being made, the stock was trebled, while at the same time a dividend of 25 per cent. was paid on the increased or newly-created stock. By other captures of their factories by the French in the years 1692, 1694, 1696, and 1697, the Company suffered further loss to the amount of $97,500. At the peace of Utrecht, in 1713, however, these captured factories were restored to the Company, who, by 1720, had again trebled their capital, with a call of only 10 per cent. on the shareholders. Now they strengthened the old forts and formed several new ones in the interior; but in 1749 a question arose in Parliament concerning the rights of the Company, which was decided in their favor. Again, in 1782, several of their factories were taken by the French under La Perouse; still their traffic seems to have continued very lucrative until the invasion of their rights and territories by a strong rival association, designated the North-west Company, whose fierce competition caused much animosity and bloodshed. This was not only very destructive to the fur trade, but most injurious to the Indians.

Management.—The North-west Company consisted of 23 partners, comprising some of the most wealthy and enterprising settlers in Canada, and employed about 2,000 persons as clerks, interpreters, guides, and boatmen (voyageurs), who were stationed over the vast regions of Canada ceded in 1763 by the French to the English. Shareholders who engaged actively in the trade were called agents, some of whom resided at the different ports established by the Company in the Indian territory, and others at Quebec and Montreal, each attending to the affairs of the Company in his appointed district. These active partners met annually at Fort William, one of their stations on Lake Superior, where they discussed matters connected with the affairs of the association, and arranged future plans. The clerks of the North-west Company were mostly young Scotchmen, of respectable families, who were willing to undergo the hardships attendant upon a residence of some years in these inhospitable regions, in order that they might thus secure the advantage of succeeding in turn to a share of the profits of the undertaking, the custom being to take from among the clerks as partners those who had acquired the experience necessary for the management of the business. The hunters of this Company crossed the Rocky

Mountains about the year 1805, and established stations on the northern head-waters of the Columbia. In 1813 they purchased Astoria on this river, which was relinquished by Mr. Astor,* of New York, and his partners, in consequence of the war between the United States and Great Britain. At length the Hudson's Bay Company, being roused by the activity of the North-west Association, exercised for the first time its chartered right to colonize, and sold, in 1812, a tract of land on Lake Winnipeg and the Red River, to Lord Selkirk, who introduced a considerable number of persons from Scotland. The consequence was an open war between the partizans of the rival Companies. After a war of two years, the Red River settlement was destroyed by the massacre of the governor, Mr. Semble, and many of his associates, while the survivors were driven away. But this melancholy and barbarous state of matters was put an end to by the union of the rival Companies in 1821, since which the trade has been peacefully and successfully prosecuted. When the partnership of the North-west Company was about to expire in 1821, the three London representatives of the firm offered to merge their interests in those of the Hudson's Bay Company. This was agreed to, and an act of Parliament was passed (1st and 2d Geo. IV., cap. 66), under which the crown grants to the Hudson's Bay Company and to the three representative partners of the North-west Company in London and Montreal a license of exclusive trade for 21 years in the "Indian territories;" that is, over all those tracts that might not be included in the charter given by Charles II., and also over those tracts which by mutual consent were open to the subjects of England and to those of the United States. The three North-west Company agents merged into the Hudson's Bay Company; the exclusive trading license was surrendered in 1838; and, after careful investigation on the part of the government, the crown granted on the 30th of May, 1838, another license for 21 years of exclusive trade over the Indian and neutral territories.

The affairs of the Hudson's Bay Company are at present conducted by a governor, deputy-governor, and a committee of seven, elected by 239 proprietors, representing a capital of £400,000. Of the 239 proprietors, 55 have more than two votes. £900 of stock must be held for six months by each voter previous to voting, except such stock be acquired by bequest or marriage, and each member of the committee must hold not less than £1,800 stock. The mode of election, oaths to be administered, government, etc., are prescribed by the charter of Charles II. already referred to. Accordingly, the Company has established at the Red River settlement a governor, council, recorder, sheriff, coroner, etc., for the proper government of the affairs of the Assiniboia, or Red River Territory, and for the careful and legal administration of justice throughout Rupert's Land. Though not enjoined by the charter of 1670, trial by jury was introduced by Sir George Simpson under the direction of the Hudson's Bay authorities in England. Crime is comparatively rare in Rupert's Land; and justice is administered under the same safeguards that exist in England.

Traffic.—The traffic of the Company in furs and peltry is regulated by a Deed Poll, dated March 26th, 1821, when the North-west Company and it united; and by another Deed Poll, dated June 6th, 1834, "for ascertaining the rights and prescribing the duties of the chief factors and the chief traders, and for conducting the trade." The business of the Company is superintended by the 25 chief factors at the respective stations; and under them the 28 chief traders carry on the traffic with the Indians. The clerks serve under both the factors and the traders; and the very humblest clerk, by good conduct, may rise to the chief positions in the service of the Company. The salaries of the clerks range from £20 to £100 per annum. Three chief factors and two chief traders are allowed to leave the country annually for one year.

Free Trade in Furs.—The Hudson's Bay Company have no monopoly, as some suppose, of the importation of furs into England; they have to compete with the furs of the United States, of Russia, of Norway, etc.; and if other traders can undersell the Company the public have, of course, the benefit. Beaver and other skins are now much lower in price than formerly, when so much used in the manufacture of hats; and the gradual reduction in price of foreign furs has been chiefly brought about by the steady supply from Hudson's Bay territories. Hence London is the most extensive fur market in the world. The fall in the prices of all furs has been very great; but as beaver constitutes the largest item in value, the reduction of profit to the Company will be seen by comparison with the prices and amount of sales. In 1839 a beaver skin was worth 27s. 6d.; in 1846, 3s. 5d. The number of skins sold in 1839 was 55,486 for £76,312; those sold in 1846 45,389 for £7856. There is also great variety in the prices of articles of similar denomination; but the Company are obliged to pay the same price to the Indians for all skins according to tariff; whether the skins are good or bad, the Company must buy them. Hence the profits of the shareholders are not to be estimated by the difference in price between the cost of a skin at one of the Company's forts in the interior, and its sale price in London. The annual dividend is (1855) about 6 per cent.

The Hudson's Bay Company have now about 140 establishments, besides hunting expeditions and shipping, employing 25 chief factors, 28 chief traders, 152 clerks, 1200 regular servants, besides employing in occasional labor, the services of a large number of the natives; a steam vessel and five sailing vessels of from 100 to 300 tons, all armed. Their forts or stockaded positions extend from the coast of Labrador to the Pacific, and from the northern boundaries of Canada to the shores of the Arctic Ocean. At every large trading establishment there is an "Indian Hospital," from which the natives derive the greatest benefit; and several medical men are maintained by the Company at different forts. Ministers of the gospel of every demomination are encouraged and protected by the Company, and a bishop of the Church of England now presides over the diocese of Rupert's Land.

The fur trade is prosecuted in the north-western territories of the United States by an association called the North American Fur Company, of which the chief managers reside at New York. Its principal station is Michilimackinac, to which are brought all the peltries collected at the other ports of the Mississippi, Missouri, and Yellowstone Rivers, and all over the vast range of country extending thence to the Rocky Mountains. This Company is admirably organized and managed: it employs steamboats for ascending the rivers, which also penetrate with ease to regions which could formerly be explored only through the most painful efforts in barges and keel-boats, or by small parties on foot or on horseback. A great many packages of furs are now brought from that section of the country, and from what is called the Red River of the north, by way of St. Paul in Minnesota, and thence by way of river to St. Louis and other cities. It has been proposed to build a railroad from St. Paul up the valley of the Saint Croix to the valley of the Red River; and for this purpose large grants of land have been set aside sufficient to build this railroad. A road once built to this region would make a wonderful and complete revolution in the fur trade.

Fur Skins Imported.—About 5,000,000 skins of animals applicable as furs, are annually imported into

---

* A most interesting account of the North-west Fur Company is given by Washington Irving in his ASTORIA.

Britain. The subjoined table gives the imports and exports of fur-skins in the year 1851:

Animals.	Total imported into England.	Exported.	Consumed in England.
Racoon	525,000	525,000	None.
Beaver	60,000	12,000	48,000
Chinchilla	85,000	30,000	55,000
Bear	9,500	8,000	1,500
Fisher	11,000	11,000	None.
Fox, Red	50,000	50,000	"
" Cross	4,500	4,500	"
" Silver	1,000	1,000	"
" White	1,500	500	1,000
" Gray	20,000	18,000	2,000
Lynx	55,000	50,000	5,000
Marten	120,000	15,000	105,000
Minx	245,000	75,000	170,000
Musquash	1,000,000	150,000	850,000
Otter	17,500	17,500	None.
Seal, Fur	15,000	12,500	2,500
Wolf	15,000	15,000	None.
Marten, Stone and Baum	120,000	5,000	115,000
Squirrel	3,000,000	100,000	2,900,000
Fitch	65,091	28,276	36,815
Kolinkski	53,410	200	53,210
Ermine	187,104	None.	187,104
Rabbit	120,000	"	120,000
Wolverine	1,200	1,200	None.
Skunk	1,200	1,200	"
Sea-Otter	100	100	"

Fur-Skinned Animals.—The northern and arctic regions abound with races of animals, which are thickly covered with fine hair or fur, and whose skins are very beautiful and valuable as articles of clothing. The animals that are captured for their fur, are:—The Russian Sable, *Mustela zibellina.* This rich and beautiful skin has long been esteemed one of the most valuable and useful furs that have been brought to our country. About 25,000 are annually collected in the Russian territories, of which only a small number is imported into England. The fur is brown, with some gray spots on the head. The darker varieties are the most highly valued, a single skin being frequently sold for £9, though the average value does not exceed £2 or £3. Naturalists are not agreed whether to consider the animal from which the skin is procured as a distinct species. Some are of opinion that the Russian Sable, the Stone and Pine Martens, as well as the Hudson's Bay Sable, are but one species, on which the differences of food and climate have produced some slight variations in form and color. To the furrier, however, the Russian Sable is easily distinguishable, from the length and fullness, as well as the darker color of the fur. The use of this choice variety is necessarily limited to the wealthy, on account of its scarcity. In the reign of Henry VIII., by a law which sought to regulate the expenses of the different classes, and to distinguish them by peculiarity of costume, the use of the Sable was confined to the nobility above the rank of viscount.

Marten.—The Hudson's Bay Sable (*Mustela Canadensis*).—The sable skins next in repute to the Russian are those imported by the Hudson's Bay Company, of which no less than 120,000 are annually brought into Great Britain. As the natural color of the skins is much lighter than the prevailing taste, it is the practice to dye many of them a darker color, and the furs thus treated are scarcely inferior to the natural sable. The Baum, or Pine Marten (*Mustela abietum*).—The Sables imported under this name are the produce of Europe. The animal is found in extensive forests remote from the habitations of man, and preying on birds and smaller animals. They are distinguished from the Stone Marten by the yellow color of the throat; other parts of the skin are brown. When dyed, they have a similar appearance to the best sable. The Stone Marten (*Mustela saxorum*).—This Marten is generally found in mountainous and stony places, though a frequent visitor to farm-yards and homesteads. It is generally distributed through most European countries. The under fur is a bluish-white, with the top hairs a dark brown. The throat of this variety is usually of a pure white, by which character it is generally distinguished. The French manufacturers excel in dyeing this fur, from which circumstance it is frequently called French Sable. It is also dyed in this country, the excellent qualities of the skin adapting it to a great variety of purposes to which furs are applied. The Fisher.—There are about 11,000 of these skins annually brought to this country from North America; they are larger than the sables, and the fur is longer and fuller. The tail is long, round, and full, gradually tapering to a point, and quite black; a few years since it formed the common ornament to a national cap worn by the Jew merchants of Poland, and at that time was worth from 6s. to 9s., but its present value does not exceed 6d. to 9d.

Minx.—The Minx (*Mustela vison*).—There were 245,000 skins of this little animal brought to this country in 1850 from the possessions of Hudson's Bay Company and North America. The fur resembles the sable in color, but is considerably shorter and more glossy. It is a very durable and useful fur, and is exported in large quantities to the Continent. The Ermine (*Mustela erminea*).—This animal is similar in form and habit to the common weasel of this country; but in Siberia, Russia, and Norway, from whence the skins are imported, the little animal, during winter, becomes as white as the snowy regions it inhabits, and is esteemed as the whitest fur known, though its summer dress is a dingy brown. The tail of the skin, of which the lower half is jet black, is generally introduced as an ornament to the purely white fur. It is worn on state occasions, and in the reign of Edward III. its use was restricted to the royal family. The Fitch or Polecat (*Mustela putorius*).—These skins are produced throughout Europe, and in no place of better quality than in Great Britain. The ground of the fur is a rich yellow, while the top hair is a jet black. This fur is at present very little used in Great Britain, but is much worn in America. It is very durable, but the natural smell of the fur, which is rather unpleasant, is difficult to counteract. The North American Skunk (*Mephitis Americana*).—The skins known under this name are imported by the Hudson's Bay Company. The animal from which they are taken is allied to the polecat of Europe, and, from the fetor it emits when attacked, which has been known to affect persons with sickness at 100 yards' distance, has received the soubriquet of "l'Enfan du Diable." It has a soft black fur, with two white stripes running from the head to the tail, which is short and bushy. The skins, though imported into England in small numbers, are usually re-exported to the continent of Europe. The Kolinkski (*Mustela Siberica*).—The Kolinkski or Tartar sable is of a bright yellow color, and is sometimes used for ladies' dress in its natural state, but it is more frequently dyed brown to imitate other sable, to which it bears a strong resemblance. It is remarkable for the uniformity of its color, having no spot or difference of shade in any part of the body. The tail, which is of the same color, is exclusively used for the best artists' pencils.

Muskrat.—The Musquash or Muskrat (*Fiber zibethicus*).—The animal known under this name is found in great numbers in North America, frequenting swamps and rivers, and, like the beaver, building its habitations of mud with great ingenuity. Dr. Richardson states, that it has three litters of young in the course of the summer, producing from three to seven at a litter. The animal has a peculiar smell, similar to that of musk; but it must not be mistaken for the animal from which the musk of commerce is procured, which is a native of Thibet. About 1,000,000 skins are brought into England annually; the fur resembles that of the beaver, and is used by hat manufacturers. The skins are also dyed by the furrier, and manufactured into many cheap and useful articles.

Nutria.—The Nutria, or Coypou (*Myopotamus coypus*).—This rodent quadruped is an expert swimmer, and frequents the neighborhood of water, where it lives in burrows; it is smaller than the beaver, and considerably larger than the musquash, but has a resemblance to both these animals in its natural habits, and in the qualities of its fur. Until lately this fur was very much used by hat manufacturers, and as many as 600,000 skins have been annually imported from Buenos Ayres and Chili, in which countries the animal abounds. Owing to the wars that continue to be carried on between the different States of Buenos Ayres, and the consequent withdrawal of the trappers from their accustomed occupations, the importations have fallen to 3000 skins, which are dressed and dyed as a substitute for the costly fur seal. The Hamster (*Cricetus vulgaris*).—About 100,000 of the skins of the hamster are annually collected in central Germany, where the animal abounds; it has a poor, short, and coarse fur, and is almost exclusively used for cloak linings by the Greeks; the color of the back is a reddish brown, the belly black, with a few light spots The animal is about nine inches in length, and lives under ground, forming several apartments for storing grain separate from its own hybernaculum. It is so industrious and provident, that when the peasants go "hamster nesting" in the winter, they possess themselves not only of the skin, but of the valuable store of good grain, which is said frequently to exceed two bushels. The Perwitzky.—The skin of this animal is beautifully marked like tortoise-shell, and is brought from the south-eastern territories of Asiatic Russia; the fur is short, giving little warmth, and is chiefly made into cloak linings and used by the Russians. The Beaver (*Castor Americanus*).—Beaver skins are imported by the Hudson's Bay Company in less quantities than formerly; the use of the fur in our hat manufactories has greatly diminished since the introduction of silk hats, and a considerable depreciation has taken place in their value. This beautiful fur is sometimes used for articles of dress. In order to prepare the skin for this appropriation the coarse hairs are removed, and the surface is very evenly cut by an ingenious machine, somewhat similar to that used in dressing cloth. The fur thus prepared has a beautiful appearance, not unlike the costly South Sea otter, and has the advantage of lightness, with durability and cheapness. The white wool from the under part of the beaver still obtains a high price, and is largely exported to France, where it is manufactured into ladies' bonnets. There is no doubt that the beaver was formerly an inhabitant of the British Isles, and Pennant remarks that two or three waters in the principality of Wales still bear the name of Llyn yr afangc, or the Beavers' Lake.

Otter.—The Otter (*Lutra vulgaris, Lutra Canadensis*).—The large supply of otter skins used by the Russians and Chinese is derived principally from North America. The quality of the fur is, in most respects, similar to the otter of the British Isles, of which there are about 500 skins collected annually. This animal has frequently been tamed, and from its extreme agility in the water, has been rendered serviceable in catching fish for the use of its owner. The American otter is much larger in size than the European, being about five feet from the nose to the tip of the tail; a smaller variety abounds in the East Indies, the fur of which is very short. The Sea Otter (*Endhydra marina*).—The sea otter has a very thick, soft, woolly fur, and is most highly prized by the Russians and Chinese, to whom most of the skins are exported. In its habits it is allied to the seal, but has never been met with in large numbers. It is found in the North Pacific, from Kamschatka to the Yellow Sea on the Asiatic coasts, and from Alaska to California on the American coast. The annual production is about 1000 skins, of which 100 are imported into Great Britain by the Hudson's Bay Company.

Seal (*Phoca*).—There are numerous varieties of these animals, some of which are found on the western coasts of Scotland, Ireland, and Wales. They frequent, in immense numbers, the coasts of Newfoundland, Greenland, and Labrador, and the importations into this country frequently exceed 500,000 in one season. The young seals of some species increase in size with great rapidity, and it is asserted by the seal fishers that they double their bulk in eight days. The greater portion are tanned and enameled with black varnish for ladies' shoes; other descriptions are well adapted for fur, especially the seal of the South Seas and the north-west coast of America. Before they can be used as a fur, it is necessary to remove the very coarse hairs which cover a beautifully fine and silky fur. The roots of these hairs are deeply seated in the substance of the thick pelt, while the fur is strongly attached to the upper surface of the skin. By shaving the pelt to half its natural substance the roots of the coarse hairs are cut through, and they easily fall out; but the same effect is produced by a natural process of fermentation, which ensues when the skins are properly prepared and allowed to remain together. The soft curly fur of the seal is now rarely used in its natural state, but is dyed a deep Vandyke brown, and has the appearance of the richest velvet.

The Fox.—Of foxes' skins brought into England there are many varieties; the black and silver foxes (*Vulpes fulvus*, var. *argentatus*) from the arctic regions are the most valuable. Many of the skins when highly dressed are worth from 10 to 40 guineas. They are purchased for the Russian market, being highly prized in that country. The cross and red foxes (*Vulpes fulvus*) are used by the Russians, Turks, and Greeks for cloak-linings and collars. The blue and white foxes are used in this and other countries for ladies' dresses. The white foxes (*Vulpes lagopus*) are represented by arctic voyagers as exceedingly numerous, and migrating in troops over the frozen seas at the approach of the rigorous season. They are easily caught, fifteen having been taken from one trap in four hours. The Wolverine (*Gulo luscus*).—This animal, which is only met with in North America, Norway, and Sweden, is now generally considered by zoologists as identical with the glutton of old writers. It is extremely mischievous to the fur trader, and will follow the marten-hunter's path round a line of traps extending 40 or 50 miles, merely to come at the baits. The fur is generally dark nut-brown, passing, in the depth of winter, almost into black, and is chiefly used in Germany and other northern countries for cloak-lining.

The Bear (*Ursus*).—There are several descriptions of bear-skins used by the furrier. The skin of the black bear of North America (*Ursus Americanus*) is used in this country for military purposes, for rugs, and carriage hammercloths. In Russia it is frequently manufactured for sleigh coverings, and the skin of the cub bear is highly valued for trimmings and coat-linings. That of the grizzly bear (*Ursus ferox*) is applied to similar uses. That of the white polar bear, of which the supply is very limited, is frequently made into rugs, bordered with the black and grizzly bear skins. The fur of the brown or Isabella bear (*Ursus Isabellinus*) has frequently been very fashionable in this country, when its value has been tenfold the present price. It is still considerably used for various articles of ladies' dress.

The Hare.—The wool or under fur of the European gray hare (*Lepus timidus*) is extensively used for manufacturing felt hats, both in Europe and America. A few of these are dressed for the purpose of being worn as a protection to the chest. The white hare of Russia and the polar regions (*Lepus glacialis*) was formerly much worn in its pure white state as a lining for ladies' cloaks, and as a substitute for the white fox, but the skin being exceedingly tender, its use for this purpose has been discontinued. The white hare is also frequently dyed; it looks exceedingly rich, but is not very durable.

The Rabbit (*Lepus cuniculus*).—The English rabbit, both in its wild and domestic state, affords a very plentiful supply of useful fur. When dressed and dyed in imitation of other skins, it is manufactured into a great variety of cheap and useful articles for the middle classes. The wool has recently been manufactured into a peculiar cloth adapted for ladies' use, but by far the greater number of skins are still used for hatters' purposes. The English silver-gray rabbit was originally a breed peculiar to Lincolnshire, where great attention was paid to it; but warrens have since been formed in various parts of the country. Skins of this variety are continually exported to China and Russia, where they are much esteemed and command a comparatively high price. The Hudson's Bay rabbit is beautiful in the length and texture of its fur, but the skin is so fragile, and the fur so liable to fall off with slight wear, that it has little value as an article of dress. The white Polish rabbit is a breed peculiar to that country; its skin is often made into linings for ladies' cloaks, and being the cheapest and most useful fur for that purpose, the animal is exported in great numbers. The Squirrel (*Sciurus vulgaris*).—This attractive little animal abounds in most countries, especially in Siberia and the north of Europe. It is from the Russian dominions that we derive our principal supply of the skins of this agile creature, which exceeds in number that of any of the fur-producing animals. It is said that 15,000,000 are every year captured in Russia, our supply from thence exceeding 3,000,000 annually. The fur of the squirrel, of which there are several varieties, is light, warm, and durable; some of the lighter colors are dyed in imitation of sable. The color of the Siberian squirrels varies from a pearl-gray to a dark blue-gray; the under parts, which are white, are frequently cut out and made into cloak-linings, remarkable for their lightness; the tails are manufactured into boas for foreign markets; they are also extensively used in the manufacture of artists' pencils.

The Chinchilla (*Chinchilla lanigera*).—There are two chief varieties of chinchilla, the produce of South America: those from Lima are short in the fur, and inferior in quality to those from Buenos Ayres and Arica; the color is a silvery gray, Arica producing the darkest and best-colored skins. The general appearance of the animal places it between the squirrel and the rabbit: in its natural abodes it has the agility of the former, and resembles the rabbit in living in holes and burrows. The extreme softness and delicacy of the fur adapt it only for ladies' use. Though much admired and frequently worn in this country, it is more extensively consumed in France, Germany, and Russia.

The Racoon (*Procyon lotor*).—The racoon is an inhabitant of North America: the skins are imported into this country in immense numbers; but meeting with no demand for our home trade, are exported by merchants who purchase them at the periodical sales. They are used throughout Germany and Russia for lining shubes and coats, and, being of a durable nature and moderate in price, are esteemed among the most useful furs. The Common Badger (*Meles vulgaris*); American Badger (*Meles Labradoria*).—The skin of the European badger, from the wiry nature of its hair, is generally used for the manufacture of superior kinds of shaving brushes; but the skins exported from North America have a soft, fine fur, which renders them suitable for many purposes for which the larger furs are used.

The Cat.—In Holland, the cat (*Felis domesticus*) is bred for its fur: it is fed on fish, and carefully tended until the fur arrives at its greatest perfection; large numbers are also collected in England and many other countries. The wild cat (*Felis catus*) is much larger and longer in its fur, and is met with in extensive forests, particularly in Hungary; the color is brownish-gray, mottled, and spotted with black. The softness and durability of the fur render it very suitable for cloak-linings, and it is also made into wrappers for open carriages and railway traveling. The Canada Lynx (*Felis Canadensis*); Lynx Cat (*Felis rufa*).—The fur of the lynx is long, soft, of a grayish color, and sometimes, as in the Norway lynx, covered with brown spots; the belly is white, silky, and not unfrequently spotted with black. The change of fashion has for some time discarded it from this country; but it is dyed, prepared, and exported in considerable quantities for the American market, where it is much valued and admired. It is generally used for cloaks, linings, and facings, for which purposes it is very appropriate, being exceedingly soft and light.

Preservation of Furs.—The fur of most animals is in its greatest perfection at the approach of winter, and before the animal has attained its greatest age. It is the object of the furrier, by dyeing the inferior skins, to imitate the more perfect specimens. Some difficulty has attended this process, as the nature of the skin will admit of dyes being used only in a cold state; but the method which has been practiced in Paris and London has been so far successful that the permanence of the color in the dyed sable is frequently found of equal durability to that of skins of the natural color. Considerable excellence has been attained also in dyeing rabbit and inferior furs of those colors which are more suitable to the prevailing taste.

The first process of the fur-dresser is to prepare the skins from the raw state, and render them fit for ornamental dress. In this country, the usual practice is to trample them in closed tubs with a little salt butter, turning them over and over for several hours. By this means the skins are made into soft and pliable leather. The next process is to rub them on the flesh side over a blunt iron in order to remove loose pieces of integuments, and to reduce the substance, after which it is necessary to cleanse the fur and skin completely from the grease. For this purpose it is again trampled with saw-dust—usually that from mahogany, which being beaten out and repeated several times, conduces to render the fur glossy and clean, and to fit it for the cutter to fashion into any shape that may be necessary.

Furs are subject to injury by several species of moths, whose instincts lead them to deposit their eggs at the roots of the fine hairs of animals. Linnæus mentions five species that prey upon cloth and furs, of which *Tinea pellionella*, *T. vestionella*, and *T. topetzella* are the most destructive. No sooner is the worm hatched than it eats its way through the fur, and continues increasingly destructive until it arrives at its full growth, and forms itself a silken covering, from which in a short time it again emerges a perfect moth. Another cause of the decay of furs is the moisture to which they are frequently exposed; the delicate structure of the fine under-fur can not be preserved when any dampness is allowed to remain in the skin. This fact is well known to the leather manufacturer, who, having wetted his skins, allows them to remain in a damp cellar for a few days for the purpose of removing the hair, which is pulled out with the greatest facility after remaining only one week in a moist condition. It follows from these observations, that to preserve furs it is necessary to keep them dry, and to protect them from moths; if exposed to damp or rain, they must be dried at a moderate distance from the fire; and when put by for the summer should be combed and beaten with a small cane, and very carefully secured in a dry brown paper or box into which moths can not enter. During the summer they should be examined once a month, to be again beaten and aired, if the situation in which they have been placed be at all damp. With these precautions, the most valuable furs may be preserved uninjured for many years.

Manufacture of Furs for Felting Purposes.—In the manufacturing of furs for the making of hats, the principal kinds of skins used are the hare, rabbit, beaver, and nutria. All these kinds of skins, in the northern parts of Europe, as well as in America, are divided by furriers into two distinct sorts, viz., the *seasoned* and *unseasoned* skins. The former are those which are taken off the animal in winter, when the fur is at its full growth, and in the highest state of perfection as to fineness; the latter are those obtained in spring, summer, and autumn. The fur in the unseasoned skins is short, coarse, and hairy, and is generally not worth more than a third of the value of furs cut off the best-seasoned skins. The mode of manufacturing both descriptions is, however, the same; of which we shall now endeavor to give a brief account.

Hare-skins.—The first mechanical operation performed on the hare-skin, is to open it with a knife down between the middle of the forelegs, taking great care that the skin be not torn; for there is a considerable waste of the fur if this precaution be not attended to. The skin must now be rubbed with what is called a *rake*, which resembles a common dinner-knife, with teeth like a saw. This is used for the purpose clearing away all impurities and dried blood which may happen to be upon the skin. This clearing is of very great importance; for the smallest particle of dirt or blood will greatly injure the fur for felting purposes. The operation requires to be carefully and judiciously performed for another reason. If the workman be not attentive, he will tear up, along with the bloody and dirty parts, a considerable part of the good clean fur, and thus great loss will be incurred.

Hare-skins, after being thus opened and cleaned, must be damped on the pelt side with a little water, and placed under a heavy weight, pelt to pelt, to press them, so that all ridges and inequalities in the pelt may be removed. The skins are now fit for what is called *shearing*. Their outsides are all covered over with a kind of hair, which possesses no felting properties whatever; and this must be taken off with hand shears. These are of two kinds; the one the common shears used for clipping the wool off sheep; the other kind resembles the cutting shears of tailors, only the bowl is made equally large on both sides for the admission of all the fingers. Some furriers prefer one kind of shears, and some another. Those like tailors' shears make the neatest work when skillfully used; but the others require less time for their management. The shearing of the skins forms a very important part of their manufacture; for if one cuts too far down, he will seriously destroy both quality and quantity of the fur, as well as disfigure its appearance. On this account many furriers confine a part of their work-people to this branch of the business alone; for the greater part of the profits of a master depends upon the manner in which the shearing process is performed.

After a hare-skin has been submitted to the process of shearing, it presents an appearance altogether different from what it did before. A novice would not know it to be the same skin. Previously, it was of a uniform brown color; now, it is down the whole of the back of a most beautiful jet black, which gradually becomes fainter as it approaches the sides of the skin. After it undergoes the process of *rounding*, which consists in taking off all the irregular or angular pieces of skin, and making the pelt smooth and even, it is then fit for the cutting-board.

The cutting-boards of furriers are made of the willow-tree, and are commonly about twenty inches wide, and from two to three feet broad. They ought to be moistened with water at short intervals, when used, to make the wood soft, and prevent the edge of the cutting-knife from being taken off too soon. These knives are sometimes made of common sheet-iron, but more frequently of steel, which are to be preferred to the former, on account of keeping their edge longer, and being much lighter for the hand. A fine edge will not cut the fur off the skins; it must be a rough edge, which is obtained from rubbing the knife about every two or three minutes upon a piece of common freestone, of not too fine a grain. These knives are from five to six inches in length and three in breadth, and resemble in some measure those knives used by grocers for the cutting up of cheeses. The skins are all, before cutting, split down the middle of the back into halves. The cutting then commences at the head or cheeks of the skin, and always in the line of direction in which the fur lies. The cutting-knife is run quickly backward and forward against the first joint of the finger across the skin: while at every two or three strokes the hand must be lifted up, to gather in the fur that has been cut, and preserve it in as fleecy a form as possible. Care must be taken against *chopping* the fur; because, when this takes place, the felting principle in all furs is considerably weakened, and in some entirely destroyed.

An important point in the getting up of furs for sale is, to keep them in as unbroken or fleecy consistency as possible. This, abstractly considered, is of no consequence to their felting power; but the practice of the trade as to this matter has arisen from a desire to keep the different kinds of fur from being mixed with one another, and thereby in some degree to prevent adulteration. From this cause the above mode of cutting the hare-skin has been long since much improved by the use of instruments made of tin, against which the cutting-knives run, and which are so contrived as to gather in the whole fur off the largest skin with as much ease as the fur of a calf skin could be gathered by the hand when the knife runs against the fingers. This simple invention preserves all the most valuable parts of the skin in one lump or fleece, and enables the workman to sort the fur with more ease and readiness than before.

Rabbit-skins.—The rabbit-skin is cut in precisely the same manner as that of the hare, only there is a considerable difference in the mode of dressing or preparing the former. The rabbit-skin is covered over on the pelt side with large quantities of grease or fat, from which the hare-skin is comparatively free. This must be removed when the rabbit-skin is first opened. The knife used in opening the skin must be pressed down upon that part of the pelt where the fatty substance is, till it gets beneath the cuticle on which it rests, when the whole of the greasy matter may be removed, and a little whitening rubbed on the spot. If this operation be not well attended to, the grease will get mixed with the fur, and damage it considerably. The rabbit, like the hare skin, is covered over with hair upon the top of the fur; but this hair can not be taken off by shearing, as in the case of the former, but must be removed by *pulling* it out. This is done with a short knife about three inches long, which is held so as to grasp the hair between the thumb and it, which is secured from injury by having a piece of buckskin leather placed over it. The hand of the workman ought to fall lightly upon the skin, otherwise the hair will be cut and the fur pulled out also, which will deteriorate its quality and diminish its quantity very considerably.

Beaver-skins.—The skin of the beaver is manufactured in the same way as that of the rabbit. The fat, however, in the former is much greater in quantity and more firmly imbedded in the pelt than in the latter; and of course greater care and trouble are required to remove it. Fullers' earth mixed with whitening is used to imbibe the fatty particles. The pulling the outside hair off is of great importance. The cutting of the beaver has been for some years performed by machines; the thickness and regularity in the pelt affording facilities for this mode of operation, which the generality of other skins do not.

The fur of the beaver is sorted into three or four different kinds; but that which is cut off the cheek of the skin bears the highest price. White beaver is comparatively scarce, and is much esteemed for fine drab hats.

Nutria-skins.—These are dressed like rabbit-skins, only the hair on the outside of the skins is much stronger than in the rabbit, and requires a sharper knife and greater strength to move it. Nutria-skins are full of fat; and before they are submitted to the pulling process, they must be well washed with soap and boiling water. The skin is laid with the pelt downward, and well scrubbed on the fur side with a brush, till the grease is entirely removed. They must then be well washed in cold spring water, which is extracted from among the fur by a piece of wood made for the purpose. After this they are placed before a stove or hot fire to dry, and are then fit to go through the other manufacturing processes.

Both the beaver and nutria furs, before they are used for hat purposes, must go through the operation of *blowing.* This is done for the purpose of clearing them of those short black hairs which remain among the fur after it is separated from the pelt. A blowing machine consists principally of a cylinder, into which the fur is placed; and by means of a fly-wheel, situated within it, the stuff is thrown up, and the hairs, by reason of their greater specific gravity, fall to the bottom, and leave all the fine fur upon the top. Hare and rabbit furs are also partially used in a blown state for the nap or outside covering of hats.

Though the hare, rabbit, beaver, and nutria furs are the staple articles of hat manufacture, yet there are other furs occasionally used in their stead, or in conjunction with them. These are the furs of the otter, the seal, musquash, and the mole. The otter is fully as fine as the beaver itself; but the principal objection hatters have to its use is, that it does not retain a good black, but acquires a brown or coppery shade. The seal is not so fine as the otter. It finishes dull upon a hat, and, in consequence, is not much used at present. Musquash is a useful fur. The mole is the only skin known to furriers which for felting purposes needs no preparatory dressing before cutting. Its fur is alike fine throughout. But notwithstanding its fineness, it is so very short as to prevent its being extensively used in the hat manufacture.

Within the last century many attempts have been made to apply machinery to the cutting of the various kinds of fur, but, with the exception of the beaver fur, these attempts have hitherto been but partially successful. The great difficulties in the way of machinery for cutting purposes are, the unevenness on the surface, and the inequalities in the thickness of the pelt in different skins. The smallest particles of the fleshy part of the skin getting among the fur will injure it; so much so, that a piece of pelt not larger than a pin's head will destroy the finest hat. This circumstance has greatly increased the difficulty of bringing machinery to bear upon the fur trade. There are, however, at this moment some machines employed in the cutting of hare and rabbit-skins in England; but until they undergo numerous improvements, they are not likely, from the obstacles above adverted to, to realize the expectations of gain at first entertained by those employing them, either in the saving of labor, or in the superior manner in which the fur is manufactured.

Many experiments have also been made to dispense with the usual processes of cutting the different kinds of fur with knives, by applying chemical substances to the pelts, so as to loosen the roots of the fur, and make it leave the pelt upon a slight application of force. Lime has often been tried for this purpose, by using it in the same manner as skinners do in the management of sheep-skins. Some furriers have also tried a partial state of putrefaction; but this, as well as the lime preparation, has proved abortive. The fur obtained off different kinds of skins by such means looks in every respect as well to the eye as if it had been manufactured in the usual manner; but the felting principle is by all such means entirely destroyed.

Carroted Fur.—Sulphuric acid has the property of increasing the felting power of most kinds of fur. When this is applied the fur is called *carroted*, from the color which the acid gives it. The most common kind of fur submitted to this process is that belonging to the rabbit-skin; and it is generally employed in small quantities for the manufacture of all fine stuff hats. Carroted coney wool is made in the following manner:—Mix one part of sulphuric acid with two parts of pure spring water, in a dish of stone-ware; then take and wet the rabbit-skin with a brush all over, making the liquid penetrate as near to the bottom of the fur as possible; care being used, in this process, not to touch the skin with the fingers, lest they be burned, but with a piece of iron hoop doubled so as to resemble a pair of tongs. When the skins are thus wet, they must be placed over a very hot fire to dry; but they must not be placed too near, lest they take fire, which they are very apt to do from the application of the acid. Instead of drying them before the fire in this manner, some run a hatter's finishing iron, heated to a certain degree, over the skins, and allow them to dry gradually in the sun. This is found to be a very good plan. When the skins are dry they ought to be gently beaten with a rod, and moistened on the pelt side with water, previous to their being put under the pressing stone. They are then cut in the usual manner. Skins prepared in this way attract a great quantity of moisture from the atmosphere; and carroted fur always feels to the hand as if partially wet.

The fur off the rabbit-skin improves in its felting capabilities by being kept a moderate length of time after being taken off the skin; but hare fur does not. Great attention ought to be paid by hat manufacturers, who keep considerable stocks of fur on hand, as to the place in which they are deposited. If it be too damp, they will rot; if too dry, they will diminish in weight; therefore a moderately dry and cool place ought to be chosen. The great enemy to all furs is the common moth. This destroys the felting principle. Whenever the slightest appearance in the fur indicates the secure lodgment of this little creature, it ought immediately to be used; or, if this can not be done, it should be taken out of the paper bags, and broken all over with a small switch rod, or, what will answer the purpose still better, a hatter's bow. The same rules apply to the keeping of skins in good condition as to fur. The situation ought to be cool, dry, and well aired. They will seldom keep longer than twelve or eighteen months without running great risk of suffering injury from the moth or black beetle. Too many ought not to be heaped together, and particularly if they be rabbit-skins, because the fat or grease about these skins will get heated, run among the fur, and become of such an acrid nature as to corrode the very pelt itself. It was formerly the practice to keep hare and rabbit skins a long time, under the idea that the fur upon them will increase in length from the moisture left in the pelt. This is an entirely erroneous opinion. Any one who will make the experiment will find that the amount of fur obtained off any given quantity of skins is much greater in weight when manufactured immediately after they are taken off the animal, than after having been kept for six or twelve months.

The qualities of all kinds of furs differ very considerably, from climate and other local circumstances. The best rabbit fur, used for the manufacture of the finest London hats, is commonly considered as the produce of the east coast of England, particularly from Lincolnshire to Berwick inclusively. The rabbit fur is always stronger in the felting principle when got off rabbits bred on the sea-coast, than in those found in inland places, however favorable in other respects these places may be for the rearing of the animals. The skins along the tract of coast already mentioned seem all of the same size and quality. North of Berwick the rabbit-skin becomes smaller, and the fur weaker and shorter; and the further north, along the coast, the more inferior it is found. Hare fur in Great Britain is superior, for hat purposes, to any in the world.

The skins and furs imported by or for our manufacturers are more varied and more numerous, perhaps, than would generally be supposed. When we consider, too, how many countries must be ransacked to produce this variety—the beaver, the bear, the ermine, the otter, the racoon, the chinchilla, the wolf, the fox, the musquash, the sable, the marten, the squirrel, the fitch, the mink, the seal, and others—it will be plain that the commerce in furs must be considerable. In 1850, the squirrel furs imported exceeded 2,000,000; the musquash, 1,000,000; the racoon, 500,000; while the rest made up the total number to nearly 5,000,000—not hides for tanning, be it remembered, but skins imported for the sake of the fur. The beauty of a fur does, most unquestionably, in the eyes of a purchaser, depend largely on the price he pays for it; and this price depends on the scarcity in the supply. Why else should a black-and-silver fox fur command a price of 30 or 40 guineas, or a sea-otter skin still more? It is true that fashion also tends to determine the price; and it seems that the different tastes of different countries curiously illustrate this. Thus, the black-and-silver fox skins are mostly purchased for the Russians and Chinese; the red-fox skins are in demand in the East for cloak linings and dress trimmings; the otter skin is used in the same regions for caps and collars; the beaver fur, now getting out of use for hats, is being made available as a beautiful kind of cloth for dresses; the lynx, now out of fashion in England, is a favorite in America. The wolf yields a coarse fur, which the Russians employ for cloaks and coats. The sable has long been a favorite in England, and when dark in color commands a high price; the minx (the choicest specimens) is said to be now in high favor in Paris; the musquash is largely used in England, it being made to do duty for more costly furs by a little "doctoring;" the fur of the black bear is chiefly appropriated by military men, for caps, holsters, rugs, hammer-cloths, etc.; the sea-otter fur is a royal fur in China, and a noble fur in Russia, and hence commands high prices in those countries.

Most of the furs named in the above paragraph are procured from North America, through the medium of the Hudson's Bay Company; but there are some European furs which command an extravagant price. The Russian sable, for instance, will sometimes sell for as much as 10 guineas a skin; and so many of these are employed to form a lining for a cloak, that such a lining has not unfrequently involved a cost of 1000 guineas. The corporation of London display their sable-furred gowns or robes on official occasions. The fur called French sable is really that of the stone marten, which the French show much skill in dyeing. The ermine or minever, from Russia and Sweden, is one of the most remarkable of furs, naturally as well as socially. Its beautiful and delicate white can only be insured by killing the animal in winter, when all is white except the tip of the tail. In social dignities, the ermine, perhaps, takes the lead of all furs; for, not only in many countries of the Continent, but in less despotic England, there is a sumptuary law or custom respecting the ermine; the sovereign, the royal family, the peers, the peeresses, and the judges, all wear ermine on state occasions; and this ermine is 'powdered' (as the heralds term it) with small black spots or stripes of some other fur; the number and arrangement of the spots and stripes being indicative of the rank of the wearer, and no deviation therefrom being permitted. For the squirrel fur, which is used in larger quantities in England than any other, we are chiefly indebted to Russia. It is cheaper than any other equal to it in appearance; and some of the white portions are admired for their beauty. The fitch, with its strong and durable fibres, has latterly been passing out of favor. The lamb-skin, at a tender age, has all the beauty of fur; and some of the foreign specimens command a high price. The cat-skin is now used largely in England as a fur, greatly to the danger of the domestic "puss" in general. The rabbit is also an extensively used fur; and the white varieties are made to do duty as substitutes for ermine. The little chinchilla yields a soft and delicate fur, much used in England and France. Angora goat-skin was at one time worn extensively as a fur; but it is now more customary to remove the hair or wool, and manufacture it into cloth. Seal-skins, when to be worn as furs, have the long coarse hair removed, and the rich silky down which lies beneath it is dyed of a brownish color.

When these various furs are gathered together from every quarter of the globe, and consigned to the hands of the furriers, they undergo certain processes, which transform them from quadrupeds' attire into bipeds' attire. The "pelt," or under surface, of each fur has to be converted into a kind of leather, by greasing, and pressing, and scraping, and other processes; and the hairy or downy surface has to be dyed and prepared in various ways, to develop all the beauty which naturally belongs to it, and sometimes to impart extraneous beauty to it.

When the light flocculent down from birds is employed as a fur, it requires much patient labor to adjust all the little fibres to their places, since there is no natural "pelt" or skin attached to the down when removed from the animal. As instances of this kind of work, we may adduce the Persian muff and boa lately made from the down of a bird called the egret: their value was 160 guineas. There had been only three similar sets previously made—for the Empress of Russia, the Princess Adelaide and the Duchess de Berrie.

Actual Import into London of Furs and Skins, from September 1, 1850, to September 1, 1851—comprising the entire Collection of the Hudson's Bay Company, and the entire Collection from Canada and the United States (except Shipments made direct from the United States to Germany, and small Lots used for Home Consumption, which can not be ascertained). These entire Imports were sold at Auction in London, in January, March, and September, 1851.

Description of skins.	Hudson's Bay Company.	Canada and United States, chiefly United States.	Total.
Beaver…………	49,635	1,294	50,929
Muskrat…………	194,502	894,200	1,088,702
Otter…………	8,916	3,968	12,884
Fisher…………	6,297	5,016	11,318
Marten…………	64,357	21,150	85,507
Minx…………	21,140	210,120	231,260
Lynx…………	20,338	5,243	25,581
Silver Fox………	527	376	903
Cross " ………	1,980	1,681	3,641
Red " ………	5,561	34,661	40,222
Gray " ………	none.	18,450	18,450
White " ………	899	577	1,476
Kitt " ………	1,603	none.	1,608
Black Bear………	4,826	8,532	8,358
Brown " ………	1,302	15	1,817
Racoon…………	1,808	551,246	553,054
Wolf…………	9,745	20	9,765
Wolverine………	1,428	8	1,431
Wild cat…………	340	10,007	10,347

The *North American Fur Company*, the leading directors of which reside in the city of New York, have long enjoyed the principal part of the Indian trade of the great lakes and the upper Mississippi. But, with the exception of the muskrat, most of the fur-clad animals are exterminated in the vicinity of the lakes. The skins of racoons are of little value; and the beaver is now scarce on this side of the Rocky Mountains.

AN ACCOUNT OF THE QUANTITIES OF THE PRINCIPAL VARIETIES OF FUR IMPORTED INTO GREAT BRITAIN IN 1851, SPECIFYING THE COUNTRIES WHENCE THEY WERE BROUGHT, AND THE QUANTITY FURNISHED BY EACH COUNTRY.

Countries.	Beaver.	Ermine.	Fitch.	Goat.	Kid.	Lamb.	Marten & Marten tails.	Minx.	Musquash.	Racoon.	Seal.	Sheep.	Squirrel.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Russia	....	138,218	11,570	....	....	5	10,510	....	....	....	12,769	114	2,848,628
Norway	....	....	....	14,148	431	....	32	....	....	....	5,888	806	....
Denmark	....	....	....	15	....	459	....	....	....	2,005	39,801	15	....
Hanseatic Towns	43	91,430	35,234	15,737	175	53,695	96,616	5,355	40,598	2,902	87,992	1,718	1,729,654
Holland	....	....	3,784	161,378	506	500	....	....	....	....	7,223	8,390	....
Belgium	....	....	7,988	7,268	16,019	....	1,205	....	....	....	48	38	....
France	....	....	7,373	35,478	517,752	54,388	15,805	141	13,365	....	....	20,230	48
Italy	....	....	....	200	27,194	1,272,368	....	....	....	....	....	2,824	....
Turkish Dominions	1	....	....	88	2,197	158,214	2,040	....	....	....	....	16,542	....
Morocco	....	....	....	7,850	....	....	....	....	....	....	....	18,238	....
British S. Africa	....	....	....	118,556	....	....	....	....	....	....	4,488	226,577	....
Brit Ter. in E. I.	....	....	....	334,031	52,430	961	....	....	....	....	....	324,574	4
British N. Amer.	59,692	819	....	28	....	2	86,249	25,822	823,321	2,754	198,669	....	4,141
United States	184	13	....	59,759	....	....	7,496	160,408	1,163,979	457,671	1,928	....	....
Rio de la Plata	....	....	....	...	....	55,474	....	....	....	1	12,008	75,228	....
Greenland and Davis's Straits	....	....	....	....	....	....	....	....	....	....	97,325	....	....
Other parts	39	....	....	85,924	....	4,048	116	3		7	2,117	45,915	144
Total	59,959	230,480	65,899	789,955	616,704	1,600,109	220,069	191,729	1,541,268	465,340	769,756	736,204	4,582,619

The Fur Trade in Minnesota.—Four or five years ago the fur trade was the paramount commercial and industrial interest of the Territory. Two or three years further back, and it was not only the paramount but the sole business interest. The population of the Territory was composed almost entirely of its employers and attachés. St. Paul derived its whole importance (a small importance then) from being the dépôt of the Winnebago and Chippewa outfits; while Mendota, the seat of the Sioux outfit, gave laws to the immense region occupied by the Dakotas and chains of trading-posts as far as Lac qui Parle on the Minnesota; and Pembina, on the Red River, held the whole country like a dependent child at the feet of the magnates of the principal agencies of Pierre Choteau, Jr., & Co. The profits of the fur trade even then had begun to decline. The influx of a white population consequent upon the establishment of a Territorial government—the increase of competition in the Indian trade, concurring with the gradual decrease of its products, and causes that lay beyond these, and that have been gradually but surely promoting the decline of the western fur trade in general—all contributed to weaken the efficiency of the Fur Company's organization in our Territory, and to render it undesirable to maintain its expensive establishments any longer than was sufficient for settling its affairs. It has accordingly had no practical existence since the consummation of the Sioux treaty in 1852, from which the traders received a parting token of several hundred thousand dollars in payment of the accumulated back debts of some thirty years. Since then the trade has been carried on entirely by private individuals, foremost among whom, however, are some of the old traders. Two houses alone, Messrs. Forbes & Kittson, and Messrs. Culver & Farrington, are connected at this time with the fur trade in this city. The disorganization of the Indian trade on the Minnesota River, and the diversion of the Indians from hunting, by the pernicious system of annuities, has vastly diminished the productiveness of the fur trade on the Minnesota River.

The trade is almost entirely limited at present to the Pembina or Red River regions, and around the head waters of the Mississippi. The buffalo robes come almost entirely from this source, the buffalo ranges being restricted to the region north of the Cheyenne, and west of the James River. The Minnesota River country has fallen off in buffaloes very considerably—the whole receipts for export from that region not amounting to more than 1200 robes. This does not include, however, the large numbers reserved for home consumption. The table given below, for which we are indebted to N. W. Kittson, Esq., exhibits the total exports of furs from St. Paul for the present year: 64,292 rats, $11,572 56; 8276 minx, $18,621; 1428 marten, $3,570; 1045 fishers, $4702 50; 876 red foxes, $1095; 3400 coons, $2550; 10 wolverines, $25; 364 badgers, $91; 2,032 wolves, $3048; 405 otters, $1417 50; 586 beaver (pounds), $882; 2542 kit foxes, $1271; 610 bear-skins, $6700; 20 cross fox, $100; 8 silver fox, $400; 50 lynx, $125; 7500 robes, $41,200. Total, $96,750 50. A notable feature of the fur trade for the several years past, is the gradual but sure decline of its productiveness—corresponding with a growing demand in Europe and our own country for furs. Each of these causes has assisted the other to enhance the price of furs—and they have grown expensive—and all these causes concurred to advance prices last year to a sum they never before reached in the American market. Nevertheless it will not do to calculate too surely on last year's prices for the products of the present year, as the consumption of furs is, after all, entirely dependent on the evanescent caprices of fashion.

Before closing this article, we will devote a few lines to the character of the men engaged in the fur trade. The character of the hunters and trappers engaged in the fur trade throughout the extreme northwest is peculiar and original. The trade is not carried on now, as in former times, by means of batteaux and canoes, which, under the old French and English systems, enlivened the rivers and lakes of our old Northwestern Territory. The fur-bearing animals have been driven from a great portion of their borders by the advance of emigration, and their shores have become, to a great extent, the sites of substantial farm-houses and prosperous settlements. The canoe has given place to the steamboat, the trading-post to the city. The great bulk of the trade has been transferred to the region of the mountains, whose wild recesses contain no lakes where they can disport their canoes, no streams which can float their furs to market. These traders and trappers transport their goods or furs upon pack-horses, or carry them on their own backs to a navigable stream. They move from place to place on horseback, sometimes conveying their traps upon their shoulders through deep ravines, up steep precipices, inaccessible to the horse, in search of places which contain their favorite game. The life of the trapper becomes a scene of toil and privation, and yet of passionate excitement. His views are exaggerated, his habits unsettled, his sentiments, generally, noble and generous, like those of a sailor, for the causes which act upon him are similar in their character; and, like the sailor, he is nowhere contented except when leading his life of danger and excitement. Such is the life and character of the active agents of the fur trade, the sturdy hunters and trappers of the north-west. See HUNT'S *Mer. Mag.*, iii., 185 (J. H. LANMAN), iii., 252 (H. MURRAY), xiv., 532 (W. STURGIS); *Journal of Science*, xxv., 311; *Edin. Rev.*, i., 142.

Fur-skin Dressing. Fur-skins are usually dressed by placing them in their dried state in tubs, where they undergo a treading operation with men's feet, until they are sufficiently soft and bend easily. The skins, if large, are sewn up, the fur being turned inward; but if small skins, such as ermine, are being dressed, they require no sewing. This sewing is preparatory to the greasing with butter or lard, and is intended to protect the fur from the grease, and to promote the softening in the succeeding treading operation. The skins are next wetted, and their flesh is removed; or they are fleshed and then hung up to dry. They are again subjected to treading in tubs containing sawdust, and afterward in tubs containing plaster of Paris, or whitening, sprinkled between the skins. They are then beaten with a stick and combed: when the dressing is completed. M. Pierre Thirion proposes, in his patent of June, 1845, to soften the skins, not by treading, but by beating-stocks, of a construction like the fulling-mill. They are next sewn up, and again fulled in a strong vessel, where they are forced upward by the beaters, turned over and over, and thus speedily softened. They are now fleshed, and then returned to the beating-stocks, and mahogany or other sawdust is sprinkled upon the fur, before the beating is renewed. They are next placed in a heated barrel, furnished within with radial pins for turning the goods over and over, in order that they may be acted upon by various dry substances, which are thrown into the barrel, and absorb the fat from the skins. Through the hollow shaft of the barrel, steam is introduced, which heats the skins, softening the fat, which is then absorbed by sand, flour, or any other desiccative powder. It is proper to take the skins out of the barrel from time to time to comb them. Such as have been sufficiently acted upon may then be set aside. They are lastly freed from the dust by being subjected to a grated cylinder in a state of rotation, and then combed by hand.

Fusel Oil is the German name of the offensive smelling oil which exists in alcohol, as distilled from the fermented infusions of malt, and corn meal of all kinds, as also from the fermented wash of potatoes, and of beets, etc. A like oil occurs in the alcohol distilled from the fermented must of grapes, and the juices of many sweet fruits. This oil is not, however, identical from these several sources; as may indeed be inferred from the diversity in the flavors of the different liquors. But they all agree in being somewhat less volatile than water, and therefore make their appearance chiefly in the spirits toward the end of the distillation process. It is to the presence of this oil that the milkiness of the last, and also sometimes of the first, portions of the spirit that come over, called feints, owe their opalescence and their penetrating odor. When the milky fluid is redistilled, alcohol and water first pass over with very little oil, but if the heat of the still be moderate, the oil may be made a residuum, and obtained in a tolerably concentrated state.

Fustian (Ger. *Barchent;* Du. *Fustein;* Fr. *Futaine;* It. *Fustagno*, *Frustagno;* Sp. *Fustan;* Rus. *Bumasea;* Pol. *Barchan*) is a species of coarse, thick tweeled cotton, and is generally dyed of an olive, leaden, or other dark color. Besides the common fustian, which is known by the name of pillow (probably pilaw), the cotton stuffs called corduroy, velverett, velveteen, thicksett, used for men's wearing apparel, belong to the same fabric. The commonest kind is merely a tweel of four, or sometimes five leaves, of a very close stout texture, and very narrow, seldom exceeding 17 or 18 inches in breadth. It is cut from the loom in half pieces, or ends, as they are usually termed, about 35 yards long, and after undergoing the subsequent operations of dyeing, dressing, and folding, is ready for the market.

Of velvet, there are properly only two kinds, that with a plain, and that with a tweeled, or, as it is here called, a Genoa ground, or back. When the material is silk, it is called velvet; when cotton, velveteen; and this is the sole difference. In the same way a common tweeled cloth, when composed of silk is called satin; when of cotton, fustian or jean; of woolen, plaiding, serge, or kerseymere; and in the linen trade is distinguished by a variety of names according to the quality or fineness, or the place where the article is manufactured.

Fustic (Ger. *Gelbholz, Fustic;* Du. *Geelhout;* Fr. *Bois jaune de Brésil;* It. *Legno giallo de Brasilio;* Sp. *Palo del Brasilamarillo*), the wood of a species of mulberry (*Morus tinctoria*), growing in most parts of South America, in the United States, and the West India Islands.

It is a large and handsome tree; and the timber, though, like most other dye-woods, brittle, or, at least, easily splintered, is hard and strong. It is very extensively used as an ingredient in the dyeing of yellow, and is largely imported for that purpose. Of 10,800 tons of fustic imported into Great Britain in 1850, 3395 tons were brought from New Granada, 2076 from the British West Indies, 1639 from Cuba, 945 from the United States, 750 from Mexico, and 669 from Brazil. Fustic from Cuba fetches full 30 per cent. more in the London market than that of Jamaica or Colombia. At present the price of the former varies from £9 to £9 10s. a ton, while the latter varies from £5 5s. to £6 a ton. The consumption amounts to about 6,000 tons a year. The duty on fustic was abolished in 1845.

Zante, or *young* fustic, is really a species of sumach (*Rhus cotinus*, Lin.), and is quite distinct from the *Morus tinctoria*, or *old* fustic; the latter being a large American tree, while the former is a small European shrub. It grows in Italy and the south of France, but is principally exported from the Ionian Islands and Patras in the Morea. It imparts a beautiful bright yellow dye to cottons, etc., which, when proper mordants are used, is very permanent. It is conveniently stowed among a cargo of dry goods, as it may be cut into pieces of any length without injury. Only a small quantity of this species of sumach is imported. Its price fluctuates considerably.—*Trees of America.*

There are several kinds of fustic-trees which might be formed into a peculiar group, from their baccate seeds. The tree fustic of dyers (*Morus tinctoria*) is a large tree 60 feet in height, bearing sweet, edible fruit about the size of a nutmeg, and is a native of Central America, Yucatan, Cuba, Jamaica, etc. The whole plant abounds in a slightly glutinous milk, of a sulphureous color. The wood is yellow, and is much used in dyeing, for which purpose it is chiefly imported into Europe and the United States, under the name of *fustic-wood.* There is a variety of this species, called *Bastard Fustic*, a tree smaller in stature, and less valuable as a dye, and is found from Yucatan to the southern parts of Florida and the Bahama Islands.—BROWNE'S *Trees of America*, p. 460.

Futtocks, in a ship, the timbers raised over the keel, or the encompassing timbers which form her breadth and capacity. *Futtock plates* are iron plates crossing the sides of the top-rim perpendicularly. The dead eyes of the topmast rigging are fitted to their upper ends, and the futtock shrouds to their lower ends.—DANA'S *Seaman's Manual.*

G.

Gaff, in nautical language, a spar to which the head of a fore-and-aft sail is bent. *Gaff-topsail*, a small sail set over a gaff, which serves to spread the foot of the sail.

Gage, a pledge or pawn given by way of security. II. Gage, a challenge to combat; that is, a gauntlet, glove, cap, or the like, cast on the ground by the challenger, and taken up by the accepter of the challenge. III. Gage, in nautical language, the depth of water a vessel draws, *i. e.*, the number of feet she sinks in the water. In a different sense, when a ship is to windward of another, she is said to have the *weather-gage* of such vessel. IV. Gage, among letter-founders, a piece of hard wood variously notched, used to adjust the dimensions, slopes, etc., of the different sorts of letters. In joinery it denotes an instrument to strike a line parallel to the straight side of a board. *Sliding-gage*, among mathematical instrument-makers, a tool for measuring and setting off distances. V. The term *gage*, implying *measure*, as of depth, height, force, quantity, etc., is frequently used in composition to denote particular kinds of instruments; as, sea-gage, tide-gage, wind-gage, rain-gage, etc.

Galacz, or **Galatz**, a town of Moldavia, on the left bank of the Danube, between the confluence of the Sereth and Pruth with that river. Lat. 45° 25′ N.; long. 28° E. It is ill-built and dirty, though in these respects it has latterly been much improved. Population supposed to amount to 25,000. The trade of the town is chiefly carried on by Greek merchants; but, within the last few years, various English and other foreigners have formed establishments in it. Though at a considerable distance inland, Galacz is in the best position for becoming the port of the Danube. At present, however, it is little more than the port of Moldavia, Ibraila, or Brahilow, about 12 miles further inland, being the port of Wallachia. The commercial importance of these ports, and indeed of the Danube, dates only from the treaty of Adrianople in 1829. Previous to that epoch the trade of the principalities labored under the most oppressive restrictions, and was principally carried on by land. But all articles of native produce may now be freely exported either by sea or land, on paying moderate duties; and the duties on imports are also, for the most part, comparatively moderate. The probability, indeed, seems to be that Galacz, "the Alexandria," as it has been called, "of the Scythian Nile," will at no very distant period become a first-rate emporium. The rescuing of Moldavia and Wallachia from Turkish misgovernment has been of signal advantage; and it is to be hoped that they may never again be subjected to its paralyzing influence. The establishment of a regular intercourse by means of steam packets between Vienna and Galacz, and thence by the Black Sea, with Constantinople and Trebizond, has already done a great deal, and will every day do more, to introduce a spirit of improvement into the vast and fertile, but long neglected, countries traversed by the Danube in the lower part of its course. The capacities of this great river as a commercial highway are certainly unequaled by those of any other European stream; and their full development would be of immeasurable advantage, not merely to the countries on its banks, but to all commercial nations.

Exports and Imports.—Moldavia and Wallachia are very productive provinces, being fruitful both of corn and cattle. The high prices of corn in France, Italy, and England, in 1846 and 1847, gave an extraordinary stimulus to the export trade of Galacz and Ibraila. The exports of wheat from both ports, in 1847, amounted to no fewer than 570,978 quarters, worth on board ship, £875,603; the exports of Indian corn during the same years, were 937,720 quarters, worth £1,172,150; and among the other exports were about 320,000 quarters of barley, and 42,000 cwt. of tallow, with a variety of inferior articles. The total value of the exports from the two ports during the above year, amounted to the very large sum of £2,368,472, of which about two thirds were from Ibraila. The quality of the wheat, which is partly hard and partly soft, was, a few years ago, very inferior, being generally damp, and having an earthy smell from its being kept in pits dug in the ground. Latterly, however, it has been much improved; and the finer samples now fetch, in Marseilles, Genoa, and Leghorn, within from 3 to 4 per cent. of the price of Odessa wheat. In 1852, we imported 86,140 quarters of Wallachian and Moldavian wheat, with no fewer than 626,714 do. Indian corn. Both provinces fatten large herds of cattle, particularly Moldavia, which annually sends great numbers to the Austrian States. Tallow may be had in large quantities, its annual produce, in Wallachia only, being estimated at about 3,000,000 okes, or 8,500,000 pounds. Until within these few years, the tallow shipped at Galacz was burdened with a heavy export duty, which checked its sale, and consequently, also, its growth. Happily, however, that duty is now reduced to 3 per cent., and the exportation is rapidly increasing. The quality of the Danubian tallow is excellent. Among the other articles of exports are wool, timber, hides, and skins, lard, butter, bristles, bones, jerked beef, linseed, barilla, yellow-berries, coarse cheese, etc. Timber of the finest quality may be had in any quantity; but as it can only be advantageously exported in large ships, which can not when laden make their way over the bar, the trade in it has hitherto been confined within comparatively narrow limits. One, however, would be disposed to think that this difficulty might be obviated by sending down the timber in rafts and loading outside the bar. Notwithstanding the recent period at which the navigation of the Danube has been opened, and the barbarous state of the countries in the lower part of its course, the value of the exports from Galacz and Ibraila probably in 1853 exceeded £1,800,000 a year, of which from £750,000 to £800,000 may be from the former. But, considerable as this is, it is nothing to what it certainly would be were civilization to make any considerable progress in the countries traversed by the Danube after it leaves the Austrian dominions, and still more were the river to become, as it naturally is, the principal channel for the conveyance of products to and from Hungary and Transylvania. The great articles of import are manufactured cotton goods, and cotton twist, principally from England, the demand for which is rapidly increasing; with sugar, coffee, and other colonial products; olives and olive-oil, iron and steel, hardware, etc,

Entrance to Galacz.—Of the three principal mouths of the river, the Soulineh (middle) mouth, in latitude 45° 10′ 30″ N., long. 29° 41′ 20″ E., is the only one accessible by vessels of considerable burden. The depth of water on the bar, at its entrance, half a mile from the shore, varies from 10 to 13 and 14 feet, according to the season of the year, and the direction of the wind. When the latter blows from the east, it is opposed by the current of water flowing from the west, so that the bar is rapidly increased by the deposit thereon of the mud brought down by the river; and when, on the contrary, the current and the wind coincide, the mud is carried out into the sea, and the depth of water on the bar is progressively augmented. The assistance of a powerful dredging-machine, or machine fitted to stir up the mud, or other deposit forming the bar during the prevalence of westerly winds, would be of great importance; and it is believed that with its agency the channel might be very materially deepened. Great complaints have been made of the state of the navigation of the Danube during the present year (1853). It appears to have been occasioned partly by difficulties arising out of the disputes between Russia and Turkey, and partly by the prevalence of easterly winds. But it would be easy, by erecting a light-house, to mark the entrance to the river, and employing a dredging-machine and steam-tugs, to obviate the physical obstructions to the navigation. From the bar to Galacz and Ibraila, there is nowhere less than 18 feet of water, and in many places from 60 to 70. Vessels of 300 tons lie close to the quays at Galacz. The shores at the mouth of the river being low and bordered with reeds and shoals, vessels intending to enter the river generally make the small rocky islet of Phidonisi, or Serpent's Isle, in lat. 45° 15′ 15″ N., long. 30° 10′ 30″ E., whence the Soulineh mouth bears west by south, distance 23 miles. According to Mr. Cunningham, the first objects seen, on nearing the shore, are the masts of vessels in the river and the houses in the town of Soulineh, which, however, are very low. Hagemeister says that there is a wooden tower on the south shore at the entrance to the river; but though the contrary has been often affirmed, and its position given in Arrowsmith's map, there is certainly no light-house. When a ship approaches the entrance, a boat from the Russian captain of the port goes off, and by waving a red flag indicates the course to be kept. Lighters are generally stationed without the bar, into which large ships discharge a part of their cargoes; and pilots may generally be obtained from them or other vessels. As the current is sometimes very strong, and difficult to stem, a proper establishment of steam-tugs at the mouth of the river would be a great advantage. An E.S.E. wind carries a vessel from Soulineh to Galacz through all the different reaches of the river; but otherwise the navigation is difficult, and towing is in parts necessary.

Frost usually sets in on the Danube in the month of December, and continues till the month of March; in 1833, however, there was no frost. Freights in the ports of the Danube are always from 20 to 25 per cent. higher than in Odessa; premiums of insurance, on the contrary, are not higher than at the latter, except on such vessels as, on account of their size, are obliged to discharge outside the bar.

Money, Weights, and Measures.—These are mostly the same as at Constantinople, which see. Accounts are kept in piastres and paras. 1 piastre=40 paras.

Galacz.—Ducat blanc=pia. 44. Silver ruble=15 pia. Spanish dollar=19 pia. 32 paras. Turkish yermelik, old coinage=19 pia. 32 paras; Turkish yermelik, new coinage=17 pia. 15 paras. Austrian swanzikers =3 pia. 5 paras. It is to be observed that when exchanges are so high that it is requisite to remit in specie, any of these coins may go to a premium, according as it suits better than others for the remittance; and just now, owing to the want of bills to remit to Austria, the ducat blanc=44 pia. 20 paras.

Ibraila has two rates of currency; the one for charges, which is the same as in Galacz, and the other for the purchase of merchandise, as follows:—Ducat blanc=32 pia.; Spanish dollar=14½ pia.; Turkish yermelik, old coinage=11½ pia.; Turkish yermelik, new coinage=12 pia. 28 paras; swanziker=2 pia. 12 paras. *Note.*—The same as in Galacz, any of these coins may go to a premium.

Galacz and Ibraila.—All duties are paid in both places, in the course of the Treasury, as follows:—Ducat blanc=31½ pia.; silver ruble=10½ pia.; Spanish dollar=14 pia.; Turkish yermelik, old=14 pia.; swanziker=2¼ pia.

The ducat blanc weighs 1 Turkish drachm.

Exchanges.—Bills can generally be sold on the following places, and the present (1842) rates are as noted: it must be observed, however, that these rates are very high; and when a great deal of paper is offering, they may go 4 per cent. lower.

		Pias.	Paras.	
Vienna.........	3 m. f. date..	9	16	per florin.
Trieste.........	" ..	9	13	" florin.
Marseilles......	" ..	3	26	" franc.
Genoa.........	" ..	3	26	" franc.
Leghorn........	" ..	3	4	" lira.
London........	" ..	90	20	" pound sterl.
Odessa.........	10 d. f. st.....	420	00	" 100 roubles.
Constantinople.	11 "	119	00	" 100 of Galacz

Weights.—Galacz and Ibraila. 400 drams=1 oke. 44 okes=1 cantar.

Measures.—Galacz and Ibraila. 20 banniza=1 kilo. 3 kilo of Galacz=2 kilo of Ibraila.

Correspondence of Weights and Measures of Galacz with those of foreign Places.

39¼	okes.............	=	1	cwt. English.
78	"	=	100	kilogrammes.
44	"	=	100	fund of Vienna.
12¾	"	=	1	pud of Russia.
100	kilo of Galacz....	=	150	Imperial quarters.
100	"	=	435	hectolitres.
100	"	=	425	stajo of Venice.
100	"	=	600	sacks of Leghorn.
100	"	=	280	chetwerts of Odessa.
160	okes linseed......	=	1	Imperial quarter.
55	"	=	1	hectolitre.
115	"	=	1	chetwert.
1	kilo of Brahilow..	=	2¼	Imperial quarters.

Note.—These measures generally measure out somewhat less.

Note of Exports from Galacz by Sea in 1851, in English Weights and Measures, and Value of the same in Sterling Money, free on Board.

Articles.		Quantity.	Value.
Wheat...............	quarters	134,474	£141,198
Indian corn..........	"	350,682	280,545
Rye..................	"	71,024	49,716
Tallow and chervice......	cwt.	4,349	7,393
Ox hides...............	pieces.	1,547	773
Wine.................	gallons.	86,400	2,880
Planks and deals.......	pieces.	429,515	7,158
Masts and spars..........	rafts.	5	3,500
Sundries.................................			3,205
Total............................			£496,368

Destination of Vessels departing loaded from Galacz, and Cargoes of same, in 1851.

Destination.	No. of vessels	Wheat.	Indian corn.	Rye.	Tallow.
		Qrs.	Qrs.	Qrs.	Cwts.
Constantinople.	176	44,984	20,407	6,205	2,424
Trieste&Venice	87	23,281	26,077	37,682	....
Ionian Islands..	5	14	4,332	....	....
Leghorn, Genoa and Marseilles	35	30,427	3,316	840	....
England.......	296	35,368	295,200	15,664	1,925
North of Europe	14	....	1,350	10,633	....
Odessa.........	6	....	....	....	.. .
Total......	619	134,074	350,682	71,024	4,349

Note of Exports from Ibraila by Sea in 1851, in English Weights and Measures, and Value of the same in Sterling Money, free on Board.

Merchandise.		Quantity.	Value.
Wheat..................	quarters	283,106	£254,795
Indian corn..............	"	646,617	404,136
Barley..................	"	105,597	52,799
Wool......................	lbs.	129,896	4,330
Tallow and chervice.........	cwt.	30,038	45,057
Butter, or mantecca.........	"	428	856
Cheese, or caskaval.........	"	1,164	758
Staves......................	pieces	550,039	9,167
Bone-ash......................	tons	705	2,291
Sundries......................		....	8,968
Total......................		....	778,157

Port Charges.—In Galacz anchorage is 30 pia., and a guardian for 5 days' observation, 5 pia. per day. In Ibraila anchorage is 17½ pia., and guardian for 5 days' observation, 5 pia. per day.

Quarantine.—Vessels generally remain in quarantine during their stay, as little or no advantage is gained by taking pratique.

Vessels wishing to take pratique may obtain it in 14 to 21 days according to the state of health in Turkey, by taking a Health Office guard on board; or the captain alone may take pratique, the same as any passenger, by going into the lazzaret. During the last year, as the health was good in Constantinople and along the Danube, the quarantine was only seven days.

DESTINATION OF VESSELS DEPARTING LOADED FROM IBRAILA, AND CARGOES OF THE SAME, IN 1851.

Destination.	No. of Vessels.	Wheat.	Indian corn.	Barley.
		Qrs.	Qrs.	Qrs.
Constantinople,	490	108,144	181,330	104,569
Trieste and Venice	188	34,108	172,105	1,028
Ionian Islands	16	13,273	1,397	....
Leghorn, Genoa, and Marseilles	35	26,993	4,903	....
England	320	100,593	286,882	....
Total	1,049	283,106	646,617	105,597

The total number of vessels departing from Galacz and Ibraila in 1851 was, 1,668, with an aggregate tonnage of 300,845. Of these, 534 were Greek, with an aggregate tonnage of 112,438; 352 were Turkish, with an aggregate tonnage of 50,234; and 304 vessels were English, with an aggregate tonnage of 55,625. There was one vessel from Buenos Ayres.

The export of grain constitutes the leading commercial movement of the port of Galacz. The following table exhibits the grain export trade of the ports of Galacz and Ibraila, during three consecutive years:

Grains.	1849.	1850.	1851.
	Quarters.	Quarters.	Quarters.
FROM GALATZ.			
Wheat	173,797	140,652	134,474
Indian corn	258,763	122,875	350,682
Rye	60,617	52,776	71,024
Total	493,177	316,303	556,180
FROM IBRAILA.			
Wheat	117,436	283,290	283,106
Indian corn	335,532	149,732	646,617
Rye	72,936	44,594	105,597
Total	525,904	577,616	1,035,320

The ports to which these vast quantities of grain are shipped, will be seen from the following return of the export trade during the same years:

YEARS.	CONSTANTINOPLE.		TRIESTE AND VENICE.		MARSEILLES, GENOA, & LEGHORN.		GREAT BRITAIN.	
	No. of vessels.	Quarters.	No. of vessels.	Quarters.	No. of vessels.	Quarters.	No. of vessels.	Quarters.
1843	492	329,022	187	175,515	160	117,280	230	264,591
1849	620	404,315	126	130,976	101	71,556	297	389,774
1850	447	294,507	104	111,026	70	60,006	253	315,019
1851	666	465,739	275	294,376	70	66,479	606	623,707

The port of Galacz is the outlet for the produce of Wallachia and Moldavia. And its imports in 1850 amounted to $2,175,000, its exports, consisting of grain, tallow, preserved meat, wine, and linseed, reach, annually, about $3,877,660. How far American interests might be promoted in the foreign trade of the Danubian and other ports of the Turkish dominions, may be gathered from the following table, exhibiting the articles of foreign and colonial produce exported to Turkey in the year 1851. The table includes, also, the imports into Wallachia, Moldavia, Syria, Palestine, and Egypt:

Description of merchandise.		Quantities.
Peruvian bark	cwts.	50
Cassia lignea	pounds	17,620
Cloves	"	39,108
Cochineal	cwts.	1,946
Cocoa	pounds	2,908
Coffee	"	620,502
Ginger	cwts.	97
Gum shellac	"	15
Indigo	"	5,927
Iron	"	61
Cotton manufactures	(value)	$4,210
Logwood	tons	76
Nutmegs	pounds	3,621
Opium	"	5,406
Pepper	"	473,504
Pimento	cwts.	720
Quicksilver	pounds	420
Rhubarb	"	1,236
Rice	cwts.	5,049
Silk	pounds	1,246
Taffeties	pieces	6,978
Spirits	gallons	66,961
Sugar	cwts.	5,301
Tea	pounds	197,485
Tobacco	"	159,022
Wine	gallons	5,785
Wool	pounds	4,511

Duties.—An *ad valorem* duty of 3 per cent. is levied on all articles, except provisions, imported into, or exported from, the principalities of Moldavia and Wallachia. Government reserves to itself the power of prohibiting the exportation of any article, but it has to give a month's previous notice of any such prohibition.

Galacz is a free port; that is, a port at which all commodities may be landed, warehoused, re-exported, and consumed in the town, free of duty. Quarantine regulations are strictly enforced, unless performed previously to entering the river.

Ismail and Reni, ports of the Russian province of Bessarabia, are situated on the Danube, and are both, but especially Ismail, a good deal nearer its mouth than Galacz; but they are much less considerable in point of commercial importance. Having little importation, their trade is confined almost entirely to the exportation of corn, and even in this respect they are very inferior to Galacz and Brahilow. They are subject to the Russian duties and regulations. We have gleaned these particulars from a variety of works, but principally from the valuable *Report* by Mr. Cunningham, now vice-consul at Brahilow, printed at Galacz in 1841; the work of Hagemeister, *On the Commerce of the Black Sea*, Eng. trans. pp. 83–95, etc.; *Purday's Sailing Directions to the Black Sea*, p. 193, etc.

ACCOUNT OF THE QUANTITIES AND VALUES OF THE PRINCIPAL ARTICLES IMPORTED INTO AND EXPORTED FROM VARNA IN 1847.

Articles.	Quantities.	Value in £ sterling.
IMPORTS.		
Almonds ... cwts	24	60
Carobs ... "	10,808	6,000
Coffee ... "	14,263	30,000
Cotton twist ... packets	130,000	32,000
Cloths, woolen ... bales	200	10,000
Cloths, cotton ... "	200	7,000
Figs ... cwts	3,000	2,400
Iron ... tons	500	7,000
Olive oil ... cwts	2,107	5,057
Olives ... "	3,000	2,400
Pepper and other spices ... pounds	14,500	1,612
Raisins ... cwts	10,535	6,322
Sugar ... "	5,266	11,585
Soap ... "	1,875	4,125
Salt ... tons	923	1,800
Tin (in bars) ... bands	727	2,000
Spirits ... gallons	500,000	75,000
Miscellaneous	....	10,000
Total	....	£214,361
EXPORTS.		
Wheat ... quarters	377,500	£471,000
Barley ... "	10,000	5,000
Hides ... number	100,000	84,456
Tallow ... cwts	92,714	176,800
Butter ... "	9,482	21,816
Cheese ... "	24,000	63,636
Walnuts ... bushels	10,000	1,000
Wool ... pounds	112,000	2,000
Dried beef or pasturma ... cwts.	56,817	25,000
Miscellaneous, including poultry and eggs	....	25,000
Total	....	£875,708

The port of Varna is situated on the W. coast of the Black Sea, at the bottom of a rather small bay, about 3 miles N.W. Cape Galata, the latter being in lat. 43°

10′ N., long. 27° 58½′ E. The ordinary anchorage is to the S.E. of the town, in 7 or 8 fathoms, bottom sand and oaze. It is open to all winds between E. and S.S.E. Vessels load and unload by means of lighters, it being dangerous to approach within less than one quarter of a mile of the shore. Both hard and soft wheat are shipped from Varna, the value of the former being from 30 to 40 per cent. greater than that of the latter. An export duty is charged on wheat when exported, and being a fixed duty of about 2s. 8d. a quarter, it is high when prices are low, and low when they are high.

Steam to Galacz.—Steam navigation was first established on the Danube in 1830, since which the undertaking has gone on prospering, so much so, that the communication between Vienna and Constantinople is now maintained by a line of 7 or 8 steam vessels. The Austrian Steam Company, which was the first in the field, have extended their scheme by starting vessels between Vienna and Linz, and a Bavarian Company commenced in 1838 running vessels between Ratisbon and Linz. At present (or very recently) steamboats ply on the Danube as long as the river is free from ice (usually from February or March to November), from Ratisbon to Linz, once a week; Linz to Vienna, 10 hours, once a week; Vienna to Presburg and Pesth, twice; Pesth to Drencova, once a week; Gladova to Galacz, once a week; Galacz to Constantinople, once a fortnight. The voyage from Vienna to Constantinople, including stoppages, is seldom performed in less than 14 days, and sometimes occupies 17; in returning against the stream it takes at least a month, including 10 days' quarantine at Orsova. The fare was lately, first place, 134 florins, about £13; second place, 94 florins.

The navigation of the Danube by steamers is unfortunately interrupted for about 50 miles, between Drencova and Gladova, by rocks and rapids, the lowest and most considerable of which is a sort of cataract, called the "Irongate," about 3 miles below the Hungarian frontier. It is worthy of remark that the most illustrious of the Roman emperors, Trajan, alive to all the advantages to be derived from the easy navigation of the Danube, had with equal industry and sagacity formed a road, or towing path, along the river's edge, for facilitating the operation of towing, of which the remains are still extant, with an inscription commemorative of the completion of the works. It has been proposed to overcome the difficulties in the way of the navigation by renovating the old Roman road, and deepening the channel contiguous to it. But it rarely happens that attempts to improve the navigation in the bed of a river, under any thing like similar circumstances, are even tolerably successful. The better way undoubtedly would be, were it practicable, to construct a lateral canal, or rather a canal from the mouth of the Bereska to Palanka, which would not only avoid the rapids, but also shorten the navigation by getting rid of the bend of the river by Orsova. But the difficulties in the way of such an undertaking, from the nature of the ground, are said to be insuperable; and it is, therefore, probable that the distance of 50 miles along the rapids will continue, if not always, at least for some considerable time, *a portage*. The inconvenience, however, of this break in the navigation has been diminished, as far as possible, by the construction of an admirable carriage road, at great expense, by the Hungarian diet, from Moldova to Orsova. In the extent of excavations in the rock, and terraces of masonry, upon which it is carried, it is not inferior as a specimen of engineering to the finest roads over the Alps. Several steamers have been transported down these rapids at the season of floods, small barges pass them at all times, and little boats, laden with wax and wool, are towed up by men and oxen. The passengers and goods conveyed by the steamers are transferred from Moldova in row-boats, to Gladova, below the Irongate, where they embark on another steamer.—*Geog. Dict.* art. *Danube.* A railroad is completed from Brunn, the capital of Moravia, to Vienna; another railroad diverges, from the Danube at Linz, north to Budweis in Bohemia, where it reaches the banks of the Muldau, and through it communicates with the Elbe.

Junction of the Danube and the Rhine.—The long projected canal to unite the Danube and Rhine, the favorite scheme of Charlemagne, having been undertaken by the Bavarian government, was completed and opened in 1846. It extends from Bamberg, by Erlangen and Nuremberg, to Neumark, joining the Danube at Kellheim, a few miles above Ratisbon. The distance between the Maine near Bamberg, and the Danube, is about 112 miles; but the actual extent of canal is less, the communication being in part effected by the Regnitz, a tributary of the Maine, and the Altmuhl, a tributary of the Danube. There is now, consequently, an internal communication by water throughout all the vast country, stretching from the shores of the Netherlands to the Black Sea; so that produce shipped at Rotterdam or at Galacz may be conveyed from the one to the other in the same vessel.

Galangal (Ger. *Galgant;* Du. and Fr. *Galanga;* Rus. *Kalgan;* Lat. *Galanga;* Arab. *Kussttulk;* Chin. *Lauundon*), the root of the *galanga*, brought from China and the East Indies in pieces about an inch long, and hardly half an inch thick. A larger root of the same kind (*greater galangal*), an inch or more in thickness, is to be rejected. It has an aromatic smell, not very grateful; and an unpleasant, bitterish, extremely hot, biting taste. It should be chosen full and plump, of a bright color, very firm and sound. 12 cwt. are allowed to a ton.—Lewis's *Mat. Med.;* Melburn's *Orient. Com.*

Galapagos, a group of islands in the Pacific Ocean, so called from the Spanish *galápago*, a land tortoise, from their abounding in that animal. They consist of six principal and seven smaller islands, lying between 1° N. and 2° S. lat., and between 89° and 92° W. long., about 700 miles from the continent of South America. The largest, Albemarle Island, is 60 miles in length, by about 15 in breadth. The highest part is 4000 feet above the sea. They are all of volcanic origin; and along their shores black dismal-looking heaps of broken lava everywhere meet the eye. In many places the lava cliffs are very high, while close to them the water is so deep that a ship can not anchor even in a calm. In the interior are some valleys and plains of moderate extent and of great fertility. The land tortoises, called the great elephant tortoises, their feet being like those of a small elephant, are numerous, and grow to a great size, frequently weighing several hundred pounds. A small colony has been established on Charles Island, in a plain about 1000 feet above the sea. They cultivate bananas, sugar-canes, sweet potatoes, and Indian corn, and supply with these articles the whalers who resort to the island. The climate is healthy, and the heat moderate, considering the geographical position of these islands.

Galatz. See Galacz.

Galbanum (Fr. *Galbanum;* Ger. *Mutterharz;* It. *Galbano;* Lat. *Galbanum;* Arab. *Barzud*), a species of gum resin obtained from a perennial plant (*galbanum officinale*) growing in Africa, near the Cape of Good Hope, and in Syria and Persia. It is brought to this country from the Levant in cases or chests containing from 100 to 300 lbs. each. The best is in ductile masses, composed of distinct whitish tears agglutinated together by a pale brown or yellowish substance. It is generally much mixed with stalks, seeds, and other impurities. The separate tears are considered as the best. When the color is dark brown or blackish, it is to be rejected. It has a strong peculiar odor, and bitterish, warm, acrid taste.—Thomson's *Dispensatory.*

Gale of Wind. The sea term for a continued storm of wind: the lowest degree is the fresh gale, the next a strong gale, and the next a heavy or hard gale.

Galena, a city of Jo Daviess county, Illinois, 230 miles north-west of Springfield, situated on Fever or Bean River, and on the Galena and Chicago Railroad, and the metropolis of the great lead region. It is six miles above the mouth of the river, which is navigable to this place, at all stages of the water, for the largest steamboats. It has an intercourse by steamboat with St. Louis, New Orleans, Louisville, Cincinnati, and other places on the Mississippi and Ohio Rivers. The amount of lead shipped from Galena and vicinity annually is 42,000,000 of pounds, valued at $1,780,000, employing about 2000 persons. The most productive ores of zinc and copper, sulphuret and carbonate of zinc and sulphuret of copper everywhere abound in this region. Thousands of tons of zinc lie upon the surface, and are neglected, because, in the absence of coal, it can not be profitably smelted. It is popularly known there as *Dry Bones and Black Jack*. Sulphate of iron is found in sheets of larger extent, ranging from a few inches to several feet in thickness.

Galena (Fr. *Plomb sulfuré;* Ger. *Bleiglanz*), is a metallic-looking substance of a lead-gray color, which crystallizes in the cubical system, and is susceptible of cleavages parallel to the faces of the cube; specific gravity, 7·7592; can not be cut; fusible at the blowpipe with exhalation of sulphurous vapors; is easily reduced to metallic lead. Nitric acid first dissolves it, and then throws down sulphate of lead in a white precipitate; the solution affording, with plates of zinc, brilliant laminæ of lead (arbor Saturni). It consists of sulphur, 13; lead, 85; with a little iron, and sometimes a minute quantity of silver. This is the richest ore of lead, and it occurs in almost every geological formation, in veins, in masses, or in beds. It is almost always accompanied by sulphuret of zinc, different salts of lead, heavy spar, fluor spar, etc. Galena in powder, called alquifoux, is employed as a glaze for coarse stonework.

Galipot is a name of a white semi-solid viscid resin found on fir-trees; or an inferior sort of turpentine, poor in oil.

Galleons. Certain Spanish treasure-ships with three or four decks, formerly employed in communicating with Peru.

Galley (Fr. *galère*), a low-built vessel propelled by sails and oars, either on a single tier, or on tiers of benches one above the other. The war vessels of antiquity were all galleys. Among the Greeks, those chiefly mentioned are the pentecontori, which appear to have had 50 oars disposed in a single tier; and the trieres (Lat. *triremes*), vessels with three banks of oars, concerning the disposition of which much controversy has taken place. It is commonly supposed that a trireme had three banks of oars, one above the other; but this is rendered improbable by the circumstance of Pliny making mention of galleys having 30, 40, and even 50 banks of oars; for it seems hardly credible that so many could have been arranged directly above each other. Some have suggested that the rows of oars in the trireme were disposed, not horizontally, but obliquely; in which case an increase in the number of banks of oars would augment the length, and probably the height would be increased in proportion. See *Meibomius, De Fabrica veterum Trieremium.*

Galleys were likewise chiefly employed by the maritime nations of the middle ages in the Mediterranean. Their use in naval war hardly ceased until the end of the 17th century; and the Venetian republic, down to the period of its extinction, always maintained a number of war-galleys. The Venetian galleys had a single tier only, and all modern galleys followed the same construction. These were formidable vessels in a calm, but unfit for sea, and accordingly found chiefly in the Mediterranen. The Venetians had also a large high-pooped sort of galley called geleazza, whence the word galleass and galliott in old English writers.

The *Deal galley* is a long narrow boat used by the Deal boatmen, and managed, on the most hazardous occasions, in saving the crews of stranded vessels, with consummate skill. It is also used by smugglers, on account of its velocity. The galley is also the kitchen of a ship.

The punishment of the *galleys*, *i. e.*, the employment of condemned criminals in the toilsome employment of rowing them, is said to have originated under the Greek empire, as well as the name *Γαλεαροι*, or galley-slaves—in French, *galériens*. It was used by all the nations bordering on the Mediterranean. In France, under the old jurisprudence, the punishment of the galleys was the severest after that of death. About the end of the reign of Louis XIV., when galleys themselves began to be disused, the galley-slaves were employed in hospitals, public works, etc.; and the name of the punishment was changed by the Constituent Assembly (1789) to *travaux forcés*, compulsory labor, whence the word *forçat* for a criminal so condemned. Under the code of the empire, the punishment was accompanied with forfeiture of property, infamy, and branding. By an alteration of the law, effected in 1832, the brand was abolished; and the criminals, who had hitherto been intermingled in the three penal fortresses (Toulon, Rochefort, and Brest), were classified. Toulon is now appropriated to those condemned for 10 years and under, Brest to those from 10 to 20, Rochefort to the condemned for life. The name *Bagne*, which is applied in France to prisons in which those condemned to compulsory labor are confined, is derived from the famous Bagnio prison at Constantinople, so called on account of some baths situated there. The principal crimes now punished in this manner by the French law are—some acts of violence against the government or public law, coining and forgery, assaults, followed by death, on legal officers, murder, unless under such aggravated circumstances as are punished by death, cutting and maiming, rape, abduction, burglary, highway robbery, burning of insulated buildings, threatening letters, perjury, etc.

Gallipoli, a seaport town of south Italy, kingdom of Naples, province Terra di Otranto, on the east shore of the Gulf of Taranto, on the rocky islet at the west extremity of a narrow peninsula, to which it is joined by a bridge; lat. 40° 3′ N., long. 17° 58′ E. It is fortified, has a castle, and is well built. Population about 7000 (6709 in 1843). It is the principal port of the Mediterranean for the shipment of olive oil, and has, in consequence, a considerable trade. It is indebted for this distinction partly to its being situated in a country where oil is produced in the greatest abundance, but more, perhaps, to the circumstance of the cisterns cut in the limestone rock on which the town is built, being peculiarly well fitted for the preservation of the oil. They do not differ much in appearance from a common water-tank. They are usually under the houses of the inhabitants; are arched over, with the exception of a circular hole, into which the oil is poured, and through which it is again drawn up. It will keep in these cisterns for an indefinite period; and is materially improved, not only in clearness, but also in flavor. When the oil is to be shipped, it is drawn off from the cisterns into *uteri*, or skins, which are carried on men's backs to the shore, where the casks, being filled, are conveyed in lighters to the ships.

Gallipoli has no harbor, but a bay or roadstead north-east of the town. The latter has from 10 to 12 fathoms water; but it shoals toward the shore; and vessels of considerable burden should not come within less than a musket-shot of the land. Those that come nearest to the shore, moor with their heads to the north-west, with two cables out ahead and two astern, in from 16 to 20 feet of water. The only danger in entering or leaving the roads is a blind rock at their entrance, about 500 yards N.N.E. from the fort. It has only about from five to seven feet of water; and as it is not marked by any buoy, pilots should be employed by foreigners. A tunny fishery is carried on inside the bay; but the nets are easily avoided. Winds from the north and north-west throw in a heavy sea. About 1½ miles west from the town is the low, flat island of St. Andrea. It is said, in *Nories's Sailing Directions for the Mediterranean*, that there is a light-house on this island. But, though a light-house on it would be of great service to ships making the port, and though it be laid down in some of the charts of this sea, the truth is that none such really exists, nor is there even a tower on the island! There are some lesser islands between St. Andrea and the main-land. There is deep water between the former and the nearest islands, but not between the latter and the town. A dangerous shoal lies about half a mile south of St. Andrea.

Gallipoli Oil is a coarse olive oil, containing more or less mucilage, imported from a sea-port, so named, of the province of Otranto, in the kingdom of Naples.

Galls, or **Gall-Nuts** (Fr. *Galles Noix de Galle;* Ger. *Gallapfel*, *Gallus;* It. *Galic*, *Galluze;* Lat. *Galæ;* Arab. *Afis;* Hind. *Majouphal;* Per. *Mazu*), are excrescences produced by the attacks of a small insect, which deposits its eggs in the tender shoots of a species of oak (*Quercus infectoria* Linn.), abundant in Asia Minor, Syria, Persia, etc. Galls are inodorous, and have a nauseously bitter and astringent taste. They are nearly spherical, and vary in magnitude from the size of a pea to that of a hazel-nut. When good, they are of a black or deep olive color; their surface is tubercular, and almost prickly; they are heavy, brittle, and break with a flinty fracture. They are known in commerce by the names of *white*, *green*, and *blue*. The white galls are those which have not been gathered till after the insect has eaten its way out of the nidus and made its escape. They are not so heavy as the others, and are of a lighter color, and do not fetch so high a price. The green and blue galls are gathered before the insect has escaped; they are heavier and darker than the former, and are said to afford about one third more of coloring matter.

Galls are of great importance in the arts, being very extensively used in dyeing, and in the manufacture of ink, of which they form one of the principal ingredients. They are the most powerful of all the vegetable astringents; and are frequently used with great effect in medicine. Galls consist principally of three substances; tannin or tannic acid; yellow extractive; and gallic acid. The decoction has a very astringent and unpleasant bitter taste. The ancients reckoned the gall-nuts of Syria superior to every other, and they still retain their pre-eminence. They are principally exported from Aleppo, Tripoli, Smyrna, and Said; those brought from the first come chiefly from Mosul, on the western bank of the Tigris, about ten days' journey from Aleppo. The real Mosul galls are unquestionably the best of any; but all that are gathered in the surrounding country are sold under this name. Those from Caramania are of a very inferior quality. The galls met with in India are carried thither from Persia by Arabian merchants. It is not unusual to dye the whitish gall-nuts blue, in order to increase their value. The fraud is, however, detected by the deeper blue tinge that is thus imparted to them; and by their being perforated and lighter than the genuine blue galls.—BANCROFT *on Colors;* AINSLIE'S *Mat. Indica*, etc.

The Gall-nut Oak (Quercus infectoria), a native of Persia, Asia Minor, Arabia, Egypt, Morocco, and Algeria, in its natural habitat, is an evergreen shrub, with a crooked stem, and seldom attains six feet in height. From the circumstance of its growing near Paris, where it bears the winter quite well in the open air, though losing its leaves in the autumn, it doubtless would be adapted to the climate of our middle and southern States. On this shrub, it may be unnecessary to state, is found the well-known "gall-nuts" of commerce, which are extensively used in the manufacture of writing-ink, and in dyeing. These excrescences are the product of the gall-fly (*Cynips scriptorum*), a small insect of a pale-brown color, which may often be found inclosed in the galls sold in the shops of the druggists, collected before the fly had made its appearance.

Galvanized Iron, is the name given to iron tinned by a peculiar patent process, whereby it resists the rusting influence of damp air, and even moisture, much longer than ordinary tin-plate. The following is the prescribed process: Clean the surface of the iron perfectly by the joint action of dilute acid and friction, plunge it into a bath of melted zinc, covered with sal-ammoniac, and stir it about till it be alloyed superficially with this metal; when the metal thus prepared is exposed to humidity, the zinc is said to oxydise slowly by a galvanic action, and to protect the iron from rusting within it, whereby the outer surface remains for a long period perfectly white, in circumstances under which iron tinned in the usual way would have been superficially browned and corroded with rust.

Galvanized Tinned Iron.—One of the most remarkable advancements in the iron manufacture in recent years has been the introduction of *galvanized tinned iron* for an almost innumerable variety of purposes. This material consists of iron plate coated with tin, not by the ordinary tin-plate process, but by galvanic deposition. It serves as a substitute for plain iron, for tin-plate, for zinc, and for lead, under certain special circumstances. It is stronger and more durable, for many purposes, than lead or zinc; it is better than plain iron where rust is to be avoided; it is superior to lead or zinc in warm climates, inasmuch as it does not expand and contract to so great a degree. Withinside a house and without, in vessels and in utensils, in towns and in the country, in manufactures and in domestic economy, we now find this substance employed. We have galvanized tinned iron corrugated plates for roofing, and for the sides and doors of houses; in another form there are plain plates for the same purpose; roofs for sheds, roofs and sides for store-houses, and many similar purposes. Then, besides the sheet form, there are round and square bars, hoop-iron, wire, tubes, and pipes, nails, rivets, bolts, screws—all formed of iron thus protected by the galvano-tin process. There is this advantage also, which is unattainable by the ordinary tin-plate process, that articles can be tinned after they are made in the proper form of iron, provided they are of small dimensions. The plates are really a combination of three metals; for, in the first place, a layer of tin is precipitated on the iron plates from a solution of chlorid of tin by the galvanic process; and then a layer of zinc is obtained by dipping the sheets into molten zinc.

Galveston, city, port of entry, and capital, Galveston county, Texas, 350 miles from the S. W. Passage of the Mississippi River. Lat. 29° 18′ 32″ N., long. 6° 44′ 38″ W. It is situated on the east end of Galveston island, and is the great commercial emporium of Texas. It was settled in 1837. It contains a bank, capital $300,000, a steam foundery, 4 printing-offices issuing 2 tri-weekly, 1 semi-weekly, and 1 weekly newspaper, 3 cotton-presses, 50 stores, and population, in 1856, about 6000. Tonnage in 1853, 6173 tons.

The bar outside Galveston harbor and bay, beween the north-east end of the island and Point Bolivar on the mainland, has not more than 13½ feet of water at the highest springs, and but 10 feet at ebb; hence the smaller class of vessels, or those under 200 or 250 tons are most suitable for the trade of the port, as well as for that of almost all the other ports on the north and east sides of the gulf, the deficiency of water being all but universal. Though the land be low, the houses of Galveston may be seen from the mast-head at a distance of several miles. Vessels drawing eight feet of water and upward should, however, not approach the bar nearer than six fathoms, without heaving-to and making the signal for a pilot, which is promptly attended to. Vessels drawing less than eight feet of water may approach the bar till the water shoals to four fathoms before heaving-to. Vessels making the port in the night should invariably anchor in five or six fathoms; and the holding ground being excellent, those who are well found in anchors and cables have nothing to fear. Pilot-boats are constantly on the look-out; and ships should on no account attempt crossing the bar till they have got a pilot on board. In the harbor there is from 18 to 30 feet of water. The bay, which stretches abour 35 miles from north to south, and from 12 to 18 miles from east to west, has not generally more than nine feet of water, and is intersected by a bar, on which there is only from five to six feet of water.—*Kennedy's Texas*, p. 29. Several very considerable rivers have their embouchures in the bay, so that the town has a considerable command of internal navigation.

The present year (1856), closes an epoch in the growth of sugar in Texas. The almost total destruction of the plant by the unprecedented cold of last winter will reduce the product of the coming year to almost nothing. Should all who have heretofore produced sugar determine to go on, it is doubtful whether the growing crop of cane will afford much more than seed sufficient for a re-commencement. The receipts of Texas sugar and molasses, at this port, for the calendar years named below, were as follows:

Year.	Molasses, bbls.	Sugar, hhds.
1850	2,427	2,782
1851	1,909	1,036
1852	2,576	1,329
1853	6,086	4,076
1854	5,398	4,754
1855	6,728	4,731

For the commercial year ending August 31, 1855, the receipts of sugar were 5375 hhds. against 7570 hhds. for the year just closed; and the receipts of molasses were then 7504 bbls. against 8668 bbls. for the year last past. We apprehend that two years will be required to bring the production again up to these figures

The following is a comparative statement of shipments of the leading articles of export from Galveston for each calendar year since 1853:

Articles.	1853.	1854.	1855.
Cotton, bales	60,892	84,173	68,853
Sugar, hhds	4,076	4,754	4,731
Molasses, bbls	6,086	5,398	6,728
Beef Cattle	2,762	5,957	4,361
Hides	14,146	13,224	20,517

STATEMENT OF THE QUANTITY AND ESTIMATED VALUE OF ARTICLES OF MERCHANDISE OF DOMESTIC GROWTH AND MANUFACTURE, EXPORTED FROM GALVESTON, TEXAS, IN THE YEAR ENDING DECEMBER 31, 1855.

Articles.	Total.	Average prices.	Valuation.
Cattle..........number	4,361	$16 00	$69,776
Cotton..........bales	76,953	35 00	2,693,355
Hides..........number	20,517	4 00	82,068
Molasses..........gallons	84,945	25	21,236
Sugar, cane..........pounds	1,934,710	7	135,429
Total			$3,001,864

The value of domestic produce exported from this port during the past two years affords a highly favorable contrast in favor of the season just closed. The amount of shipments was, August 31, as follows:

Years.	Coastwise.	Foreign.	Total.
1856	$2,850,770	$1,492,845	$4,343,615
1855	2,012,604	634,816	2,647,240
Increase	$838,166	$858,029	$1,696,195

The value of the exports, for the year just past, is less than that of the year ending with August, 1854, when the value of exports, coastwise, was $3,637,255, and foreign, $776,243—total, $4,413,498. Texas has not had a favorable season for crops since 1853; and 1856 will add another to the years of short crops, though an improvement over the last two is anticipated.

The number of vessels which arrived at this port, from beyond the district of Texas, during the year 1856, was 269, viz.:

Vessels.	Coastwise.	Foreign.	Total.	1856.
Steamships	97	0	97	90
Ships	11	7	18	14
Barks	46	18	64	59
Brigs	28	1	29	22
Schooners	60	1	61	48
Total	242	27	269	233

Increase—Steamships, 7; ships, 4; barks, 5; brigs, 7; schooners, 12. Total increase, 36.

Of vessels belonging to the port of Galveston the custom-house books of the present year (1856), show that there are:

Year ending Aug. 31.	1856.	1855.
Ships	1	0
Barks	3	1
Brigs	1	3
Schooners	63	64
Steamboats	16	17
Sloops	15	11
Total	99	96

The amount of tonnage of vessels cleared at this port for the year just ended was 106,670 tons against 94,113 the year previous. The number of persons employed on board was 3467—of whom but two were boys—being an increase of but two employed during the year.

There is, we believe, no article grown, for human consumption, in any State of the Union, which is not already, or may not be produced in some portion of Texas, such is the variety of soil, climate, and general circumstances. In the production of the great staples of wheat, corn, beef, cotton, and sugar, no State in the Union approaches it, so great is the extent and productiveness of the soil adapted to these articles. It is estimated that the sugar region is capable of producing a crop of 3,000,000 of hogsheads, or much more than is necessary to supply the inhabitants of the whole Union. 60,000,000 of acres of the lands of the State are situated within the cotton-producing region, and one third of this number are believed to be well adapted in point of soil to the growth of that plant. There is no doubt of the capacity of the country to produce a much larger crop than is now yielded by the whole South, while the expense of production is much less than the general average in other States. —*Galveston Price Current and Census Reports.*

Galway, the county town, formerly designated the Liberties of Galway, and a county in itself, having an exclusive local jurisdiction, extending two miles on every side except the south. It stands on the northern shore of the Bay of Galway, Ireland, on the eastern bank of the river of the same name. It is supposed by some to be the Nagnata of Ptolemy. It certainly was considered a position of much importance from the earliest period, as in the divisions of the island into north and south, at first made by the descendants of Heremen, and afterward repeated by Conn and Eogan, it was fixed upon as the eastern extremity of the line of demarcation, which proceeded eastward to Dublin. Galway is likely to become a place of some note, being the proposed eastern terminus of the submarine telegraph communication between Europe ahd the United States.

Gama, Vasco da, the first European who reached India by doubling the Cape of Good Hope, was born at Sines, a small sea-port of Portugal. Of his early history so little has been recorded, that even the date of his birth is unknown. On attaining manhood, he found that the success of Columbus had given a powerful impulse to the spirit of maritime adventure.

On the 4th of July, 1497, Vasco da Gama sailed from Lisbon with a squadron of three vessels manned by sixty sailors, bent on making his way to India round the Cape of Good Hope, then known as the Cabo Tormentoso, or Stormy Cape. The hardships and dangers to be encountered were appalling, and led to a mutiny, which was with difficulty quelled by the firmness and prudence of the commander. He doubled the Cape at length, and reached in safety the small town of Melinda, where he secured the services of an Indian pilot. In 23 days they reached Malabar, and on the 20th of May 1498 they came to anchor at Calicut. Gama was well received by the zamarin; whom, though not without difficulty, he convinced of the advantages that would accrue to his country by the establishment of a commercial treaty with Portugal. Gama then turned his prows homeward; and, having touched at various points on the Asiatic and African coasts, he once more cast anchor in the Tagus in the September of 1499, after an absence of 2 years and 2 months. Emmanuel received him with great honors, ennobled him, and gave him the title of admiral of the Indian, Persian, and Arabian seas. The effect of Gama's voyage was soon visible in the ruined trade of the Italian commercial republics, which had hitherto monopolized the traffic of the East. In prosecution of Gama's discoveries, another fleet was sent out to India, under Cabral, who accidentally discovered the Brazils, and on reaching his destination established a factory at Calicut. The natives, instigated by the Moorish merchants, who were jealous of the Portuguese, rose up in arms, and murdered all whom Cabral had left behind. To avenge this cruelty, the Portuguese fitted out a powerful armament, of which the command was given to Gama. The admiral set sail, and devastated those parts of Africa and India where he had formerly been received in a hostile spirit. He executed especial vengeance upon Calicut, which he bombarded and reduced to ashes, at the same time hanging the sailors of the vessels in the harbor which had fallen into his hands. He then sailed away to Cochin, where he established a factory, from which the power of Portugal radiated over India. In 1503 he returned home, and as before was welcomed with honors and titles, but was not immediately reappointed to the command in India. He remained at home in inaction during nearly 20 years; but in 1524 (some years after the death of the great Albuquerque, who had been consolidating the Portuguese power in the East), Gama was appointed viceroy of Portuguese India. Not long after arriving at Cochin, Gama died, in 1525, and was buried there; but 13 years later his bones were disinterred and conveyed to Portugal by order of John III., king of that country.

Vasco da Gama was a man of great ability, courage, and enterprise; but he possessed none of these qualities in a higher degree than many others of his cotemporaries who have long since passed into oblivion. He owes no small portion of his fame to the fact of his being the hero of the national epic of Portugal. The moment of his doubling the Cape of Good Hope, and seeing in the clouds the Spirit of that stormy region, has been often seized by painters as a striking subject for pictorial delineation. One of the most remarkable of these pictures is that by the late David Scott, of Edinburg.—E. B.

Gamboge (Fr. *Gomme gutte;* Ger. *Gummigutt;* It. *Gomma gutta;* Lat. *Gummi guttæ*, *Cambogia;* Arab. *Ossararewund;* Siamese and Cambojan, *Rong*), a concrete vegetable juice, or gum resin, the produce of the *Carcinia Cambogia*, a forest-tree of the genus which affords the mangostein, the most exquisite fruit of the East. The districts which yield gamboge lie on the east side of the Gulf of Siam, between the latitudes of 10° and 12° north, comprising a portion of Siam and the kingdom of Camboja, whence its English name. It is obtained by making incisions in the bark of the tree, from which it exudes, and is collected in vessels placed to receive it. In these it assumes a firm consistence; and being formed into orbicular masses, or more frequently cylindrical rolls, it is at once fit for the market. It is of a bright yellow color, opaque, brittle, breaks vitreous, has no smell, and very little taste. Specific gravity 1·22. When taken internally, it operates as a most violent cathartic. It forms a beautiful yellow pigment, for which purpose it is principally used. The Dutch began to import it about the middle of the seventeenth century. The greater part of the gamboge of commerce first finds its way to Bangkok, the Siamese capital, or to Saigon, the capital of lower Cochin China; from thence it is carried by junks to Singapore, whence it is shipped for Europe. Its price at Singapore varies, according to quality, from 30 to 80 dollars per picul. Dark-colored pieces should be rejected.—CRAWFORD's *Embassy to Siam*, p. 425; THOMSON's *Chemistry*.

Ganges, the principal river of Hindoostan, through the north part of which it flows from west to east, traversing the centre of the British presidencies, Bengal and Agra, almost in their entire length. It rises by two principal heads, Bhagirathi and Alakananda, in lat. 31° N., and long. 7° E., from an immense mass of snow at an elevation of 13,000 feet; flows at first S.W. to Hurdwar and thenceforward mostly E. S.E. to the Bay of Bengal, which it enters by numerous mouths, its eastmost arm uniting with the Megna or Brahmaputra, and its west branch being the Hooghly River. Total course estimated at 1500 miles. In its course it receives 11 affluents, some of which are equal to the Rhine, and none smaller than the Thames; the principal are the Jumna, Ramgunga, Goomty, Goggra, Sone, Gunduck, Koose, Mahanuddy, and Teesta, which have courses varying from 300 to 600 miles in length. On its banks are numerous cities and towns. Between Hurdwar and Allahabad it is usually from 1 mile to 1¼ miles across; below which its breadth increases frequently to 3 miles, and at 500 miles from the sea it is 30 feet in depth, and so continues to near its mouth, where, however, the quantity of deposit it brings down often forms bars and shoals. In the annual overflow of the river, when it is at its height in July and August, the waters rise to 32 feet. The annual deposit of mud at its delta is estimated at 6,000,000,000 cubic feet. It is crossed by no bridges after it leaves the mountains. The Ganges is the sacred river of the Hindoos, and is so called as flowing through *Gang*, the earth, to heaven.

Gangway, a narrow platform or range of planks laid horizontally along the upper part of a ship's side from the quarter deck to the forecastle, peculiar to ships that are waisted, for the convenience of walking more expeditiously fore and aft than by descending into the waist. It is fenced on the outside by iron stanchions and ropes or rails, and in vessels of war with a netting in which part of the hammocks are stowed. In merchant ships it is called the gangboard.

Gangway is also that part of a ship's side, both within and without, by which persons enter and depart. It is provided with a sufficient number of steps or cleats nailed upon the ship's side nearly as low as the surface of the water, and sometimes furnished with a railed accommodation ladder resembling a flight of stairs projecting from the ship's side and secured by iron braces.

Gangway is also used to signify a narrow passage left in the hold when a ship is laden, in order to enter any particular place as occasion may require, whether to examine the situation of the provisions or cargo, to discover and stop a leak, or to bring out any article that is wanted. Finally, gangway implies a thoroughfare or narrow passage of any kind.

To bring to the gangway; a phrase signifying to punish a seaman by seizing him up and flogging him with a cat-o'-ninetails.

Gantlet, or **Gauntlet** (Fr. *gantelet*, from *gam*, a glove), a kind of iron glove, with fingers covered with small plates; formerly worn by cavaliers when armed at all points, and which used to be thrown down as token of challenge. Gauntlets were introduced about the 13th century.

Garnet, Garnets (Fr. *Grenats;* Ger. *Granaten, Granatstein;* It. *Granati;* Lat. *Granati;* Rus. *Granatnoi hamen;* Sp. *Granadas*). There are two species of garnet, the precious, and the common. The color of the first is red; and hence the name of the mineral, from its supposed resemblance to the flower of the pomegranate; passes from Columbine red, to cherry and brown red; commonly crystallized. External lustre glistening, internal shining, vitreous; transparent, sometimes only translucent; specific gravity 4·08 to 4·35. The color of the common garnet is of various shades of brown and green. Different colors often appear in the same mass: translucent; black varieties nearly opaque: specific gravity from 3·66 to 3·75.—Thomson's *Chemistry*. The finest varieties come from India, and some good specimens have been received from Greenland. When large and free from flaws, garnets are worth from £2 to £5 or £6, and even more; but stones of this value are of rare occurrence, and always in demand.—Mawe *on Diamonds*, etc., 2 ed., p. 113.

Gas. This inflammable aeriform fluid was first evolved from coal by Dr. Clayton, in 1736–1739.—*Phil. Trans.* Its application to the purposes of illumination was first tried by Mr. Murdoch, in Cornwall, in 1792. The first display of gas-lights was made at Boulton and Watt's foundery, in Birmingham, on the occasion of the rejoicings for peace in 1802. Gas was permanently used to the exclusion of lamps and candles at the cotton mills of Phillips and Lee, Manchester, where 1000 burners were lighted, 1805. Gas-lights were first introduced in London, at Golden-lane, August 16, 1807. They were used in lighting Pall Mall, in 1809; and were general through London in 1814. They were first used in Dublin in 1816, and the streets there generally lighted in October, 1825. The gas-pipes in and round London extend to 1100 miles.—Haydn.

Every one must have remarked that most species of coal, when ignited, give out large quantities of gas, which burns with much brilliancy, yielding a great quantity of light as well as of heat. Dr. Clayton seems to have been the first who attempted, about 1736–1739, to apply this gas to the purposes of artificial illumination; but his experiments were upon a very limited scale, and no further attention was paid to the subject till more than half a century afterward. At length, however, Mr. Murdoch, of Soho, instituted a series of judicious experiments on the extrication of gas from coal; and, by his ingenuity and sagacity succeeded in establishing one of the most capital improvements ever made in the arts. Mr. Murdoch found that the gas might be collected in reservoirs, purified, conveyed by pipes to a great distance from the furnace where it was generated; and that it affords, by its slow combustion, when allowed to escape through small orifices, a beautiful and steady light. This great discovery, which places Mr. Murdoch in the first rank among the benefactors of mankind, was first brought into practice at Redruth, in Cornwall. In 1802, it was applied to light Mr. Murdoch's manufactory at Soho; in 1805, it was adopted by Messrs. Phillips and Lee, of Manchester, in the lighting of their great cotton mill; and is now employed in the lighting of the streets, theatres, and other public buildings, factories, etc. of *all* the considerable towns of the empire, and also in most considerable towns of Europe and America.

Gas light is indebted, for its rapid diffusion, not more to its peculiar softness, clearness, and unvarying intensity, than to its comparative cheapness. According to Dr. Thomson (*Encyc. Brit.*, art. Gas Lights), if we value the quantity of light given by 1 lb. of tallow in candles at 1s., an equal quantity of light from coal gas will not cost more than 2¾d., being less than a *fourth part* of the cost of the former. Oil and other substances have been used in furnishing gas for the purpose of illumination, but none of them has answered so well as coal. Most of the oil gas establishments have been abandoned. The construction of gas works on a large scale, and the carrying of pipes through the streets and into houses, etc., is very extensive, and requires a large outlay of capital. Hence most of the gas lights in the different towns are supplied by joint-stock companies. Many of them have turned out to be very profiable concerns.

The first attempt to supply cities in the United States with gas was made at Baltimore in 1821, and at New York in 1823. Both of these attempts were unsuccessful. The New York Gas-Light Company, with a capital of $1,000,000, was incorporated March 26th, 1823. It was reorganized in 1827, and then commenced a successful business. The Manhattan Gas-Light Company was incorporated with a capital of $2,000,000, February 26th, 1830. Upon these two Companies the city of New York is now entirely dependent for gas. The former Company supplies all that portion of the city which is below Grand-street, and the latter Company all that portion which is between Grand-street and Seventy-ninth street. The New York Gas-Light Company has 130 miles of pipes laid through the streets of the city, ranging from 4 to 18 inches in diameter. In 1855 this Company made 300,000,000 cubic feet of gas, consuming about 45,000 tons of coal. It furnished gas to 3,200 street lamps, and to 9,000 private consumers.

The Manhattan Gas-Light Company has 200 miles of pipe laid through the streets of the city, ranging from 3 to 20 inches in diameter. In 1855 this Company made 470,000,000 cubic feet of gas. It lighted 7,148 street lamps, and furnished gas to 17,300 private consumers. These Companies jointly light and keep in order for the city about 10,150 street lamps, for which they are paid $25 per annum for each lamp. This payment nets the Companies, according to their estimate, only $1 50 per 1000 cubic feet of gas consumed in the lamps, which is just one half the sum charged to their private customers for gas, but is doubtless profitable even at that low rate. The gas is manufactured from rich bituminous coals, such as Cannel coal, Newcastle coal, and the Albert coal of Nova Scotia. A chaldron of Newcastle coal, weighing 27 cwt., will yield:

Gas............................	8,650	cubic feet.
Coke............................	14	cwt.
Ammoniacal liquor...............	12¼	gallons.
Thick tar........................	12	"

A chaldron of Cannel coal will yield an average of 12,000 cubic feet of gas. The gas coal used in New York costs about $10 per chaldron. The coke, or shell of the coal after the gas is extracted, is worth about $4 per chaldron, and makes a very pleasant fire in a grate. The bituminous coal is thrown in a hot iron cylinder, or retort, as it is called, whose mouth is closed and sealed tight with soft clay. The vapor of the coal, distilling in the retort, passes through a tube, by which it escapes into a series of vessels called the condenser, where it cools and deposits all its tar and other condensible impurities. Thence it passes through another series of vessels called the purifier, containing quicklime, of the consistency of cream, which cleanses the vapor of its sulphurous intermixtures. From the lime the purified vapor of the coal, or, in other words, the gas, now flows into the gasometer, and is ready for use. From the gasometer it is driven, through main and service pipes, into the consumers' burners.

The machinery of all gas manufactories is the same in principle, and seems now to be almost perfect. The chief improvements made lately in the machinery consist in the manner of applying to the gasometer the pressure which regulates the force of the gas.

THE FOLLOWING TABULAR VIEW PRESENTS THE COMPARATIVE COST OR PRICE OF GAS AT SEVERAL LEADING CITIES OF THE UNITED STATES, SHOWING ALSO THE YEAR OF INCORPORATION OF THE COMPANY, DATE WHEN GAS WAS FIRST USED, COST OF COAL, AND ORDINARY ANNUAL CONSUMPTION, ETC.

Place.	Gas Company incorpt'd.	Gas first used.	Capital of Company.	Price of Gas per 1000 cub. Feet, 1857.	Cost of Coal used per Ton.	Annual Consumption of Gas.	Miles of Mains laid.	Description of Coal used.
	Year.	Year.	$	$ Cts.	$ Cts.	Feet.		
Detroit, Mich........	1849	1851	222,000	3 50	5 25	19,118,000	18	Mineral Ridge, Brier Hill, etc.
Wheeling, Va.	1849	1850	715,000	3 00	1 40	8,800,000	7·33	Soft bituminous coal.
Cincinnati, Ohio	1837	1843	800,000	2 50	4 25	93,000,000	49	Youghiogheny, or Pittsburgh, coal.
Louisville, Ky.......	1839	1840	461,000	3 00	4 35	33,750,000	30	Kanawha cannel and Youghiogheny.
Cleveland, Ohio.....	1846	1849	100,000	3 00	4 50	20,000,000	14 50	Pittsburgh coal.
Albany, N. Y.	1840	1845	300,000	3 00	8 75 @ 11 20	40,000,000	20	Newcastle coal, $8 75. Cannel, $11 20.
Rochester, N. Y......	1848	1848	150,000	3 15	5 83	27,000,000	17·25	Anthracite coal.
St. Louis, Mo.	1839	1847	600,000	3 50	7 50	63,500,000	45	Pittsburgh coal only.
Philadelphia, Penn...	1835	1836	2,600,000	2 13	6 50	434,000,000	214	Pittsburgh and Virginia coals.
Washington City....	1846	1848	424,000	3 50	6 00	50,000,000	30	English cannel and Virginia Clover Hill.
New York Gas Co. ..	1823	1824	750,000	2 50	8 00 @ 10 00	430,000,000	125	English cannel and Newcastle principally, costing $8 to $10 per ton.
Manhattan Co., N. Y.	1830	1835	2,770,000	2 50	8 00 @ 10 00	650,000,000	200	English cannel and Newcastle.
Boston, Mass.	1826	....	1,000,000	2 50	6 00 to 9 00 ch.	190,000,000	70	Pictou coal, $6. English cannel, $16 50 per chaldron of 2900 pounds.

A very careful and accurate analysis and photometric examination of wood gas have been made by two eminent analytical chemists (Dr. Wolcott Gibbs, of New York, and Dr. F. A. Genth, of Philadelphia), whose report of their chemical results furnishes a highly satisfactory explanation of certain curious phenomena that accompany the combustion of this gas.

They examined two varieties of gas, one made from old field pine, the other from small second-growth oak, with the following results:

	Gas from Pine.	Gas from Oak.
Specific gravity	0·663	0·580
COMPOSITION.		
Hydrogen	32·71	30·44
Light carbonic hydrogen...........	21·50	33·12
Olef. gas and hydro carbon vapors .	10·57	6·46
Carbonic oxyd	27·11	26·11
Carbonic acid......................	4·90	0·48
Oxygen	0·66	None.
Nitrogen...........................	2·55	3·39
	100·00	100·00

These gases were collected at the Ninth Ward Works, and taken to New York for analysis. Their illuminating power was tested and found to be over 26 candles for a five-feet burner.

Mr. Murdoch in 1797 exhibited publicly the results of his more matured plans for the preparation of coal gas. The following year (being then connected with Messrs. Boulton and Watt's engineering work-shop) he constructed an apparatus at the Soho foundery for lighting that establishment, with suitable arrangements for the purification of the gas; and these experiments, Dr. Henry states, "were continued with occasional interruptions until the epoch of the peace of 1802, when the illumination of the Soho manufactory afforded an opportunity of making a public display of the new lights; and they were made to constitute a principal feature in that exhibition."

In 1804–'5 Mr. Murdoch had an opportunity of carrying his plans into effect on a still larger scale, by means of the apparatus erected under his superintendence in the extensive cotton mills of Messrs. Philips and Son of Manchester.

It has been alleged that gas-lights were used in France before they were known in England; but as the earliest exhibition of these lights, on which the claim of priority of discovery is founded, took place at Paris in 1802, it is evident, from the foregoing statements, that the exhibition alluded to was ten years subsequent to the first experiment of Mr. Murdoch on the subject.

The practicability of lighting by means of coal gas having been demonstrated by Mr. Murdoch, a number of scientific men applied their talents to the further development of the art. Dr. Henry, the celebrated chemist, lectured on the subject in 1804 and 1805, and furnished many hints for the improvement of the manufacture. Mr. Clegg, an engineer in the employment of Boulton and Watt, was a worthy successor of Murdoch, and for many years was the most eminent gas engineer of England. A good deal of the machinery of the gas-house in its present form was contrived by Mr. Clegg, and to him, also, we are indebted for the ingenious wet gas-meter. In 1813 Westminster Bridge was first lighted with gas, and in the following year the streets of Westminster were thus lighted; and in 1816 gas became common in London. So rapid was the progress of this new mode of illumination, that in the course of a few years after it was first introduced, it was adopted by all the principal towns in the kingdom, for lighting streets as well as shops and public edifices. In private houses it found its way more slowly, partly from an apprehension, not entirely groundless, of the danger attending the use of it, and partly from the annoyance which was experienced in many cases through the careless and imperfect manner in which the service-pipes were at first fitted up. These inconveniences have been in a great measure, if not wholly, removed by a more enlarged knowledge of the management of gas; and at present there are few private houses in large towns which are not either partially or entirely lighted up by it. As the demand for gas increased, various improvements were from time to time introduced, both in the mechanical arrangements and in the chemical operations of the manufacture. The rapid increase in the population of the metropolis, and of all large towns, has naturally led to an increased consumption of gas; and the application of gas to the purposes of warming and cooking has also further increased the demand for it. Hence it has been not only necessary that new gas-works should be erected for the supply of new districts, but that the resources of old works should be enlarged. It is only a few years ago that a gas-holder capable of storing 250,000 cubic feet of gas was regarded as of enormous size; at the present time gas-holders are made of double that capacity, and we occasionally hear of them of the capacity of upward of a million cubic feet. There is one such at Philadelphia; it is 140 feet in diameter and 70 feet in height. Nor will such dimensions as these be regarded as superfluous when it is stated that some of the large metropolitan works send out each from a million to a million and a half cubic feet of gas in one night in mid-winter.

Gauging, the art of measuring the contents of casks or vessels of any form. Gauging forms a part of mensuration, but is frequently practiced by persons unacquainted with its theoretical principles, who work by certain rules, with the aid of a gauging-rod, and by the sliding rule. The ordinary gauging-rod consists of four rules made of box-wood, each a foot long, and united by brass joints, so that it may be folded together. The term *gauge* or *gage* is applied in various ways, but always with reference to measure or proportion; or, in the literal sense of the word, to that which bounds or confines something else. Thus, in physics, it is applied to several instruments or apparatus for measuring the state of a phenomenon; such as the wind-gage, rain-gage, the barometer-gage for measuring the degree of pressure of the air within the receiver of an air-pump, etc.; in architecture, to the length of a slate below the lap; in railway engineering, to the space between the rails, and the like. See GAGE.

Gazette, a paper of public intelligence and news of divers countries, first printed at Venice about the year 1620, and so called (some say) because *una gazetta,* a small piece of Venetian coin was given to buy or read it. Others derive the name from *gaza,* Italian for magpie, *i. e.* chatterer.—TRUSLER. A gazette was printed in France in 1631; and one in Germany in 1715.—*Nouv. Dict. Hist.*

Gauze. Brass wire-gauze or cloth is now made of such exquisite fineness that the separate threads can only be detected by close inspection. Messrs. Estivant, who carry on the brass manufacture on a scale of great magnitude in France, produce wire of remarkable minuteness. There were in the French department of the late exhibition several specimens of brass gauze, each showing the limit of fineness to which the manufacturers had attained at the date of the several industrial expositions in France. Each date displayed a degree of fineness greater than that of any previous date; and the specimen for 1851 was the finest of all. It almost exceeds belief that metal could be wrought to such an exquisite degree of minuteness as in this web. There were 67,600 meshes in one square inch of this brass gauze, or 260 parallel threads in one linear inch. The wire-drawing in the first instance, and the weaving afterward, must have been very carefully conducted.

Geelong, a township of Victoria colony, South Australia, comprising five contiguous villages, at the head of the west arm of Port Philip, 40 miles southwest of Melbourne, with which it has constant communication by steam. Population in 1846, 2,065. It has an increasing trade in wool and grain, though large vessels can not approach it within seven miles. The River Barwon flows past its west border to the Southern Ocean.

Consignees, Masters, and Lighters at Geelong.—We find the following declaration on the respective rights and duties of consignees, masters, and lightermen, in the proceedings of the Geelong Chamber of Commerce. The motion of which notice had been given by Mr. McKellar, "that the committee consider the subject of the delivery of goods by lighters," was brought under discussion, and after careful examination of the law relating thereto, it was clearly ascertained that it is the duty of the master of the vessel, as soon as the arrival of the ship has been reported, to give notice thereof to the owners or consignees of the goods on board; that he can not escape from his liability by immediately landing goods at a public wharf, without giving such notice, because the delivery at the wharf is not a delivery to the consignee; that if they are landed without such notice being given, and are destroyed upon the wharf by an accidental fire before the consignee has had an opportunity of taking them away, the ship-owners will be responsible for the loss, but that the lighterman or master of the vessel is bound to keep the goods on board or on the wharf at his own risk for a reasonable time, to enable the consignee or his assigns to come and fetch them; and that the lighterman is not released from his responsibility until he has obtained a receipt for the goods upon their delivery to the consignee.

Gelatine (Eng. and Fr.; *Gallert, Leim,* Germ.) is an animal product which is never found in the humors, but it may be obtained by boiling with water the soft and solid parts; as the muscles, the skin, the cartilages, bones, ligaments, tendons, and membranes. Isinglass consists almost entirely of gelatine. This substance is very soluble in boiling water; the solution forms a tremulous mass of jelly when it cools. Cold water has little action upon gelatine. Alcohol and tannin (tannic acid, see GALL-NUTS) precipitate gelatine from its solution; the former by abstracting the water, the latter by combining with the substance itself into an insoluble compound, of the nature of leather. No other acid except the tannic, and no alkali, possesses the property of precipitating gelatine. But chlorine and certain salts render its solution more or less turbid; as the nitrate and bichloride of mercury, the proto-chloride of tin, and a few others. Sulphuric acid converts a solution of gelatine at a boiling heat into sugar. Gelatine consists of carbon, 47·88; hydrogen, 7·91; oxygen, 27·21.

Gelatine Casts.—The beautiful may often be created out of mere refuse; an example of this is afforded by the articles now made of gelatine. The French show peculiar tact in procuring gelatine from the waste remnants of the skins, bones, tendons, ligaments, and other gelatinous tissues of animals. The well-ordered *abattoirs* of Paris and other large towns, afford facilities which we do not possess, for the economical application of all the waste parts of the slaughtered animals. M. Grenet has been the first to fabricate, on a large scale, out of various residues of animal bodies, beautiful and diversified products which have hitherto been made of the more costly material isinglass. He produces different kinds of gelatine, in thin sheets; pure and white films cut into threads for the use of the confectioner; very thin, white, and transparent sheets, called "papier glacé," or ice-paper, for copying drawings; dyed, gilt, and silvered gelatine sheets, adapted to the fabrication of artificial flowers and to the production of an almost endless variety of ornamented articles; and sheets embossed or stamped with elegant patterns. The gelatine is used, too, as a material in the dressing of stuff goods, and also as a refining ingredient in the clarification of wine.

Gem (Lat. *gemma*), in sculpture, a precious stone, used for the purpose of sculpture. The practice of carving gems is of remote antiquity, though it is doubtful whether they were able to cut the diamond or use the emerald and topaz for sculptural purposes. The stones usually selected are rock-crystal of different colors, jasper, chalcedony, onyx, cornelian, and blood-stone. Among the Greeks the art was carried to great perfection; but having fallen with the other arts into disuse, its revival was effected in Italy in the 15th century, and modern masters have more than rivaled some of the ancient productions.

Geneva (Du. *Genever*; Fr. *Genièvre*; Ger. *Gaud, Genever*; It. *Acqua di Ginepro*; Lat. *Juniperi aqua*; Sp. *Agua de Enebro*), a spirit obtained by distillation from grain, rectified with the addition of juniper berries. The latter gives to the spirit that peculiar flavor by which it is distinguished, and are also said to render it diuretic. Geneva is a corruption of *genièvre*, the French term for the juniper berry. By far the best geneva is made in Holland, where its manufacture is carried on to a very great extent. The distilleries of Schiedam have long been famous, and are at present in a very prosperous condition. Schiedam geneva is made solely of spirit obtained from rye and barley, flavored with juniper berries. It becomes milder, and acquires, as it gets old, an oily flavor disliked by Hollanders; hence nearly the whole of the "Schiedam" is exported, principally to the East Indies. There are no fewer than 100 distilleries in Schiedam, 200 in other parts of Holland, and not more than 40 in Belgium. The entire annual produce of the distillery in Holland is estimated at 2,000,000 ankers, or 20,500,000 wine gallons, of which about two thirds are exported.—Cloet, *Description Géographique des Pays Bas*, p. 32.

Genoa, a maritime city of Italy, once the capital of the famous republic of that name, now of a province of the kingdom of Sardinia, at the bottom of the extensive gulf to which it gives its name; the light-house being in lat. 44° 24′ 18″ N., long. 8° 54′ 24″ E. Population in 1848, 100,382. Genoa is one of the finest cities of Europe, and noted as the birth-place of Christopher Columbus, in the year 1441. In general, the streets are inconveniently narrow; but some of the principal ones are moderately wide, and consist almost entirely of public buildings and private palaces erected during the period of her prosperity. Being built on a rising ground, in the form of an amphitheatre, the appearance of the town from the sea is most magnificent, and justifies the epithet given to her of "*la superba.*"

Its ancient inhabitants were the Ligueres, who submitted to the Romans, 115 B.C., and underwent the revolutions of the Roman empire till A.D. 950. The Genoese revolt against their count, choose a doge and other magistrates from among their nobility, and became an aristocratic republic, 1030 to 1034. Several revolutions occurred up to 1528, when the celebrated Andrew Doria rescued his country from the dominion of foreign powers. Bombarded by the French in 1684, and by the British in 1688 and 1745. Genoa was taken by the Imperialists, December 8th, 1746; but their oppression of the people was such, that the latter suddenly rose and expelled their conquerors, who again besieged the city the next year, August 17, without effect. Genoa lost Corsica, 1730. The celebrated bank failed 1750. The city sustained a siege by a British fleet and Austrian army, until literally starved, and was evacuated by capitulation, May, 1800; but it was surrendered to the French soon after their victory at Marengo. The Ligurian republic was founded upon that of Genoa, in 1801, and the doge solemnly invested, August 10, 1802. Genoa was annexed to the French empire, May 25, 1805. It surrendered to the combined English and Sicilian army, April 18, 1814; and was transferred to the king of Sardinia in 1816. Insurrection against Victor Emmanuel, April 1st; subdued, April 11, 1849.

Port.—The harbor is semicircular, the diameter being about 1000 fathoms. It is artificial, being formed by two gigantic moles having opposite directions. That on the east side, called the old mole (*molo vecchio*), projects from the centre of the city west by south. It is about 260 fathoms in length, and has a battery near its middle. The new mole (*molo nuovo*), on the opposite side of the port, adjoins the southern extremity of the suburb of St. Pietro d'Arena, projecting about 210 fathoms from the shore in an E.S.E. direction. The mole heads bear from each other N.E. by E. and S.W. by W., the distance between them, forming the entrance to the harbor, being about 350 fathoms. The light-house is without the port, on the west side, near the extremity of a point of land, and contiguous to the bottom of the new mole. It is a lofty square tower; and as it stands on a high rock, and is painted white, it is visible in clear weather at a great distance. There is also a harbor light at the extremity of the new mole. There is no difficulty in entering the harbor; the ground is clean, and there is plenty of water, particularly on the side next the new mole; care, however, must be taken, in coming from the west, to give the light-house point a good offing. Moderate-sized merchantmen commonly anchor inside the old mole contiguous to the *porto franco*, or bonded-warehouses, having a hawser made fast to the mole, and an anchor ahead. Men-of-war, and the largest class of merchantmen may anchor inside the new mole, but they must not come too near the shore. Ships sometimes anchor without the harbor in from 10 to 25 fathoms, the light-house bearing N. ½ W.; distant 2 or 3 miles. The south west-wind occasions a heavy swell, but the bottom is clay, and holds well. Within the town are two rather shallow basins designed for galleys and small trading-vessels. There is also an arsenal.

Money.—Accounts were formerly kept at Genoa in lire or 20 soldi, each soldo containing 12 denari, and money was divided into *banco* and *fuori di banco*. But since the 1st of January, 1827, the ancient method of reckoning has ceased, and accounts are now kept in lire Italiane, divided into cents. The weight and fineness of the new coins are precisely the same as those of France; so that the par of exchange=25·20 lire per £1, if estimated in silver at 5s. 2d. an oz., and 25·54, if estimated in silver at 5s. an oz. 6 old lire di banco are equal to 5 new lire very nearly.—*Manuel de Nelkenbrecher.*

Weights and Measures.—Those formerly in use in Genoa are described in the old editions of M'Culloch's *Dict.* In 1847 the French system of weights and measures was introduced, the only difference being the substitution of Italian for French names. Thus, the *chilogramma* (kilog.)=2·2 lbs. avoird. (50¾ chilog. being very nearly equal to 112 lbs.); the *libbra* (livre) or pound=½ chilog.=1·1 lb. avoird.; the *quintale centinajo*, or cwt.=220 lbs. avoird.; and the *ettolitro* (hectolitre), liquid measure=22 imp. galls.; ditto, dry measure=2¾ imp. bush.; the *metro* (metre)=39·37 inches, etc. A barrel of oil=59½ chilog.=14⅓ imp. galls. All tares of usage were abolished at the same time that the French metrical system was introduced.

The *Bank of Genoa*, or of St. George, was one of the most ancient and celebrated banks of circulation and deposit in Europe. Until 1746, when the bank was pillaged by the Austrians, it was customary to make all bills of exchange drawn upon Genoa payable in *banco;* but since then they have generally been made payable in money *fuori di banco*. In 1800, when the French were besieged in Genoa by the Austrians, they took the treasure of the bank to pay their troops. The establishment has never recovered from this blow; some warehouses, and a part of the town's revenue, were assigned to it, but they yield a very poor dividend. It is no longer used as a place of deposit for money.

Trade, etc.—Genoa is the entrepôt of a large extent of country; and her commerce, though inferior to what it once was, is very considerable, and has latterly been increasing. She is a free port; that is, a port where goods may be warehoused and exported free of duty. The exports consist partly of the raw products of the adjacent country, such as olive oil (an article of great value and importance), rice, fruits, cheese, rags, steel, argol, etc.; partly of the products of her manufacturing industry, such as silks, damasks, and velvets (for the production of which she has been long famous), thrown silk, paper, soap, works in marble, alabaster, coral, etc.; the printed cottons of Switzerland, and the other products of that country and of the western parts of Lombardy, intended for the south of Europe and the Levant; and partly of the various foreign products brought by sea, and placed in *porto franco*. The imports principally consist of cotton and woolen stuffs; cotton wool, mostly from Egypt; corn from the Black Sea, Sicily, and Barbary; sugar, salted fish, spices, coffee, cochineal, indigo, hides, iron, and naval stores from the Baltic; hardware, and tin plates from England; wool, tobacco, lead (principally from Spain), wax, etc. Corn, barilla, Gallipoli oil, cotton, valonia, sponge, galls, and other products of the countries adjoining the Black Sea, Sicily, the Levant, etc., may in general be had here, though not in so great abundance as at Leghorn. The abolition of the various duties and custom-house fees formerly charged on the transit of goods through Genoa and the Sardinian territories, has had a very beneficial influence on the trade of this port, particularly as regards the importation of raw cotton for Switzerland and Milan, as well as of the different descriptions of colonial produce.

Account of the principal Articles of Export from Genoa, with their Prices, free on Board, in Italian and English Money, 5th June, 1853.*

Articles.	Prices in Italian money.	Prices in English money			English weights & measures.
	Livres.	£	s.	d.	
Cheese, Parmesan..50 kil.	125 —130	0	1	0	lb.
Citron, preserved... "	75 — 80	0	0	6 56	"
Cream of Tartar.... "	80 — 0	0	0	7 44	cwt.
Essences: lemon....½ kil	6 50— 0	0	5	3	lb.
bergamot......... "	8 50— 0	0	6	5	"
orange............ "	3 50— 0	0	4	5	"
Galls: Turkey, blue & blue & green...50 kil.	170 — 0	7	5	6	cwt.
Gum Arabic: picked.½ kil	1 50— 2	8	11	0	"
in sorts..........50 kil.	75 — 0	3	4	0	"
Hemp: Bologna...100 kil.	106 —108	46	12	7	ton.
2d and 1st....... "	104 —105	45	19	8	"
cordage, 1st...... "	96 — 98	41	19	4	"
" 2d...... "	91 — 93	39	15	10	"
Ferrara cordage. "	76 — 88	38	0	9	"
Piedmont, 1st... "	66 — 0	28	6	0	"
combed......... "	130 —140	59	19	0	"
Linseed, Sicily and Sardinia....... "	28 50— 29	2	4	2	imp. qr.
Black Sea....... "	25 — 26	1	19	8	"
Egyptian........ "	25 — 26	1	19	8	"
Liquorice paste, Calabria..........50 kil.	86 — 88	3	15	7	cwt.
Sicilian .... "	52 — 58	2	5	6	"
Manna, in flakes.....½ kil.	7 50— 0	0	5	9	lb.
in sorts.......... "	3 — 0	0	2	4	"
Madder roots, Levant "	50 — 0	2	2	0	cwt.
Opium, Turkey ..... "	15 — 0	0	11	6	lb.
Oil, Genoa, super.....bar.	115 — 0	88	3	0	252 gal.
Gallipoli........... "	72 — 0	55	3	0	"
Tunis.............. "	75 — 76	58	4	0	"
Sicily.............. "	73 — 0	55	18	0	"
Sardinia........... "	92 — 93	71	4	0	"
Paper, Floretta, 14 lbs. p 10 reams	44 — 47	0	3	11	475 shts
Paper — Al Masso, p. 10 17 lbs. reams	36 — 38	0	3	2	"
Quicksilver..........½ kil	72 — 74	0	6	3	"
Rags, linen, 1st......50 kil.	4 25— 0	0	3	3	lb.
" " 2d...... "	31 90— 0	3	0	3 20	"
" " 3d...... "	26 25— 0	0	0	2 53	"
Rice, Italian........ "	22 20— 0	0	0	1 86	"
Silks, raw Genoa and Piedmont.........½ kil.	18 — 18	0	15	11	cwt.
white and yellow "	33 — 34	1	7	3	"
Organzins 18—20.. "	40 — 41	1	12	9	"
" 20—22.. "	38 — 39	1	11	6	"
" 22—26.. "	36 — 38	1	10	6	"
Trama, 1st........ "	33 — 34	1	7	0	"
" 2d and 3d.. "	30 — 32	1	15	8	"
Sewing, black..... "	26 — 0	1	0	10	"
assorted .... "	27 — 0	1	1	7	"
Waste, 1st and 2d. "	3 50— 5	0	4	1	"
Wools, viz:					
Morocco, washed.50 kil.	100 —110	0	0	10 10	lb.
Tunis............ "	127 —131	0	1	0 06	"
Tangarock & Odessa "	95 —102	0	0	9 38	"
Russia merinos half washed.... "	114 —125	0	0	11 20	"
Bengasi........ "	64 — 76	0	0	6 27	"
Morocco unwashed "	66 — 68	0	0	5 69	"
Tunis............ "	57 — 61	0	0	5 35	"
Grains, viz.:					
Wheat, Polish soft..hect.	16 50— 17	2	0	4	imp. qr.
Galacz and Bralia.. "	15 — 15	1	16	10	"
Barletta........... "	18 50— 19	2	5	2	"
Romelia........... "	14 50— 15	1	15	7	"
hard Tangarock... "	17 — 17	2	1	6	"
Marianople........ "	16 50— 0	1	19	2	"
Indian Corn, Galacz "	12 — 12	1	9	7	"

---

* From the Circular of Grants, Balfour & Co., Leghorn.

Gentian (Ger. *Enzian*; Fr. *Gentiane*; It. *Genziana*; Sp. *Jenciana*; Rus. *Enzian*; Lat. *Gentiana*), the roots of two alpine plants, *Gentiana lutea* and *Gentiana purpurea*, found growing in Switzerland and Austria, the Apennines, the Pyrenees, and in North America. Those brought to this country come from Germany. They are in pieces of various lengths and thickness, twisted, and wrinkled on the outside, and covered with a brownish-gray cuticle. They have no particular odor; and the taste is intensely bitter, without being nauseous.—Thomson's *Dispensatory*.

Geodesy (Gr. *γη*, and *δαιω*, *I divide*), literally signifies the *division of the earth*, in which sense it is synonymous with land-surveying; but it is usually employed in a more general sense to denote that part of practical geometry which has for its object the determination of the magnitude and figure either of the whole earth, or of any given portion of its surface. In this sense it comprehends all the geometrical or trigonometrical operations that are necessary for constructing a map of a country, measuring the lengths of degrees, etc. In order to construct an accurate map, or determine the form and dimensions of a country, it is necessary, in the first place, to determine the absolute distances between the several stations or points; secondly, to determine the azimuths of the lines thus measured, that is, their situation with respect to the meridian; and thirdly, the differences of latitude and longitude of the stations. The operations necessary for determining the absolute distances, comprehending the measurement of a base, the observation of angles, the computation of the sides of the triangles, and their reduction to the same level, are called the *geodesical* or *geodetical* operations; while those which are required for determining the azimuths and latitudes are called the *astronomical* operations. The determination of the figure and dimensions of the earth is a problem of very great importance to astronomy and geography, and has accordingly at all times been a subject of much interest to mathematicians; but it is only since toward the middle of the last century that operations on an adequate scale for its solution have been undertaken in different parts of the world. For the results of the more important of these operations, see Degree.

Geography. The first correct record we have of geographical knowledge is from Homer. He describes the shield of Achilles as representing the earth, surrounded by the sea.—*Iliad.* He accurately describes the countries of Greece, islands of the Archipelago, and site of Troy. The priests taught that the temple of Apollo at Delphos was the centre of the world. Anaximander of Miletus was the inventer of geographical maps, about 568 B. C. Hipparchus attempted to reduce geography to mathematical bases about 135 B. C. It was first brought to Europe by the Moors of Barbary and Spain, about A. D. 1201.—Lenglet. The invention of the mariner's compass is the important connecting link between ancient and modern geography. The modern maps and charts were introduced into England by Bartholomew Columbus to illustrate his brother's theory respecting a western continent, A. D. 1489.—Haydn. The term Geography, derived from two Greek words, *γεα*, *the earth*, and *γραφω*, *I write*, signifies *a description of the earth.* The description to which this title is applied may be more or less general; either embracing such truths as only belong to the earth considered as one whole, or extending to particulars which belong to and distinguish the several countries spread over its surface. In whichsoever of these two aspects the subject be regarded, a vast field opens to the view of the observer. In order to give a full and accurate description of the earth, it would be requisite to consider it in reference to its motion, figure, and magnitude; in reference to its relation to the other bodies of the universe, and more especially to the planetary system of which it forms a part; in reference to its surface, as diversified by land and sea, mountains and valleys, lakes and rivers; in reference to the materials which compose its crust, and to its internal structure; in reference to the constitution of the atmosphere with which it is surrounded, and the effects arising from the variations in atmospherical pressure, temperature, and humidity. Nor would it be enough to consider the earth only as a mass of inert and unorganized matter; it would be necessary to regard it in its relations to vegetable and animal life; and to trace the phenomena which these, in their endless variety, present in its various divisions and provinces. It would still further be necessary to view it as the abode of man himself, and as modified by his existence; divided into states and kingdoms; adorned with cities, and all the noble monuments of civilized life.

Such is an outline of the picture which geography, in the most unlimited meaning of the term, should exhibit of the globe. To fill up this picture in all its parts, it would evidently be necessary to call in the aid of the whole circle of the sciences. But the description is usually of a less extended character, being confined chiefly to the more obvious and striking features of the various regions and countries of the earth.

In the wide range which the subject presents, several divisions and subdivisions are suggested by the different views in which the earth may be considered. The three following divisions are the most important:

1. *Mathematical Geography*, which illustrates, on astronomical principles, the figure, magnitude, and motion of the earth; teaches how to determine the positions of places on its surface; explains the construction of globes, with their application to the solution of problems; and shows how the whole or any portion of the earth's surface may, on the principles of projection, be delineated on a map or chart.

2. *Physical Geography*, which treats of the mutual relations of the diversified objects found on the surface of the earth, including the atmosphere by which it is surrounded; and explains the causes, whether of a chemical or mechanical description, that produce the modifications and changes which are continually taking place in them.

3. *Political*, or *Historical Geography*, which describes the earth as divided into countries, occupied by various nations, and improved by human art and industry. It traces the circumstances and character of the different races and tribes of mankind, explaining their social institutions, and ascertaining the place which each occupies in the scale of civilization.

From this general arrangement of the subject, it is evident that geography depends for its rank as a science on its intimate connection with various branches of knowledge, which, taking their rise from investigations instituted in reference to the nature and mutual relations of the objects on the earth, or connected with it, furnish those accurate views which must be obtained before any thing like a precise description can be given of the globe we inhabit, or of any portion of it. With regard to what belongs to Physical Geography, we must refer the reader to the articles PHYSICAL GEOGRAPHY, MINERALOGY, METEOROLOGY, etc., in the new edition of the *Encyc. Brit.* What belongs to Political or Historical Geography will be found under the names of the respective countries. The following article will be limited to a view of the progress of Geographical Discovery.

Progress of Geographical Discovery.—There are many circumstances in the condition of man which connect him so closely with the globe which he inhabits, as to render absolutely necessary to his existence a knowledge of at least the neighborhood of the spot where his lot is cast. It is from the earth that he must derive the means of subsistence and accommodation, the materials on which his industry is to be exerted, and those objects in the exchange of which commerce consists. In every stage of his progress, therefore, from barbarism to civilization, he must employ some attention and observation, in order to discover in what respects the objects with which he is surrounded are qualified to contribute to the supply of his wants, and to his comfort and convenience. Even while he roams the forest in the savage state, he must make himself acquainted with many circumstances, a knowledge of which is necessary either to give him success in the chase, or to direct him in retracing his steps to the place where he has fixed his dwelling. But it is not until men have united in society, and that neighboring communities have begun to hold mutual intercourse, that those feelings and passions are effectually aroused which stimulate to the arduous pursuits of geographical discovery. Commerce and war, with the spirit of adventure which usually accompany them, have, without doubt, been among the first causes of geographical research. In the train of these have followed the workings of avarice and the aims of ambition. As the human mind has advanced in its career of improvement, curiosity, with an enlargement of views and desires, has been called into action; and voyages have been undertaken for the express purpose of discovering new countries and exploring unknown seas.

In tracing the effects which these causes have produced in the gradual increase of geographical knowledge, it will contribute to distinctness to keep in view a threefold division, which the subject naturally assumes, namely, *ancient* geography, extending from the earliest period of history down to the time when, the Roman empire having been overrun by barbarous nations from several quarters, Europe was overwhelmed in the darkness which preceded the revival of learning; the geography *of the middle ages*, extending from the revival of letters to the fifteenth century, when the discoveries of the Portuguese began to lay a wider foundation for the science; and *modern* geography, which embraces the most recent discoveries, and is progressively improving by the accessions which it is receiving from the labors and science of modern travelers and navigators.

The Phœnicians are the earliest commercial people of whose discoveries we have any correct accounts. This people seem first to have explored the coast of the Mediterranean. Their navigators at length extended their voyages through the Straits of Gades, now called the Straits of Gibraltar, entered the Atlantic Ocean, and visited the western coasts of Spain and Africa. In many places to which they resorted they planted colonies; and sought, by instructing the inhabitants, in some measure, in their arts and improvements, to open a wider sphere for their commerce. The learned Bochart, led by the analogy between the Phœnician tongue and the oriental languages, has endeavored to follow the tracks of the Phœnicians, both along the shores of the Mediterranean and those of the Atlantic. These analogies are not always sure guides; but there seems no reason to doubt that Cadiz was originally a Phœnician colony, and it is not likely that this was the only one formed by that enterprising people.

The Arabian Gulf, or Red Sea, offered to the Phœnicians another field of naval and commercial exertion, to the improvement of which the distance of Tyre, the emporium of their trade, was the only obstacle. This induced them to make themselves masters of Rhinocrura or Rhinocolura, the port in the Mediterranean nearest to the Red Sea. Commodities purchased in Arabia, Ethiopia, and India, were landed at Elah, the safest harbor in the Red Sea toward the north; thence they were conveyed overland to Rhinocolura; and being there reshipped, they were carried to Tyre, whence they were distributed over the world.

The wealth and power which accrued to the Phœnicians from their being in the sole possession of the lucrative trade of the East, incited the Jews, their neighbors, under the prosperous reigns of David and Solomon, to desire a participation in its advantages. Their conquest of Idumea, which stretches along the Red Sea, put it in the power of Solomon to fit out a fleet;

while his alliance with Hiram, king of Tyre, enabled him to command the skill of the Phœnicians for the conducting of the voyage. Passing through the Straits of Babelmandel, they carried on commerce in the Indian Ocean; and so distant were the countries to which they traded, that the voyage occupied no less than three years. But though the Jews thus for a time engaged in the pursuits of trade, yet the tendency of their institutions, which were expressly designed to preserve them a separate people, was unfavorable to the development of the commercial spirit which their monarchs wished to foster among them. This, joined with the division of the kingdom on the death of Solomon, proved fatal to their rising greatness as a commercial people, and excluded them from ranking among the nations who have contributed to the advancement of geographical knowledge. It is perhaps impossible to fix with certainty the limits which bounded the geographical researches of the Phœnicians, on accountof the difficulty there is of assigning the precise places marked out by the names then given to the countries to which they traded. The length of time occupied in the voyage, and the nature of the cargoes brought home, with a few other circumstances of the same vague kind, are the only particulars afforded to direct us in the determination. Thus, the country of Ophir, to which the Phœnicians navigated the ships of Solomon, must be ascertained by the facts that the voyage thither and homeward occupied three years, and that the cargo consisted of "gold, and silver, ivory, and apes, and peacocks." Among the various opinions which have been entertained respecting the position of this distant country, the most probable appears to be that it was situated on the eastern coast of Africa, as far south as Sofala. To this quarter every indication seems clearly to point; and whatever objections may appear to stand in the way, in consideration of the remoteness of the region, and the difficulties to be encountered, these admit of being answered by a reference to the length of time required for the voyage, and to the wealth, naval skill, and ample resources, at the command of the monarchs engaged in the traffic.

The regions always spoken of in Scripture as the most remote with which the Hebrews and Phœnicians were acquainted, are Tarshish, Ophir, the Isles Sheba and Dedan, the rivers Gog, Magog, and the North. Without entering into any discussion, we may give what appear to be the most probable conclusions with regard to the positions of the countries to which these names were applied. Tarshish is a country from which two voyages are spoken of in Scripture as being made; one by the Mediterranean, bringing iron, silver, lead, and tin, the produce of Spain and Britain; the other by the Red Sea, bringing gold, ivory and other productions of tropical Africa. These two voyages, though at first they appear incongruous, if supposed to be made to the same country, may be reconciled by supposing that Tarshish is fundamentally Carthage, which monopolized almost entirely the commerce of Spain and Britain, and was the medium through which the commodities of the West were distributed; and that the name of this great African metropolis was extended to the whole of the continent of Africa. The Isles are the whole southern coasts of Europe, consisting either of real islands or peninsular tracts. Sheba is the southern portion of that part of the coast of Arabia which borders on the Red Sea; while Dedan lies upon the opposite coast, that borders on the Persian Gulf. These countries rose to commercial importance in consequence of the valuable commodities which were imported into the former from the African coast, and into the latter from India. Thence arose the traffic carried on by "the companies of Sheba," or caravans, and by "the traveling companies of Dedanim." The River was the name always applied to the Euphrates. Gog, Magog, and the North, appear to be the high table-land in the interior and north of Asia Minor, Phrygia, Galatia, Cappadocia, and Paphlagonia, regions in which may be recognized the peculiarly rude and formidable aspect which belonged to the countries to which in ancient times the names in question were applied. See *Encyclopædia of Geography*, by H. MURRAY, Esq.

The Carthaginians, a Phœnician colony, retained in full vigor the commercial spirit of the parent State. They did not, however, attempt to divide with Tyre the wealth and power which she derived from the monopoly of the trade carried on in the Arabian Gulf. They directed their efforts to the opposite quarter, and sailing through the Straits of Gades, pushed their researches far beyond the bounds which had been reached by the mother country in this part of the globe. They visited not only all the coast of Spain, but likewise that of Gaul, and penetrated at length as far as the south-western coast of Britain, where they obtained tin from the mines of Cornwall or in traffic with the natives. Nor was it only toward the northward that they directed their efforts; they explored also the regions southward of the Straits, and sailing along the western coast of Africa almost as far as the northern tropic, they planted colonies, as the Phœnicians of Tyre had formerly done, with a view to prepare the natives for carrying on commercial intercourse. The Atlantic Ocean was destined to conceal for ages from the inhabitants of the old world the immense regions which lie beyond it. But the Carthaginians extended the boundary of navigation westward by the discovery of the Fortunate Islands, now known by the name of the Canaries.

The enlargement of views gradually generated by this spirit of commercial enterprise led at length to voyages of which discovery was the special object. The circumnavigation of Africa was one of the earliest attempts of this kind made by the ancients. The direction which the coast takes beyond the Mediterranean on the one hand, and the Red Sea on the other, suggested the idea of a peninsula which it might be possible to sail round. This voyage was first undertaken by the Egyptians; a people exceedingly averse to engage in naval affairs, but who at this time were ruled over by Necho, a monarch whose active spirit prompted him to engage some Phœnicians to descend the Arabian Gulf, and, coasting along Africa, to endeavor to return by the Straits of Gades. Herodotus narrates in a few words the result of this enterprise, which was undertaken about 604 years before the Christian era. He says, "the Phœnicians, setting sail from the Red Sea, made their way into the southern sea; and when autumn approached they drew their vessels to land, sowed a crop, and waited until it was grown; when they reaped it, and again put to sea. Having spent two years in this manner, in the third year they reached the Pillars of Hercules, and returned to Egypt, reporting what does not find belief with me, but may perhaps with some other person; for they said that in passing Africa, they had the sun on their right hand. In this manner Libya was first known." This passage has given rise to much controversy among the learned. But the voyage here so briefly described does not seem to involve any impossibility, notwithstanding the then infant state of navigation; and the circumstances which the historian objects to as incredible, is the very point, which, from its coincidence with what we know should have happened, renders the story more worthy of belief.

Xerxes, king of Persia, according to Herodotus, gave a similar commission, about 480 years before the Christian era, to one of his satraps, named Sataspes, who, for a heinous offense, had been condemned to die. If successful in the accomplishment of this voyage, Sataspes was to escape a cruel death. But the difficulties were too great to be surmounted by a navigator brought up amid the luxury and indulgence of the Persian court. Having procured from Egypt a vessel and crew, he passed through the Straits of Gades, entered the Atlantic Ocean, and, bending his course toward the south, coasted the continent of Africa, until, after several months, he probably reached the coast of Sahara. The frightful and desolate shores along which he sailed, and the tempestuous ocean which beat against them, combined to fill his mind with alarm and to shake his resolution. He retraced his course to the Straits; and hoping, perhaps, that the labors he had undergone in the partial accomplishment of the task imposed on him would be accepted by his royal master as a sufficient atonement for his offense, or that the offense itself might in a great measure be forgotten, he returned home and presented himself before Xerxes. The cause which he assigned for the failure of the ultimate object of his mission was, that he had encountered a sea so full of herbage that his passage was completely obstructed. This reason (the grounds of which have never been satisfactorily explained, though it *has* been alleged that obstacles of this description occur in that part of the sea which lies between the Cape Verd Islands, the Canaries, and the coast of Africa) appeared so ridiculous to Xerxes, that he ordered the sentence of death by crucifixion, which had been pronounced upon Sataspes, to be immediately executed.

But the most celebrated voyage of antiquity undertaken for the purpose of discovery was the expedition under Hanno, fitted out by the authority of the Senate of Carthage, and at the public expense, and that with a view of attempting a complete survey of the western coast of Africa. Of all the voyages performed by the Phœnicians and Carthaginians, this is the only one of which we have an authentic narratiue. Mercantile jealousy prevented these two great commercial states from communicating to other nations the knowledge which they acquired of the remote regions of the earth; and from this cause, when the maritime power of the former was annihilated by Alexander's conquest of Tyre, and the empire of the latter was overthrown by the Roman arms, all monuments of their great skill in naval affairs appear in a great measure to have perished. Even the account of the voyage of Hanno (*Periplus Hannonis*) has been considered by its learned editor, Mr. Dodwell, as a spurious work. But the arguments of M. de Montesquieu and of M. de Bougainville appear fully to establish its authenticity, which the learned world now generally admit.

Hanno set sail with a fleet of 60 vessels, so constructed that, according to the mode of ancient navigation, he could keep close in with the coast. We are told that, in twelve days after leaving the Straits of Gades, he reached the island of Cerne; that proceeding thence, and following the direction of the coast, he arrived, in 17 days, at a bay, which he called *The West Horn.* From this he advanced to another bay, which he named *The South Horn.* The objects which are described as having been seen by Hanno in his progress belong to tropical Africa. But in attempting to ascertain the places which he visited, or the utmost distance which he sailed southward, much difficulty and uncertainty are experienced. Bougainville supposes Hanno to have reached the Gulf of Benin, and contends that this limit, distant as it is, can not be regarded as beyond what may be conceived to have been accomplished by the most skillful navigator of antiquity. Major Rennell shortens the distance considerably by conceiving the voyage to have been extended no further southward than Sherbro Sound, a little beyond Sierra Leone. He thus obtains the advantage of avoiding a difficulty involved in the hypothesis of M. de Bougainville, namely, the supposition of ancient ships having sailed upward of 70 geographical miles in a day. At the same time, the arguments which support the one hypothesis are equally applicable to the other.

According to the views of M. Gosselin, however, the voyage must be confined to much narrower limits southward than even those assigned by Major Rennell. He supposes it to have terminated about the River Nun—an opinion which he supports by alleging that, in such a voyage, the progress must necessarily have been slow. The Carthaginian navigator had to encounter all the obstacles and dangers incident to a course held along a shore, and in a sea, which were equally unknown. He must have found himself impeded by the requisite examination of every part of the coast, as well as by the many precautions which the safety of the fleet under his command must have rendered constantly necessary. With regard to the circumstances given in the narrative which appear to point to tropical Africa, M. Gosselin supposes that the same aspect of life and nature may, at that distant period, have belonged to Morocco, then thinly peopled by the rude native tribes, which is now specially characteristic of the more southern regions.

Amid such diversity of opinion among the learned, it is not easy to decide in reference to a subject beset with so many difficulties. If we assume either of the more remote distances assigned for the termination of the voyage, Cerne must be identified with the isle of Arguin; and, on Major Rennell's hypothesis, the Gulfs of Bissago and Sherbro present those numerous islands described by Hanno, to which there are no islands corresponding on any other part of the coast. On the whole, however, the most limited distance seems preferable, if we admit that part of M. Gosselin's hypothesis which assigns to Morocco features of man and of nature that are usually held to be characteristic of tropical Africa.

The circumnavigation of Africa was an enterprise which in ancient times not only called forth the naval efforts of the most powerful maritime States, but which also awakened the ambition of private adventurers. Eudoxus, a native of Cyzicus, being sent on a mission to Alexandria, at that time the seat of naval enterprise and geographical knowledge, his ardent mind, naturally biased to these pursuits, was aroused to action by the spirit which prevailed in that city. He began his career under the auspices of Ptolemy Euergetes, the reigning Egyptian monarch, who fitted out a fleet, and placed it under his command. According to the destination assigned him, Eudoxus descended the Arabian Gulf, and proceeded probably as far as the southern shore of Arabia. Thence he appears to have returned after a prosperous voyage, with a valuable cargo of aromatics and precious stones. But of this wealth he appears to have been deprived by Euergetes. After the death of this monarch, which in a short time took place, his widow Cleopatra sent Eudoxus on another voyage, in the course of which he was driven by unfavorable winds on the coast of Ethiopia, where he was kindly received by the inhabitants, and carried on with them an advantageous traffic. After other vicissitudes of fortune, he was induced by circumstances which occurred in his adventurous life to leave the court of Egypt, and repair to the commercial city of Cadiz, in Spain, and there to fit out an expedition for the purpose of African discovery. At Massilia (Marseilles), and other maritime places which he passed on his way to Cadiz, he took care to make known his views and hopes of success, and to invite all who were actuated by any spirit of enterprise to accompany him. He succeeded in fitting out a ship and two large boats, on board of which he carried not only goods and provisions, but artisans, medical men, and even players on musical instruments. This was no doubt proceeding on a magnificent scale; but his crew was ill calculated to second his bold undertaking. To avoid the danger of stranding, Eudoxus was anxious to keep the open sea. His companions, however, alarmed at the swell, forced him to adopt the usual mode then followed of sailing along the shore—a measure which led to the disaster which he had anticipated. With one vessel of a lighter construction, on board of which was put the more valuable part of the cargo, Eudoxus pursued his voyage until he reached a part of the coast inhabited by a race of people that appeared to him to speak the same language with those whom he had found on the opposite side of the continent. Judging from this circumstance that he had ascertained the main object of his voyage, he returned and endeavored to obtain the assistance of Bocchus, king of Mauritania. Suspecting, however, treachery on the part of that monarch, he again had recourse to Spain. Here he was again successful in equipping another expedition, consisting of one large vessel fitted for the open sea, and another of smaller size for the examination of the coast. This was a judicious preparation for the accomplishment of the object in view; but with regard to the issue of the voyage no accounts of any authority have been preserved.

Such are the leading circumstances connected with the voyages of Eudoxus, which are narrated by Strabo; and, notwithstanding the skepticism and severe criticisms of that geographer, there is really nothing to which the candid reader can reasonably refuse his belief. Prejudices, founded, for the most part, on his own want of information, led Strabo to treat likewise as fabulous the relation of the only ancient voyage having Europe, and more particularly the British isles, for its object, of which we have any detailed account.

Pytheas, a Massilian navigator, undertook an expedition about 320 years before the Christian era. He steered northward; and after examining the coasts of Spain and Gaul, he sailed round the island of Albion; and, stretching still further to the north, he discovered an island, the *Ultima Thule* of the ancients. What island this was, the learned are not agreed. It has been supposed to be the modern Iceland; but this implies too great an extent of open sea for an ancient navigator to traverse; and besides, six days, the period during which he is said to have navigated to the northward of Albion before he made his discovery, is too short a time to admit of his reaching Iceland. Others, among whom is Malte-Brun, have considered Jutland as Ultima Thule. But it should be kept in view that Pytheas uniformly regarded Thule as British, a character which he could scarcely conceive to belong to Jutland, seeing he could have reached that peninsula only by a long course along the coasts of Germany, which must have impressed on his mind the idea that he had left far behind him every thing belonging to Britain. On the whole, Shetland seems best entitled to be considered as the ancient Thule, and suits well with the appellation which Pytheas gives it, when he expressly calls it the "furthest of the Britains."

Strabo endeavors to throw discredit on the statements of Pytheas, by starting objections long known to be of the most groundless description; and it is an advantage which the traveler and navigator possess who describe faithfully the grand features of nature, that, however prejudice may dim their reputation for a time, yet will their accuracy as well as veracity at length, in the progress of knowledge, appear, and secure for them the respect and applause of mankind. At the same time, it must be admitted that, in describing what he saw beyond his Ultima Thule, the statement given by Pytheas, as reported by Strabo, assumes a somewhat fabulous character. He asserted, it seems, that beyond Thule there commenced what was neither earth, sea, nor air, but a confused blending of all the three. But even here some allowance is to be made for the workings of imagination under very peculiar circumstances, and a readiness, not unnatural, to believe reports which represented him to have reached the extremity of the habitable globe. If his language is not too literally interpreted, it will be found to convey a strongly figurative, but not altogether imperfect, description of the state of the sea and sky in those climes, which have been so little favored by nature.

The conquests of Alexander the Great, by making known the East, enlarged the bounds of geographical knowledge. Though the course of his expedition was for the most part by land, his mind was equally intent on commerce and maritime discovery. Checked as he had so long been in the career of his victories by the opposition and efforts of the republic of Tyre, he had an opportunity afforded him of observing the vast resources of a maritime power, and at the same time of forming a judgment respecting the immense wealth to be derived from commerce, especially from that carried on with India, which he found to be wholly in the hands of the Tyrians. With a view to secure this commerce, as soon as he had completed the conquest of Egypt, he founded the city of Alexandria, and thus established for it a station preferable in many respects to Tyre. After his final victory over the Persians, his march in pursuit of Bessus, who had carried off Darius into Bactriana, often led him near to India, and among people accustomed to much intercourse with it, from whom he learned many things concerning the state of the country, that served so to confirm and inflame a desire which he had long cherished, of extending his dominion over those regions, that he was induced to conduct his army from Bactria, for the purpose of invasion, across that ridge of mountains which form the northern barrier of India. After passing the Indus, Alexander directed his march to the Ganges, which, from the accounts he heard of it, and of the countries through which it flows, he was eager to reach. The route which he found it necessary to follow, in consequence of being successively engaged in hostilities with various native princes, led him through one of the richest and best-peopled countries in India, now called Punjab. In his ultimate object, however, he failed. His march being performed during the rainy season, his troops had already suffered so much, that, notwithstanding the high degree in which he possessed all those qualities that secure an ascendancy over the minds of soldiers, he was unable to persuade them to advance beyond the banks of the Hyphasis, the modern Beyah, which was accordingly the utmost limit of Alexander's progress in India.

By this expedition, Alexander first opened the knowledge of India to the people of Europe; and as he was accompanied, wherever he went, by skillful surveyors, Diognetes and Baeton, who measured the length and determined the direction of every route taken by the army, he furnished a survey of an extensive district of it, more accurate than could have been expected from the short time he remained in that country. The memoirs drawn up by his officers likewise afforded to Europeans their first authentic information respecting the climate, the soil, the productions, and the inhabitants of India.

Though Alexander did not penetrate to the Ganges, his expedition prepared the way to the knowledge of that magnificent stream. For soon after, Seleucus, one of his successors, sent Megasthenes as his embassador to Palibothra, the capital of a powerful nation on the banks of the Ganges. The site of Palibothra was probably the same as that of the modern city of Allahabad, at the junction of the River Jumna with the Ganges. This embassy brought new and opulent provinces of India into view, an acquaintance with which served to raise still higher the idea generally entertained of the value and importance of the country.

The island *Taprobane*, so celebrated among the ancients, which appears, notwithstanding some great mistakes with respect both to its extent and position, to be the modern Ceylon, seems not to have been known in Europe even by name before the age of Alexander. In consequence, however, of the enlightened and active curiosity with which he explored every country which he subdued or visited, some knowledge of it was at length obtained; and, after his time, it is mentioned by almost every ancient geographer. While Alexander was attempting to penetrate into India, a numerous fleet was assembled by officers whom he had left on the banks of the Hydaspes, the modern Behat or Chelum, with orders to build and collect as many ships as they could. The destination of this fleet was to sail down the Indus to the ocean, and from its mouth to proceed to the Persian Gulf, with a view of opening a communication between India and the centre of his dominions.

When Alexander reached the banks of the Hydaspes on his return, he committed the conduct of this expedition to Nearchus. The voyage down the Indus derived splendor from the greatness and magnificence of the armament, which consisted of an army of 120,000 men, and 200 elephants, and of a fleet of nearly 2000 vessels. Alexander himself accompanied Nearchus in his navigation down the river, with one third of the troops on board; while the remainder, in two divisions, one on the right and the other on the left of the river, accompanied them in their progress. Having reached the ocean after the lapse of nine months, Alexander left Nearchus and his crew to pursue their voyage, and conducted his army back by land to Persia. A coasting voyage of seven months brought Nearchus, with the fleet, in safety, up the Persian Gulf into the Euphrates. It was at the mouth of the Indus that the Greeks witnessed for the first time, and that with astonishment and terror, the ebb and flow of the sea; a phenomenon scarcely perceptible in the Mediterranean, to which their navigation had formerly been confined. In the progress of the voyage they were also struck with surprise on observing phenomena belonging to the midsummer of the tropics. At noon objects were observed to project no shadows, or to project small shadows declining to the south. Their attention was still further attracted by the new appearance of the sky. Stars which they had been accustomed to see high in the heavens were now seen near the horizon. Some stars to the north disappeared, while other stars formerly invisible were seen in the south.

The opening of a communication between the Red Sea and the Persian Gulf was with Alexander another great object of ambition. But though with this view he seems to have sent expeditions down both seas, he failed in his attempts to accomplish this project. Among the Romans, navigation and commerce, the handmaids of geographical science, were never made objects of pursuit, except in so far as they were found to be necessary to forward their schemes of universal dominion. Their conquests opened indeed the West, as those of Alexander had made known the East; and it might be truly said of that great people, that as they were the conquerors, so they were the surveyors of the world. Every new war produced a new survey and itinerary of the countries which were the scenes of action; so that the materials of geography were accumulated by every additional conquest. Some fragments of the itineraries thus composed still remain. The most memorable is that which bears the name of Antoninus, and which may be described as a mere skeleton road-book, exhibiting nothing more than the names of places, and their distances from each other. The Jerusalem itinerary, which details minutely the route from Bordeaux to that holy city, is of the same description.

A more remarkable monument, however, is the *Peutingerian Table*, which forms a map of the world, constructed on the most singular principles. The map is twenty feet long and only one foot broad, so that we can easily conceive how incorrectly the proportion of the different parts is exhibited. Along the high road which traverses the Roman empire in the general direction of east and west, objects are minutely and accurately represented; but of those objects which lie to the north and south of it, only some general notion is conveyed. The Peutingerian Table serves as a specimen of what are called *Itinera Picta*, the "painted roads" of the ancients, intended for the clearer direction of the march of their armies.

While the Romans by their surveys contributed much to increase the mass of materials out of which the structure of geographical science was to be reared, they never attempted themselves to combine these materials into one harmonious system. They imbibed in no degree the commercial spirit of the great maritime States of the ancient world, Carthage, Greece, and Egypt, which their valor and discipline obliged to submit to their dominion. But while the trade of the conquered countries continued to be carried on through nearly the former channels after they were reduced to the form of Roman provinces, the wealth accumulated in the capital of the world gave rise to a demand for luxuries of every description. This, combined with the comparative peace and security which for a long time prevailed after the complete establishment of the Roman dominion, gave new vigor to commercial enterprise. Alexandria continued the great centre of naval affairs. Obstacles which in the time of Alexander were deemed insurmountable, were completely overcome. Trade with India through Egypt acquired new energy, and was carried on to a greater extent. Continued intercourse with the shores of India at length made known to navigators the periodical winds which prevail in the Indian Ocean; and taking advantage of these, pilots were emboldened to abandon the slow and dangerous course along the coasts, and to make the open sea their highway. This course was from Ocelis, at the mouth of the Arabian Gulf, to Nelkunda (Nelisuram), on the western shores of the Indian continent (the coast of Malabar), which seems to have been the utmost limit of the ancient navigation in that quarter of the globe. The extensive regions which stretch beyond this to the east were very imperfectly known by the reports obtained from a few adventurers who visited them by land.

If we now bring into one view the amount of information possessed by the ancients respecting the habitable globe, we shall find that it was extremely limited. It was at those places on the earth where the human mind displayed greatest activity and enterprise that this knowledge was naturally accumulated. Proceeding from these stations, the boundary which separated the known from the unknown part of the world was gradually enlarged; but the regions comprehended within it constituted still but a small portion of the whole. In Europe the extensive provinces in the eastern part of Germany were but little known, while the whole of that vast territory which now forms the countries of Denmark, Sweden, Prussia, Poland, and Russia, was buried in the deepest obscurity. The inhospitable and dreary climes within the arctic circle were yet unexplored. In Africa, little was known beyond the countries stretching along the Mediterranean Sea, and those bordering on the western shore of the Arabian Gulf. In Asia, the rich and fertile countries beyond the Ganges, whence the commerce of modern times has drawn the most valuable commodities for the comfort and embellishment of civilized society, were known, if known at all, only by the most vague and uncertain report. The immense regions on the north occupied by the wandering tribes called in ancient times by the general names of Sarmatians or Scythians, and which are now inhabited by various tribes of Tartars, and by the Asiatic subjects of Russia, seem never to have been penetrated. Add to this, that the fertile and populous regions within the torrid zone were imagined to be uninhabitable; and we have ample proof that the geography of the ancients was very imperfect.

Having thus far given a succinct view of the progressive steps by which the earth's surface, considered merely as tracts of territory inhabited by men, gradually became known, it will be proper next to trace briefly the advances made toward arranging into a systematic form the materials accumulated. Science required that the relative positions of places, with their distances from each other, should be ascertained in such a manner as to furnish fixed principles on which the whole, or any portion, of the surface of the earth might be represented or delineated with due regard to its figure and dimensions.

The first rude attempt made by the early geographers to determine the position of places appears to have depended on the division of the earth into *climates*, distinguished by the species of animals and plants produced in each. Thus the appearance of the negro, the rhinoceros, and the elephant, suggested to them the line of division where the torrid zone began toward the north, and ended toward the south. But instead of this very vague method, another was soon adopted, which consisted in observing at places the length of the longest and shortest day. This was determined with some accuracy by means of a *gnomon*, a method of observation much used by the ancients. An upright pillar of a known height being erected on a level pavement, by observing the lengths of the meridian shadows, they were enabled to trace the progress of the sun from tropic to tropic. The most ancient observation with the gnomon which we meet with is that of Pytheas, in the days of Alexander the Great. Pytheas observed at the summer solstice at Marseilles, that the length of the meridian shadow was to the height of the gnomon as 213⅘ to 600; an observation which makes the meridian altitude of the sun at Marseilles on that day 70° 27′. The merit of the invention of the gnomon in Greece is ascribed to the astronomical school of Miletus, and particularly to Anaximander and Anaximenes. There is reason, however, to believe that this method of observation was originally invented by the Egyptians; and that Thales, who traveled into Egypt, carried thence the knowledge of it into Greece. It has even been conjectured that the Egyptian pyramids and obelisks were intended for the same purpose with the gnomon; and, though it would be extravagant to imagine that this was their sole use, this opinion appears to be countenanced by the fact of their being placed in the direction of the four cardinal points.

The determination of the length of the meridian shadow at the solstices for different parts of the earth, by observations made with the gnomon, is important as being the first step toward connecting geography with astronomy; and, when combined with just conceptions of the globular figure of the earth, leads, by a simple train of thought, to the motion of latitude by which the position of a place is fixed relatively to north and south. The position with regard to east and west is the only other element necessary for fixing the absolute situation of the place on the surface of the earth. It might have been supposed not to be more than a reflecting mind could easily accomplish, to reach the conception of both these elements, and to apply them to use. Yet so slow was the progress toward the apprehension of the principles on which an accurate system of geography might be founded, that from the days of Thales and his immediate successors, who flourished in the sixth century before the Christian era, there appears to have been little done for the improvement of geography, as a science, until the establishment of the famous astronomical school of Alexandria. Pythagoras had indeed maintained the true system of the world, by placing the sun in the centre, and giving the earth both a diurnal and annual revolution; but this doctrine was so much in advance of the age in which he promulgated it, that it was soon lost sight of.

Eratosthenes was the first who reduced geography to a regular system, and laid its foundations on clear and solid principles. Under the patronage of the Ptolemies, he had access to the materials collected by Alexander, his generals and successors, as well as to the immense mass of documents accumulated in the Alexandrian library. At an early period of the history of astronomical science, the vulgar opinion that the earth is a flat surface, with the heavens resting upon it as a canopy, was rejected; but it was not at once that distinct conceptions of its globular figure were acquired. It was only as astronomical observations increased that the doctrine of its sphericity was fully established. This point had been gained when Eratosthenes began his labors; and what he endeavored to accomplish was to delineate, in strict conformity with this principle, the known parts of the earth's surface.

With this view, founding his system on the use of the gnomon, he supposed a line to be traced through certain places, in all of which the longest day was known to be exactly of the same length. This line would evidently be a parallel to the equator. But though his method was correct in principle, the want of accurate observations rendered it uncertain in practice. The line was supposed to comprise all the leading positions which lay near it, though they did not actually come within its range. Its western extremity was the Sacred Promontory of Iberia (Cape St. Vincent); thence it passed through the Straits of Gades. Proceeding eastward, it passed through the Sicilian Sea, and near the southern extremity of the Peloponnesus, and was continued through the island of Rhodes, and the Bay of Issus; whence entering Cilicia, and crossing the Euphrates and the Tigris, it was extended to the mountains of India, and terminated at the remote city of Thinæ, situated on the Eastern Ocean. The parallel thus drawn was understood to pass through all those places where the longest day was 14½ hours. It stretched the whole length of what was supposed to be the habitable world, and measured about 70,000 stadia; a distance corresponding, according to the estimate of Eratosthenes, to about 140 degrees, which is rather more than one third of the circuit of the globe.

This first parallel drawn through Rhodes was ever afterward preferred as the basis of ancient maps; inasmuch as it was traced through the middle of the Mediterranean, along the coasts of which were situated the principal nations of antiquity. Following out the same happy thought which he had thus successfully made the groundwork of his system, Eratosthenes was induced not only to trace other parallels at certain intervals from the first, as one through Alexandria, another through Syene, and a third through Meroe; but also to trace, at right angles to these, a *meridian*, passing through Rhodes and Alexandria southward to Syene and Meroe. As the progress which he thus made toward the completion of what he had so skillfully conceived, naturally tended to enlarge his ideas concerning geographical science, he attempted what seemed a still more difficult undertaking, namely, to determine the circumference of the globe by the actual measurement of a segment of one of its great circles. The method he pursued has been clearly pointed out in the article ASTRONOMY, *Ency. Brit.* There is a difference among ancient authors respecting the result obtained by Eratosthenes. The great majority, however, state it to be 252,000 stadia, which give exactly 700 stadia for a degree of the equator, and 555 stadia for the degree of longitude upon the parallel drawn through Rhodes.

The knowledge of the circumference of the earth is a necessary element in the construction of maps; and hence the most eminent of the ancient astronomical geographers made repeated endeavors to determine it with accuracy. Possidonius, by an astronomical observation, determined the arc of the meridian between

Rhodes and Alexandria to be a forty-eighth part of the whole circumference. With regard to the distance between these two places, 5000 stadia were the reputed distance; but Eratosthenes had made it only 3750 stadia upward of 170 years before, and betwixt these two Possodonius had to make choice. The former number gives 240,000 stadia for the whole circumference, the latter 180,000 stadia. Of this last result, which gives 500 stadia for a degree of the equator, Possidonius is reported by Strabo to have approved. For want of the knowledge of the true length of the stadium, it is now impossible to judge of the actual quantity assigned either by Eratosthenes or Possidonius as the measure of the earth's circumference; but the great uncertainty about the distance between the points of observation in the case of the determination of the latter astronomer renders his conclusion of no value.

Notwithstanding the soundness of the principles which had now been laid down for the delineation of the globe, much remained to be done, in the way of observation, before an accurate representation of the whole, or a portion of the earth's surface, could be given. Both the latitudes and longitudes of the ancients are erroneous; more especially the latter. This is what might be expected at that early period. But in setting out from the Sacred Promontory of Iberia, the meridian of which the ancients made their first meridian, the hours in longitude accumulate, as we advance eastward, with a regularity, as well as rapidity, which is very surprising. The regularity of their increase induced M. Gosselin to conclude that they were to be attributed, not to the imperfection of independent observations, but to some general cause, which he endeavored to assign by imagining that Eratosthenes had access to some early map, found probably by Alexander or his generals in some country in the East, where astronomy had been successfully cultivated; and that misapprehensions respecting the principle of delineation employed, which M. Gosselin supposes to have been that on which the plane chart is constructed, had led him into a regular system of errors. In the plane map the length of a degree of longitude is supposed to be the same at all distances from the equator. By taking for granted that Eratosthenes took his distances from a map of this kind, on which the parts of the globe had been accurately laid down, but that he divided the stadia expressing these distances, not by 700, the number of stadia in a degree at the equator, as he ought to have done, but by 555, the number corresponding to the parallel of Rhodes, M. Gosselin obtains results which have a wonderful coincidence with the positions actually given by Eratosthenes. These results, however, are deduced from a hypothesis which is unsupported by any evidence, except what may be supposed to arise from this coincidence. A more probable solution seems to be that Eratosthenes determined his longitudes from the itinerary measures, which he reduced to degrees at the rate of 700 stadia to a degree at the equator, and of 555 to a degree at the parallel of Rhodes; and that the errors are the consequences of the exaggerated accounts which merchants and travelers of that age gave of the distances over which they passed; their exaggerations, of course, bearing some proportion to the length and hardships of the journeys undertaken.

The knowledge as yet possessed by geographers with regard to the outline of the habitable globe was far from being such as to enable them to delineate it with any degree of precision. This circumstance, combined with the unavoidable errors in latitude and longitude, produced very great distortions in the representations given of the countries on the surface of the globe. Under the guidance of sound principles of science, however, it was now certain that these imperfections would gradually disappear.

The improvements introduced into geography by Eratosthenes were perfected in principle by Hipparchus. This celebrated astronomer, who flourished between 160 and 135 years before the Christian era, was the first who undertook the arduous task of forming a catalogue of the stars, and fixing their relative positions. His object was to transmit to posterity a knowledge of the state of the heavens at the period of his observations. The extremities of the imaginary axis round which the heavens perform their diurnal revolution suggest two fixed points by which the position of the great circle of the celestial sphere called the equator is determined. If a great circle be supposed to pass through these points and any star, the position of the star will be ascertained if we measure in degrees and parts of a degree the arc of the meridian circle intercepted between the star and the equator, and also the arc of the equator intercepted between a given point in it, and the meridian circle passing through the star. Upon this principle did Hipparchus arrange the stars according to their places in the heavens, a work in which he appears, however, to have been in some measure anticipated by Timocharis and Aristillus, who began to observe about 295 years before the Christian era. The great improvement which he introduced into geography consisted in this, that he applied to the determining of the position of any point on the surface of the earth the same artifice which he had already so happily introduced in the arrangement of the constellations; and thus furnished the means of ascertaining the relative situations of places with a precision which no itinerary measurements could possibly attain. If we suppose the earth to be a globe concentric with the celestial sphere, and intersected by the planes of the celestial equator and meridian, the principle on which the application of this artifice to the terrestrial sphere depends becomes at once obvious. Hipparchus made a considerable number of observations of latitude, and pointed out how longitudes might be determined by observing the eclipses of the sun and moon. Great as this improvement was, its importance seems not to have been duly estimated until the days of Ptolemy; for none of the intermediate authors, such as Strabo, Vitruvius, and Pliny, have given the least hint of the latitude and longitude of any one place in degrees and minutes, though all of them have given minutely the geographical positions of places according to the length and shadows of the gnomon. Strabo, indeed, even justifies his neglect of the astronomical principles introduced by Hipparchus. "A geographer," says he, "is to pay no attention to what is out of the earth; nor will men engaged in conducting the affairs of that part of the earth which is inhabited, deem the distinction and divisions of Hipparchus worthy of notice."

The true principles of geography being pointed out by the application of latitude and longitude to places on the earth, the way was opened for the improvement of maps, which, with the single exception of the map drawn by Eratosthenes, had hitherto been little more than rude outlines and topographical sketches of the different countries. No maps more ancient than those formed to illustrate Ptolemy's geography have reached modern times; but the earliest of which there is any account are those of Sesostris, of whom it is said, that having traversed great part of the earth, he caused his marches to be recorded in maps; and that he gave copies of these maps not only to the Egyptians, but to the Scythians, whose astonishment he thus greatly excited.

Some have imagined that the Jews made a map of the Holy Land when they gave the different portions to the nine tribes at Shiloh. For on that occasion, as we are informed by the sacred historian, men were sent "to walk through the land, and to describe it;" and when they had accomplished the object of their mission by describing "it by cities into seven parts, in a book," they returned unto Joshua. What is here said, however, does not fully determine whether their mensuration of the land was only recorded in numbers, or regularly projected and digested into the form of a map. The first Grecian map on record is that of Anaximander, mentioned by Strabo, which some have conjectured to have been a general map of the then known world. It has further been imagined to be the same with that referred to by Hipparchus under the designation of *The Ancient Map*, and which in some few particulars he preferred to that of Eratosthenes.

But some idea of the nature of the maps of those early days will be best obtained from the map of Aristagoras, king of Miletus, which is minutely described by Herodotus. The historian tells us that this map, which was traced on brass or copper, Aristagoras showed to Cleomenes, king of Sparta, in order to induce him to attack the king of Persia, even in his palace at Susa, for the purpose of restoring the Ionians to their ancient freedom. It contained the intermediate countries to be traversed in that march. We must not interpret, however, the words of Herodotus too literally, when he describes it as containing "the whole circumference of the earth, the whole sea or ocean, and all the rivers." Keeping in view the state of geography at that period, it may justly be concluded, that notwithstanding this pompous form of expression, *the sea* meant only the Mediterranean, and therefore *the earth* or land the coasts of that sea, and more particularly Asia Minor, extended toward the middle of Persia; by *the rivers* must be meant the Halys, the Euphrates, and the Tigris, which Herodotus mentions as necessary to be crossed in the expedition in question. The map contained one straight line, called *the royal highway*, embracing all the stations or places of encampment between Sardis and Susa, so that it was properly an itinerary.

The principle on which Eratosthenes constructed his map we have already considered. With regard to its extent, it seems to have contained little more than the States of Greece, and the dominions of the successors of Alexander, digested from the surveys of the marches of that great general. He had some faint idea respecting the western parts of Europe, which he had acquired from the voyage of Pytheas; but not such a conception as to enable him to delineate their outline on a chart. According to the report of Strabo, he was quite unacquainted with Spain, Gaul, Germany, and Britain; he was equally ignorant of Italy, the coasts of the Adriatic, Pontus, and of all the countries toward the north. His errors with regard to the distances of places were in some instances enormous. The distance of Carthage from Alexandria he represents at 15,000 stadia, instead of 9000.

It was not until Ptolemy commenced his labors that the improvements pointed out by Hipparchus were effectually applied to perfect the system which Eratosthenes had so happily begun. Ptolemy composed his system of geography, which escaped amid the general wreck that consumed so many other ancient books of science, in the reign of Antoninus Pius, about 150 years after the opening of the Christian era. At this period the Roman empire had reached its utmost extent, and all the provinces had been surveyed, and were well known. The materials then in existence, and in the possession of Ptolemy for completing his great work, were the proportions of the height of the gnomon and its shadow, at the time of the equinoxes and solstices, taken by different astronomers; calculations founded on the length of the longest days; the measures or computed distances of the principal roads contained in the surveys and itineraries; and the various reports of travelers and navigators, whose determinations of the distances of places often rested, however, on no better foundation than hearsay and conjecture. Among these various particulars, there evidently existed considerable differences in point of authority. But Ptolemy undertook the difficult and laborious task of comparing and reducing into one system, which should possess the order and beauty of science, this apparently incongruous mass. He converted and translated the whole into a new mathematical language, expressing in degrees and minutes the latitude and longitude of each place, according to the principles laid down by Hipparchus, but which had been allowed by geographers to lie useless for upward of 250 years. It is in Ptolemy's work, which consists of eight books, that we find for the first time the mathematical principles of the construction of maps, both general and particular, as well as of several projections of the sphere.

Notwithstanding that the light of accurate science thus directed the steps of the first geographer of antiquity, he was far from reaching the precision at which he aimed. This arose from the imperfection of the original materials upon which his work is based in reference to its details. With regard to the remoter boundaries of the then known world, in all its quarters, a wonderful advancement in knowledge had been made since the days of Eratosthenes and of Strabo. But still that additional information was not fitted to make up for the want of astronomical observations, by which alone accuracy could be secured. Besides, in relation to places situated beyond the limits of the Roman empire, and therefore out of the range alike of astronomers and surveyors, it was almost impossible for Ptolemy not to commit mistakes. Thus his errors arose from the ignorance of the age; and are of such a character as to admit of being removed only as opportunities are afforded of obtaining the requisite data by the strict application of the principles derived from mathematical and astronomical science

Ptolemy adopted the measure of a degree at 500 stadia, according to the standard of Possidonius, instead of following the measurement of Eratosthenes, which gives 700 stadia to a degree. But M. Gosselin has accused him of an error of a more serious kind; because, if really committed, it would have indicated a strange neglect of what a geographer should make his first care. This error consists in assuming one measure for the degree of latitude (the measure of Eratosthenes, 700 stadia) and another for the degree of longitude at the equator. Such a hypothesis would evidently be inconsistent with the globular figure of the earth. It may reasonably be doubted, however, whether M. Gosselin's accusation is well founded; for, though it seems supported by the fact, that while Ptolemy has changed materially all the longitudes of Eratosthenes, the latitudes along the great line remain the same, and are in general correct, this circumstance may be accounted for sufficiently from other causes. Rhodes, and several other points of this great line, were fixed with regard to latitude by observations approximating to the truth, while the elements for determining the longitudes were derived entirely from the itineraries. To the north and south of the great central line, which alone was fixed upon sound data, errors in latitude accumulate as rapidly as those in longitude are found to do in proceeding eastward.

One of the most remarkable errors in the geographical work of Ptolemy is the great length assigned to the Mediterranean. Reckoning from the Straits of Gades to the bottom of the Bay of Issus, where Alexandretta, or Scanderoon now stands, he makes the difference of longitude no less than 62 degrees, which is upward of 20½ degrees above the truth. This amazing error, which affected all our maps more or less until the beginning of the last century, was produced in consequence of his having put too much confidence in the supposed surveys of different persons of reputation recorded by Strabo, and who appeared to confirm the accuracy of each other's computation. According to their united testimony, the whole length of the Mediterranean was about 26,500 stadia, which, being converted into degrees of longitude according to the method of Ptolemy, of allowing 400 stadia to a degree of longitude on the parallel of Rhodes, give about 66° 15′. This is 4° 15′ more than what are given by Marinus, whom in this particular Ptolemy strictly follows.

Pliny quotes from Agrippa a computation of the length of the Mediterranean, which makes it 3,440 Roman miles; but in quoting it he adds a suspicion that there is an error in the numbers. When converted into degrees of longitude, the result of this computation gives 58° 20′. As, however, the length given by Strabo amounted, as we have seen, to 66° 15′, Ptolemy seems to have chosen a middle path between these two erroneous computations, and to have adopted 62° for the difference of longitude in question. But there is another ancient computation quoted also by Pliny from Polybius, according to which the length of the Mediterranean is stated to be 2,440 Roman miles. Had Ptolemy followed this estimate, he would have obtained for a result 41° 4′, which is not far from the truth. Thus we see that the circumstances under which Ptolemy wrote, rendered it impossible for him to avoid mistakes, and that he might be misled even when more accurate results were within his reach.

The great obstacle with which the ancients had to contend, was the finding of the longitude with accuracy, a problem for the solution of which it was long before there was discovered any method sufficiently exact. This accounts for the erroneous longitudes of Ptolemy, and more especially for the length of time, even many centuries, during which the remarkable error, with regard to the length of the Mediterranean, remained undiscovered and uncorrected.

We have now traced the history of geography from the earliest period of which we have any information, to the time when it assumes a scientific character. We shall conclude our account of ancient geography by shortly noticing the principal geographers of antiquity, some of whom have not yet been mentioned, while others have only been quoted in tracing the rise and progress of the science.

The intimate connection between geography and the science of geometry and astronomy, rendered the former an object of attention to many who anciently cultivated the latter. We have already mentioned Anaximander and Anaximenes, of the school of Miletus. Democritus, Eudoxus of Cnidus, and Parmenides, are also reported to have improved geography; and to the last is attributed the division of the earth into zones. These were followed by Eratosthenes, who lived about 240 years before the Christian era; by Hipparchus, about 80 years afterward; by Polybius, Geminus, and Possidonius. Eratosthenes wrote three books on geography, some passages of which Strabo criticises, though he frequently defends him against Hipparchus, who appears to oppose his opinions with some degree of affectation. Polybius also wrote on geography; as did likewise Geminus and Possidonius, who are frequently quoted by Strabo. Polybius, according to Geminus, argued with considerable acuteness for the possibility of the torrid zone being inhabited; and he even adduced plausible arguments to prove that the countries under the equator enjoy a more temperate climate than the countries do that are situated near the tropics.

We must not here omit a geographer and geometer who lived about the time of Alexander the Great. This was Dicearchus of Messina, a disciple of Theophrastus, who wrote a description of Greece in iambic verses, of which some fragments yet remain. But what chiefly renders him remarkable is, that he measured geometrically several mountains, to which an excessive height had been before assigned. With Dicearchus we may notice another geometer, Xenagoras, a disciple of Aristotle, mentioned by Plutarch in his life of Paulus Æmilius, who occupied himself in the measurement of mountains. He found the height of Mount Olympus to be 15 stadia. In some of the latter periods which preceded the Christian era, there were several writers on geography, as Artemidorus of Ephesus, who wrote a geographiccal work of eleven books, of which nothing remains; Scymnus of Chio, author of a description of the earth in iambic verses, which remain in a very mutilated state; Isidorus of Charax, who gave a description of the Parthian empire; and Scylax of Caryades, author of a voyage round the Mediterranean, which is still extant.

The works of all these geographers are, however, but small in comparison with the geography of Strabo; a work in 17 books, which has come down to us entire. This is one of the most valuable works of antiquity, both from the spirit of discussion which runs through it, and the number of curious particulars which the author has collected from different geographers and navigators who preceded him, and of whose works nothing remains except these extracts. Strabo lived in the reigns of Augustus and Tiberius, and was nearly cotemporary with Pomponius Mela. This latter geographer wrote a work *De Situ Orbis*, which, though little more than a bare summary, is valuable, as it gives us a sketch of what was known in his time respecting the state of the habitable globe. Besides Mela, Rome produced, in the most flourishing era of its literature, another eminent geographer, Pliny. He devoted two books of his extensive work on natural history, to a system of geography. His intimate connection with the imperial family, and with many of the most eminent commanders of the time, appears to have given him access to all the military measurements, as well as to the general survey of the Roman empire. Thus furnished with a greater store of authentic materials than any former writer, he has introduced a great number of itinerary details, which are for the most part accurate and valuable. Julius Solenus has also treated of geography in his *Polyhistor*, a compilation sufficiently valuable from the number of curious particulars which are there collected. Marinus of Tyre, was another geographer who appears to have been distinguished, though his works have perished. Even under the Roman empire Tyre continued to be the seat of an extensive commerce; indeed the commercial relations of her citizens appear to have extended over a wider portion of the earth's surface than ever. The enlarged materials furnished by the lengthened journeys of his countrymen, which brought them even to the confines of China, Marinus collected, and sought to apply to them the astronomical principles of Hipparchus, so that he might give to geography a new and more accurate form. Ptolemy, whom Marinus preceded by a short time, employs a great part of his first book in discussing the means employed by the Tyrian geographer for fixing the relative position of places; and from the references and extracts it appears that the system of Marinus partook largely of the imperfections of a first effort.

The enlarged and scientific views of Ptolemy we have already considered. Some time after Ptolemy lived Dionysius, commonly called the *Periegetic*, from the title of a work in verse composed by him, namely, his *Periegesis*, or Survey of the World. This work was translated into Latin verse by Priscianus, and afterward by Avienus. There is, besides, a description by Avienus, of the maritime coasts, in iambic verses, of which there remain about 700. The difficulty of procuring the small and scattered pieces of most of these authors, with those of a few others not here enumerated, induced the learned Hudson to collect them into one work, consisting of four volumes octavo, which were published in the years 1698, 1702, 1712, under the title of *Geographiæ veteris Scriptores Græci minores*. The originals are accompanied with Latin translations, and notes and dissertations on each by Dodwell. This is a very valuable collection.

We now proceed to consider the progress of geography during the middle ages. From the days of Ptolemy until the revival of letters in Europe, little was done for its solid improvement. The calamities that ere long overwhelmed the Roman empire, were followed by a general intellectual darkness which settled down on the world and extinguished even the imperfect knowledge possessed by the ancient geographers. While barbarous nations poured in from several quarters, art and science ceased to be cultivated. The union by which the Roman power had bound together mankind being now dissolved, Europe was divided into small and independent, and, for the most part, hostile communities, which had but vague conceptions respecting the situation of each other, while no intercourse subsisted between their members. With regard to remote regions all knowledge was lost; their situations, their commodities, and almost their names, were unknown.

Amid this ignorance there were but few channels open through which knowledge could be obtained. One circumstance, however, prevented commercial intercourse with foreign nations from being altogether suspended. The opulence and luxury of imperial Rome had long given life and energy to commercial enterprise; that stimulus was now withdrawn; but Constantinople still remained, the last refuge of ancient arts, and taste, and elegance, when the rest of Europe was overspread with barbarism. Fortunately that city had escaped the destructive rage of the fierce invaders; and there, under the cherishing influence of a demand for foreign productions and luxuries, commerce continued to flourish. Alexandria continued to be the emporium whence were imported the commodities of the East Indies, until Egypt, falling under the power of the Arabians, ceased to be a province of the Roman empire. After this event the industry of the Greeks succeeded in discovering a new channel by which Constantinople might still be supplied with the productions of India. These were first conveyed up the Indus as far as that river is navigable, thence by land-carriage they were brought to the Oxus, and were carried down the river to the Caspian Sea. Entering there the Volga, they were conveyed up it, and thence were again transported by land until they reached the Tanais, down which they were conveyed to the Euxine Sea, where vessels from Constantinople awaited their arrival. By this circuitous route was a channel of intercourse kept open with the most distant countries of the East; and an extensive knowledge of remote regions was still preserved in the capital of the Greek empire, while the rest of Europe was sunk in the grossest ignorance.

The missions sent for the conversion of the northern pagans to Christianity, served somewhat to illustrate the geography of Europe; though there is sufficient proof that the monks employed were, in many instances, themselves grossly ignorant, some not even knowing the capital of their own country, or the cities nearest to their own. Something was also done by the great sovereigns of Europe toward dispelling the prevailing ignorance of the age on matters connected with geography. Nor did the piratical exploits of the Danes and Norwegians under their great sea-kings fail to make them acquainted with the seas and maritime coasts where they carried on their devastations. But it was in the East that a gleam of light and knowledge began now to appear, which was the harbinger of the noon-day splendor of science that was destined to succeed the darkness of ignorance which had so long oppressed the human mind. Under the influence of a fanaticism which prompted them to own no law but the Koran and the sword, the followers of Mohammed had rushed from the heart of Arabia, and had carried their conquests over half the world. At length, however, under a race of humane and polished princes, having contracted a relish for the sciences of the people whose empire they had contributed to overturn, they stood for some time distinguished as the most learned of nations. They translated into their own language the books of several of the Greek philosophers. The valuable work of Ptolemy was one of the first; and hence the study of geography became an early object of their attention. But the advancement which the science made in their hands toward precision was slow; for they copied and retailed all Ptolemy's principal errors. Still, in all the countries that were under Mohammedan dominion numerous observations were made, which, though not always strictly correct, were entitled to be considered as a step beyond the calculations made merely from the itineraries by the Alexandrian geographers. In the beginning of the ninth century, under their caliph Almamon, who may rank among the most distinguished patrons of science that ever filled a throne, they measured a degree of latitude on the plains of Sinjar, or Shinjar, near Babylon, with a view to determine the circumference of the earth. The tables of Abulfeda and Ulug Beg, and of Nazir Eddin, edited by Grævius, and republished by Hudson, furnish materials that are still of use in the construction of the maps of the interior of Asia.

The progress and success of the Moslem arms removed the obscurity in which many countries had until then been concealed, as well as the barbarism in which they had been sunk. And even beyond the limits of the Mohammedan world they pushed their researches, by sending missions both to the east and to the west, which they explored to their remotest limits. At that time Europe remained ignorant of the improvements made by the Arabians, though she was destined in subsequent ages to perfect their discoveries.

At length the long period of barbarism which accompanied and followed the fall of the Roman empire, during which the traces of whatever had embellished society, or contributed to the comfort and convenience of life, were almost entirely effaced, drew to a close. Industry began again to shed its blessings on mankind; and Italy was the country where its benign influences were first perceptible. Having from the operation of various causes again obtained liberty and independence, the Italians soon began to feel the impulse of those passions which serve most powerfully to arouse men to activity and enterprise. The reviving demand for the comforts and luxuries of life led to the revival of foreign commerce. The valuable commodities of the East were at first obtained at Constantinople. But the exorbitant price demanded at that mart, in consequence of the circuitous route by which they were conveyed thither, induced the Italians to resort to other ports, as Aleppo and Tripoli, on the Syrian coast, and at length to Egypt itself. After the Soldans had revived the commerce with India in its ancient channel by the Arabian Gulf, Venice, Genoa, and Pisa, rose from inconsiderable towns to wealthy and populous cities. Their trade extended to all the ports in the Mediterranean, and even beyond the Straits to the towns on the coasts of Spain, France, the Low Countries, and England; and from these points they diffused through Europe a taste for the luxuries and enjoyments of civilized life, which they at the same time furnished the means of gratifying.

It was not long ere an event occurred, the most extraordinary, perhaps, in the history of human society, which gave a new impulse to the European mind, and forcibly directed its view eastward, to the regions of Asia. Under the influence of a high-wrought enthusiasm, the martial spirit of the Europeans was aroused, and vast armies, composed of all the nations of Christendom, marched toward Asia on the wild enterprise of delivering the Holy Land from the dominion of Infidels. The crusades, however blind the zeal from which they took their rise, had a very favorable influence on the intellectual state of Europe, and prepared it for receiving the light of science which was soon to dawn upon it. Interesting regions, known hitherto only by the scanty reports of ignorant and credulous pilgrims, were now made the object of attention and research. Not only was the way opened for the European nations acquiring a correct knowledge of the Holy Land, with the kingdoms of Jerusalem and Edessa, founded by the victorious crusaders, but the extensive regions over which the Saracens and the Turks had extended their empire began to be explored. Search was now made in the writings of the ancient geographers; nor is it improbable that some light was derived even from the Arabian writers. Religious zeal, the hope of gain, combined with motives of mere curiosity, induced several persons to travel by land into remote regions of the East, far beyond the countries to which the operations of the crusaders extended. Prompted by superstitious veneration for the law of Moses, and by a desire of visiting his countrymen in the East, whom he hoped to find possessed of wealth and power, Benjamin, a Jew of Tudela, in the kingdom of Navarre, set out from Spain in the year 1160, and traveling by land to Constantinople, proceeded through the countries to the north of the Euxine and Caspian Seas. He then journeyed toward the south, and traversed various provinces of the further India, until, having reached the Indian Ocean, he embarked and visited several of its islands; and at length, after 13 years, returned by the way of Egypt to Europe. In his progress he had acquired much information respecting a large portion of the globe, until then altogether unknown to Europeans.

Various missions were sent by the pope and by Christian princes, for purposes which led them to traverse the remote provinces of Asia. Father John de Plano Carpini, at the head of a mission of Franciscan monks, and Father Ascolino, at the head of another mission of Dominicans, were, in the year 1246, sent by Innocent IV. to enjoin Kayuk Khan, the grandson of Zengis, who was then at the head of the Tartar empire, to embrace Christianity, and to cease from desolating the world by his arms. In fulfilling the commands laid upon them by the head of the Christian church, the mendicants had an opportunity of visiting a great part of Asia. Carpini, having taken his route through Poland and Russia, traveled through the northern provinces as far as the extremities of Thibet, while Ascolino, who appears to have landed somewhere in Syria, advanced through the southern provinces into the interior parts of Persia.

Father William de Rubruquis, a Franciscan monk, having been sent in the year 1253 on a mission by St. Louis of France, in search of an imaginary personage, a powerful khan of the Tartars, who was reported to have embraced the Christian faith, made a circuit through the interior parts of Asia more extensive than that of any European who had hitherto explored them. He had the merit of being the first modern traveler that gave a true account of the Caspian, which had been correctly described by the early Greeks as an inland separate sea; but a notion afterward prevailed that it was connected with the Northern Ocean. Rubruquis ascertained that it had no connection with the ocean or any other sea. The account of his journey was so little read, however, that the old error was repeated in books of geography long after his time.

While the republics of Italy, and, above all, the State of Venice, were engaged in distributing the jewels, the spices, and the fine cloths of India over the western world, it was impossible that motives of curiosity, as well as a desire of commercial advantage, should not be awakened to such a degree as to impel some to brave all the obstacles and dangers to be encountered in visiting those remote countries where these precious and profitable commodities were produced. A considerable number of persons accordingly are recorded as having penetrated a greater or less depth into the interior of Asia. But the fame of all the other old travelers is eclipsed by that of Marco Polo, who has always ranked among the greatest discoverers of any age. This extraordinary man was a noble Venetian, whose family, according to the custom of his country, engaged in extensive commerce. Nocolo Polo, and Maffeo Polo, the father and uncle of Marco, were merchants, who, in partnership, traded chiefly with the East; and, in pursuit of their mercantile speculations, had already visited Tartary. The recital of their travels on their return fired the youthful imagination of Marco, then between 17 and 18 years old. Having, when in the East, gained the confidence of Kublai Khan, the great conqueror of China, at whose court they had resided for a long time, they were sent back by him to Italy, accompanied by an officer of his court, that they might repair to Rome as his embassadors to the pope, of whom and the potentates of the western world, they had given him an ample account. After many delays, they were now, about the year 1265, to set out on their return to the court of Kublai, bearing the papal letters and benediction; and it was resolved that young Marco should accompany them. After a journey that occupied no less than three and a half years, and in the progress of which they passed through the chief cities in the more cultivated parts of Asia, they reached Yen-king near the spot where Pekin now stands, where they were honorably and graciously received by the grand khan. Struck with the appearance of young Marco, the khan condescended to take him under his protection, and caused him immediately to be enrolled among his attendants of honor. By prudence and fidelity Marco gained so high a place in the esteem and confidence of his protector, that for 17 years, during which he remained in his service, he was employed in confidential missions to every part of the empire and its dependencies. He made more than one voyage on the Indian Ocean, and traded with many of the islands. Besides what he learned from his own observation, he collected from others many things concerning countries which he did not visit. Considering the very favorable circumstances in which he was placed for geographical research, as well as his passion for traveling, which seems to have increased with his opportunities of gratifying it, it is not surprising that, after the long period of his wanderings in Asia, he should have returned to Europe possessed of the knowledge of many particulars, until his time unknown, respecting the eastern parts of the world. Marco, being afterward made a prisoner by the Genoese, was induced, with a view to beguile the tediousness of his confinement, to dictate a narrative of his travels. His information was so far in advance of the age, that his veracity was exposed to the most injurious suspicions. But, if we make allowance for some tincture of credulity, characteristic of the times in which he lived, his narrative is supported in all its essential points by modern information.

While great accessions were thus made to the stock of knowledge possessed by the nations of Europe respecting the habitable globe, there ideas were, at the same time, gradually enlarged; and an adventurous spirit was generated, which prepared them for attempting further discoveries. Still their efforts were limited by certain bounds, in consequence of the imperfect state of navigation. Whatever conceptions a daring mind might venture to form respecting the existence of unknown regions, separated from the known continents by the mighty expanse of the Atlantic Ocean, mankind had not yet so obtained the dominion of the sea as to be able to bring such conceptions to the test of experiment. It was not until the fortunate discovery of the polarity of the magnetic needle, and the consequent construction of the mariners' compass, that man was enabled to visit every part of the globe which he inhabits. This important discovery was made by Flavio Gioia, a citizen of Amalfi, a town of considerable trade in the kingdom of Naples, about the year 1302. Encouraged by the possession of this sure guide, by which, at all times and in all places, he could with certainty steer his course, the navigator gradually abandoned the timid and slow method of sailing along the shore, and boldly committed his bark to the open sea. At the commencement of the 15th century, however, navigation appears to have advanced very little beyond the state which it had reached before the downfall of the Roman empire. But it was now destined to make rapid progress. The growing spirit of enterprise, combined with the increasing light of science, had prepared the States of Europe for entering upon that great career of discovery, of which the details constitute the materials for the history of modern geography.

Portugal took the lead in this new and brilliant path. Her first attempt was to discover the unknown countries situated along the western coast of Africa. Notwithstanding the vicinity of that great continent, and the strong inducement afforded in the fertility of the countries already known in it, to its further exploration, Cape Non had hitherto limited the researches of the Portuguese, and had been regarded as an impassable barrier. In the year 1412, however, ships sent out for discovery doubled this formidable promontory, and reached Cape Bojador, 160 miles to the southward, which became in its turn the boundary of Portuguese navigation; and it continued to be so for upward of 20 years. Under the coasting system, which still continued to be practiced, it was not likely that the obstacles presented by its rocky cliffs, which stretch a considerable way into the Atlantic, would soon have been overcome. But a sudden squall of wind having driven out to sea the vessel next dispatched, this event fortunately led to the discovery of the small island Porto Santo; whence, in a little time, Madeira was discovered, being first mistaken for a small black cloud in the horizon; and at length, when the Portuguese, by their voyages thither, had gradually become accustomed to a bolder navigation, Cape Bojador was doubled. Thus, by repeated efforts, the Portuguese navigators gradually approached the northern boundary of the torrid zone. Here their progress was for some time arrested, not by any physical difficulties, but in consequence of the influence which the opinion of the ancient mathematicians and geographers whom they had hitherto followed as their guides, had upon their minds, by leading them to believe that excessive heat rendered the middle regions of the earth uninhabitable. Experience, however, at length enabled them to triumph over ignorance and prejudice. A powerful fleet, fitted out in 1484, after discovering the kingdoms of Benin and Congo, advanced about 1500 miles beyond the equator. Their intercourse with the natives enabled them to obtain information concerning those parts of the country which they had not visited. Not only had they detected the error of the ancients in reference to the torrid zone, but they found also that the direction of the coast was very different from what the description given by Ptolemy had led them to expect. They saw reason to conclude that the continent gradually became narrower as they proceeded southward; so that there was room to believe that the ancient accounts respecting the circumnavigation of Africa were really founded in truth. New and more extensive prospects were thus opened to them; and the finding of a passage to India by sailing round the southern extremity of Africa became a favorite project. In the year 1488, the lofty promontory which terminates that continent was descried by Bartholomew Diaz; but it was not until about 10 years afterward that it was doubled, and the coast of Malabar reached, by Vasco de Gama.

Mean while the Cape de Verd Islands, which are said to have been known to the ancients, but afterward lost sight of, had been discovered in 1446; and soon afterward the Azores Isles. When we consider the distances at which these two groups of islands lie from the land, the former being upward of 300 miles from the coast of Africa, and the latter distant 900 miles from any continent, it may be concluded that the Portuguese, when they entered so boldly into the open seas, had made no inconsiderable progress in the art of navigation.

But brilliant as is the lustre which these discoveries shed around the Portuguese name, their glory would have been still more dazzling had they seconded the profound views of Christopher Columbus, which led him to the discovery of the New World. That illustrious man and skillful navigator, by revolving in his mind the principles on which the Portuguese had founded their schemes of discovery, and carried them into execution, was led to conceive that he could improve on their plan, and accomplish discoveries which they had hitherto attempted in vain. From the time that they had doubled Cape de Verd, the great object at which the Portuguese aimed was to find a passage by sea to the East Indies. The direction in which their efforts were made implied necessarily a long and hazardous voyage, should they even be successful in accomplishing their design. But as the Atlantic Ocean stretches westward to an unknown distance, was it not possible that it might reach the shores of those very countries to which it was thought so desirable to find a naval route? This supposition was perfectly consistent with the known globular figure of the earth; and it was evident, on the same principle, that the further India stretches to the east, the nearer it must approach to the western shores of Europe and Africa. Such was the idea suggested to the mind of Columbus, by the knowledge which he possessed of navigation and geography, both in theory and practice. While he found his views confirmed by a careful comparison of the observations of modern pilots with the hints and conjectures of ancient authors, he became thoroughly convinced that the navigator who should have the boldness to cross the Atlantic Ocean would have his toils rewarded by the most important discoveries.

These ideas had presented themselves to the mind of Columbus as early as the year 1474; but it was not until the year 1492, after several years of fruitless solicitation, and of discouragements and disappointments of the most vexatious kind, that he obtained the patronage of Ferdinand and Isabella, who then governed the united kingdoms of Castile and Arragon, and was by them put in possession of the means of carrying his schemes of discovery into execution. With no more suitable an armament for his great enterprise than three small vessels, having 90 men, mostly sailors, on board, and victualed for 12 months, he sailed from the port of Palos in Andalusia on the 3d day of August, and steered for the Canaries. Taking then his departure from Gomera, one of the most westerly of these islands, he stretched into unknown seas; and holding his course due west, reached Guanahani, one of the Bahama Islands, on the 12th day of October. After employing some time in making further discoveries, he returned to Spain to announce the success of his undertaking, the fame of which soon spread over Europe, and excited general attention. It was no easy matter to determine what relation the newly-discovered countries bore to the regions formerly known. Columbus's own views on the subject were in strict conformity with the idea which had taken so firm a hold of his mind, namely, that India might be reached by sailing toward the west. He imagined that the islands he had visited were some of those which were said to lie contiguous to the remote shores of Asia. In this opinion he was confirmed by the coincidence which he thought he could trace between certain names given to places by the natives and the appellations known to belong to countries situated in India. He thought he could recognize, in the answer given to his inquiries after the situation of the mines which yielded gold, the name *Cipango*, by which Marco Polo and other travelers in the East designated the island Japan. Ignorant of their language, and unaccustomed to their pronunciation, he even supposed that they spoke of the great khan; and hence concluded that the kingdom of Cathay or China, described by Marco Polo, was not far off. The same erroneous opinion was still further riveted in his mind, by what he supposed an identity between the animal and vegetable productions of the East Indies and those of the countries which he had discovered.

His second voyage led to the discovery of several more of the group of islands now called the West Indies, a name given them in conformity with the original notions of the discoverer. It was on his third voyage that he discovered the vast continent of America. Having unexpectedly found the island of Trinidad, with the neighboring land, he encountered, before he was aware of danger, the adverse currents and tumultuous waves occasioned by the resistance which the waters of the Orinoco oppose to the tides in the ocean. His attention was thus forcibly called to the immense body of water which is here poured into the Atlantic. This he was convinced was vastly too great to be supplied by any island; and hence he concluded that he had now reached the continent which he had sought through so many dangers.

The American continent, in its northern portions, had been discovered in or before the eleventh century. Toward the close of the ninth century a Norwegian pirate, while attempting to reach the Faroe Islands, which had already been visited by the Irish, was driven by storms to the coast of Iceland. This led to the first settlement of the Norwegians in Iceland in 875. From that time the Faroe Islands and Iceland may be regarded as intermediate stations and starting-points for attempts to reach the northern shores of America. Greenland was early seen; but it was not until 983 that it was peopled from Iceland. Colonization was carried through Greenland in a south-western direction to the new continent, and for some length of time an inconsiderable intercourse was maintained with the newly colonized countries. But a strong line of separation must be drawn between this early discovery of some parts of the high northern latitudes of America, and the discovery of its tropical regions by Columbus in the close of the fifteenth century. In consequence of the uncivilized condition of the people by whom the former discovery was made, as well as the nature of the countries to which it was limited, it produced no important or permanent results in relation either to commerce or science; the latter, on the other hand, has been attended with events of the utmost importance to mankind, as it has proved the opening of a new source of wealth, glory, and knowledge. The discovery of the new continent in the west, like the original discovery of its northern regions, may be said to be accidental, inasmuch as the object which Columbus had in view was to find a western passage to India. But the expedition under Columbus possessed this distinguishing feature, that it manifested the perfect character of being the following out of a plan sketched in accordance with the principles of science, and intelligently conducted to a successful issue.

The tenacity with which an ingenious and enterprising mind adheres to a scheme which it has once proposed to itself as an object of pursuit, was strikingly evinced by Columbus, whose thoughts still dwelt with eagerness on his original and favorite plan of opening a new passage to India. It was not enough that he had astonished mankind by finding a new continent; he conceived the idea that beyond it there might lie a sea extending to the coasts of Asia, and that by diligent search some strait might be found which would conduct him into this sea, or some narrow neck of land, by crossing which it might be reached. To determine this important point, though hitherto his services had met with the most unworthy returns, though years crept upon him, though worn out by fatigue and broken with infirmities, he still undertook with alacrity another voyage. By a lucky conjecture he directed his efforts toward the east of the Gulf of Darien; but he searched in vain for a strait; and though he frequently went on shore and advanced into the country, he never penetrated so far as to enable him to descry the great Southern Ocean.

After the first steps had been taken, the progress of discovery over the globe was astonishingly rapid. No expense or danger deterred even private adventurers from fitting out fleets, crossing oceans, and encountering the rage of savage nations in the most distant parts of the earth. Before Columbus had reached the continent at the mouth of the Orinoco, Newfoundland had been discovered by Cabot, a Venetian by descent, but sailing under the auspices of England. He had also coasted along the present territory of the United States, perhaps as far as Virginia. In the next two or three years, the Cortereals, a daring family of Portuguese navigators, began the long and unavailing search of a passage round the northern extremity of America. They sailed along the coast of Labrador, and entered the spacious inlet of Hudson's Bay. Two of them unfortunately perished in this enterprise. In the year 1501 Alvarez Cabral, a Portuguese navigator, destined for India, having stood out to sea in order to avoid the variable breezes and frequent calms which he was sure to meet with on the African coast, to his surprise, came upon the shores of an unknown country, the coast of Brazil, which he claimed for Portugal. Amerigo Vespucci, a Florentine gentleman, who had already sailed along a great part of Terra Firma and Guiana, now made two extensive voyages along the Brazilian coast. Soon after his return he drew up and transmitted to one of his countrymen an account of his adventures and discoveries, in which he insinuated that to him belonged the honor of having first discovered the continent in the New World. His performance, which was the first description published of the new-discovered countries, circulated rapidly, was read with admiration, and became the means of procuring for its author the high honor of giving his name to the whole continent. Not many years elapsed before the conjecture of Columbus respecting the existence of an ocean beyond the continent which he had discovered was found to be true; and his favorite project of opening a passage to India by steering westward was actually accomplished. By crossing the narrow isthmus of Panama, Nuñez Balboa reached the Pacific Ocean in the year 1513; and in 1521 Magellan discovered and sailed through the famous straits which bear his name. After 20 days occupied in navigating this dangerous channel, he beheld spread out before him the boundless expanse of the great Southern Ocean. Directing his course to the N.W., he continued his voyage for nearly 4 months without discovering land. From want of provisions and from sickness, he and his crew suffered dreadful distress. But when about to sink under their sufferings, they fell in with the Ladrone Islands, where they found refreshments in abundance. From these isles he proceeded on his voyage, and was not long in discovering the Philippines. Here, in an unfortunate quarrel with the natives, he was slain, with several of his principal officers. But his surviving companions, pursuing their voyage, and returning to Europe by the Cape of Good Hope, solved the great problem of the circumnavigation of the earth.

After the discovery of the Pacific Ocean by Balboa, the investigation of the western coasts of America went speedily forward. Expeditions were soon sent out both northward and southward; so that nearly a full view was obtained of the immense range of coast which the American continent presents to the Pacific Ocean, and at the same time of its great interior breadth. On the other hand, discovery in the Eastern World was no less rapid. Within 20 years from the time that Gama reached India by the way of the Cape of Good Hope, all the coasts of Hindoostan, those of eastern Africa, of Arabia, and Persia, had been explored. Navigators had penetrated to Malacca and the Spice Islands. They had learned the existence of Siam and Pegu; and it was only the characteristic jealousy of the rulers of the Celestial Empire that prevented them from entering the ports of China.

The scientific geographer had now abundance of materials to arrange and digest into one systematic whole. He was now called upon to give such a delineation of the earth's surface as should connect together the ranges of eastern and western discovery, and should exhibit the true outline and relative positions of countries, as these had been demonstrated by the astronomer and navigator. The ancient system of geography, to which the Arabs seem closely to have adhered, was founded on the idea of the whole earth being surrounded by an ocean as by a great zone. This the Arabians characterized as the "Sea of Darkness," an appellation most usually given to the Atlantic; while the northern sea of Europe and Asia, as inspiring still more gloomy and mysterious ideas, was styled the "Sea of Pitchy Darkness." Such notions could not now keep possession of the human mind, though it was only by degrees that mankind could be expected to be enlightened by doctrines which were not only new, but seemed likewise to be contradicted by the evidence of sense. The fundamental principles of a systematic arrangement had, as we have already seen, been known from the time of Hipparchus, and had been reduced to practice by Ptolemy. But the want of astronomical observations, or even of accurate surveys, which navigators seldom furnished, and for which science had not indeed yet provided suitable instruments, placed it still beyond the resources of modern geography to give any thing like a just representation of the two hemispheres. The Venetian geographers were the first who attempted a systematic arrangement of the immense regions recently discovered, adjusting them to each other, and to the mass of information previously possessed. But a series of Venetian maps, preserved in the king's library, show how much their skill was counteracted by the difficulties with which they had to contend. Instead of exhibiting the vast ocean which separates the east coast of Asia from the west coast of America, the two continents are represented either as meeting, or as separated only by a narrow strait. The voyage of Magellan across the Southern Ocean had not shown with sufficient distinctness the presentation of the opposite coasts, to enable the geographers of the time to avoid this error. When maps of different dates are compared, we find, as we descend toward modern times, a gradual progress toward accuracy in the representations given of the earth's surface. This is what might be expected; for all maps should be considered as unfinished works, in which there will always be something to be corrected, or something new to be inserted.

At the period of the revival of letters in Europe, the latitudes and longitudes as given by Ptolemy were universally received with implicit confidence. When checked, however, by actual observation, they were found to differ materially from the truth. The latitudes in many instances were found very erroneous; that of Byzantium, for example, exceeded the truth by two degrees. As nearly the same excess was found to exist in some other cases, many geographers, unwilling to renounce the authority of Ptolemy, concluded that this difference had arisen from a change having taken place in the position of the earth's axis, in consequence of which the latitudes of all the places in Europe were increased. The progress of observation showed that this opinion was untenable, and that before geography could rest on a sure basis, a general revision of ancient graduation was indispensably necessary. The only observations employed by the ancients for determining longitudes were those of the eclipses of the moon; but it was found that the results derived from this source could not be depended on. In the year 1610, Galileo, having discovered three of Jupiter's satellites, pointed out the use which might be made of their eclipses for finding longitudes. But this method, which gives the greatest degree of accuracy, was turned to little account, until 1668, when Cassini published his tables of the revolutions and eclipses of these satellites. Three years afterward, by means of simultaneous observations made by him and Picard at Paris, and by Tycho-Brahe at Copenhagen, the difference of longitude of these two important points, which had been long a matter of dispute, was finally determined. Since that time, other accurate methods of finding the longitude have been discovered; and the instruments employed in observation have been brought to a high degree of perfection. The refinements and improvements of modern science have been brought to bear upon the great problem of determining the figure of the earth, which, though nearly, is not exactly spherical. (See FIGURE OF THE EARTH.) The labors of scientific men to obtain accurate results on this subject, have contributed much to the improvement of geography. The expeditions sent out under Maupertuis to the arctic circle, and under Condamine to the equator, afforded an opportunity of making various observations of latitude and longitude in regions of which no delineation resting upon proper data had hitherto been given. Within the last 50 years, trigonometrical surveys of France and England have been executed, which have nearly completed the delineation of these countries.

Much advantage has accrued to geographical science, in point of accuracy and precision, from the application in modern times of a sound and judicious criticism to the immense mass of materials which had been accumulating for ages. The labors of M. d'Anville, in the 18th century, were employed with great success in this department. He undertook the revision of the whole system on which the delineation of the world, and of the countries into which it is divided, had hitherto been made; and by unhesitatingly rejecting every particular that did not rest on positive authority, he removed many false or uncertain features, and clearly distinguished the known from the unknown parts of the globe. Major Rennell has skillfully arranged and illustrated the important materials collected respecting India. Various authors have in modern times cultivated another interesting field of inquiry, the comparison between ancient and modern geography, and the tracing of the rise and progress of early discovery. These researches were diligently pursued by Vossius, Bochart, and other learned men of the 17th century, and with still more success by Rennell, Vincent, and Mannert, who appear to have pushed them as far as they admit, though much darkness still rests on some parts of the inquiry. Gosselin, notwithstanding that he has applied to the subject a great extent of investigation, as well as much skill and force of criticism, has failed, on account of the peculiar views in which he indulged, to make any solid addition to the science.

The discoveries made by the Spaniards and Portuguese had greatly increased the stock of geographical information. Still much remained to be done. The desire of finding a short and convenient route to India continued to supply a stimulus to exertion in the way of discovery. The English and Dutch made extraordinary efforts, and encountered fearful dangers and disasters, with the expectation of finding a passage by the north-east, along the northern shores of Asia. A coast beset with the ices of the polar seas presented, however, obstacles too formidable to be overcome; though recent researches show that no barrier of land intervenes. But there was still another quarter where an attempt might be made; and to this point the commercial nations of Europe failed not to direct their efforts. The jealousy of Spain long prevented the other European States from visiting the north-western coast of America, so that they remained ignorant of the vast breadth to which the continent spreads out as it advances toward the north. They adopted, indeed, the opinion that, like the southern extremity, the northern terminated in a point or cape. This left room to hope for a north-western passage into the Pacific Ocean, by sailing round the imaginary cape. The English took the most decided lead in the exploratory voyages to which these views gave rise. In the reign of Queen Elizabeth, Frobisher and Davis were sent out on three successive voyages, which led to the discovery of the entrance into Hudson's Bay by the former navigator, and of the entrance into Baffin's Bay by the latter. These two capacious basins were afterward discovered by the intrepid navigators whose names they bear. In sailing round the great sea which he had discovered, Baffin mistook the great opening into Lancaster Sound for a mere gulf—a misapprehension which checked for a time any further attempts in that quarter, as navigators were led to expect success only through the channel of Hudson's Bay. In 1631 Fox explored a part of that great opening on the north of Hudson's Bay, called Sir Thomas Roe's Welcome, which seemed now to hold out almost the only hope of accomplishing the object sought. The assertion of Middleton, an officer in the service of the Hudson's Bay Company, that he had discovered the head of the Welcome to be completely closed, and the circumstance of two other navigators, who were sent out the following year, failing to effect any thing, produced an impression on the public mind that the passage so long sought had no existence.

The discoveries of Cook in the North Pacific Ocean, where he found the American coast stretching away in a north-westerly direction, joined to the circumstance that, when he penetrated through the strait discovered early in the last century by Behring and Tchirikof, which separates America from Asia, the coast appeared there to extend indefinitely to the north, seemed not only to confirm the conclusion that no passage into the North Pacific Ocean was here to be expected, but also that the American continent extended northward in one unbroken mass, perhaps even to the pole. The groundlessness of these views became apparent when, in the year 1771, Mr. Hearne, who had been dispatched by the Hudson's Bay Company to explore the limits of the coast in this direction, sailed down the Copper-mine River, and discovered its entrance into the sea; and again, when, in 1780, Sir Alexander Mackenzie traced also to the sea another river about 20 degrees further to the west. Thus were there furnished strong grounds to believe that the pole was surrounded by an ocean which separated the northern coasts of Asia and America, making these two continents altogether distinct from each other; and that through this ocean lay the long-sought course which would certainly conduct the navigator who should succeed in forcing his way through the ice and storms of the polar regions, from the Atlantic into the North Pacific Ocean.

The determination of this great geographical question, so long agitated, has recently called forth the utmost efforts of the British government. In 1818 an expedition was sent out to Baffin's Bay under the command of Captain Ross, without leading to any important result, as he was led to conclude that no opening existed. Lancaster Sound had, however, forcibly attracted the attention of the late Sir Edward Parry, at that time lieutenant and second in command; and on returning with a new expedition under his immediate command, he succeeded in penetrating through Lancaster Sound, which he found gradually to widen till it opened into the Polar Sea. He found a chain of large islands to lie parallel to the American coast; and among these he continued his navigation until the accumulation of ice in the straits and channels through which he had to pass stopped his further progress. This circumstance induced him to make his next attempt through Hudson's Bay, by the channel of the Welcome, which had as yet been but imperfectly explored. Here he succeeded in reaching a point considerably beyond that at which Middleton had represented the bay as terminating. He found at length a narrow strait communicating with the Polar Sea, but so incumbered with ice as to preclude the hope of its ever affording an open passage. He was therefore again sent out to renew his efforts in the first direction, where he had already obtained partial success. But the obstacles which he had formerly been unable to overcome still continued, and prevented him from making any material addition to his former discoveries. While these skillfully-conducted voyages were in progress, Sir John, then Captain Franklin, was sent out at the head of two successive expeditions by land, and, by actual survey, ascertained three fourths of the boundary coast—his operations terminating at a point beyond the 149th degree of west longitude. On the other hand, an expedition under Captain Beechy, sent to meet Captain Franklin on his second toilsome journey, passed the Icy Cape of Cook, and penetrated nearly as far as the 156th degree of west longitude, leaving only seven degrees, or 160 miles, between the farthest point thus reached and the utmost limit reached by Captain Franklin. The results of this investigation appeared to prove that the whole of the northern coast of America extends in a line not varying much from the parallel of the 70th degree of north latitude. The problem of a passage between the Atlantic and Pacific Oceans, to the north of the American continent, has now been finally solved; but this discovery, so well fitted in itself to afford satisfaction to the British nation, which has always taken the lead in such enterprises, has been made under circumstances of a very saddening kind. In 1845 Sir John Franklin and Captain Crozier were sent out on a voyage of discovery to the Arctic Seas. No tidings having been received of this expedition, it became, after two or three years, a subject of painful anxiety and suspense. Hence various expeditions were fitted out and sent in search of the missing voyagers, to succor them if still within reach of human aid, or, if otherwise, to ascertain their fate.

In the course of these praiseworthy endeavors, Captain M'Clure was appointed to command the *Investigator*, under Captain Collinson of the *Enterprise*, and proceeded with that officer to Behring's Straits in the early part of 1850. When on the eve of sailing, Captain M'Clure emphatically declared that he would find Sir John Franklin and Captain Crozier, or make the north-west passage. The latter part of this pledge he has, geographically speaking, redeemed; but the impenetrable mystery which from the first enveloped the fate of these gallant commanders, remains the same. Captain Collinson failed in his attempts to penetrate the pack ice that season, and so was separated from Captain M'Clure, who, notwithstanding a signal of recall from Captain Kellett of the *Herald*, the chief officer on that station, dashed onward with a bold determination to force a passage to the north-east—taking on himself all the responsibility of disobeying orders. Fortunately his daring has been crowned with success. He rounded Point Barrow on the 5th August, 1850; continuing his course eastward along the coast, he reached Cape Parry on the 6th September, whence he steered through a channel called Prince of Wales's Strait; which, running north-east, appeared a most promising course for reaching the sea south of Melville Island. Near the northern extremity of this strait, the *Investigator* was frozen in from the 8th of October, and remained stationary during the winter. Parties being sent out to explore, it was soon ascertained that the channel opened into Barrow's Strait; and thus was the existence of a north-west passage established. On the 14th July, 1851, the *Investigator* was again fairly afloat, the ice having opened without any pressure. The great object now to be gained was to pass through the strait; but notwithstanding their utmost exertions, the expedition was completely arrested by strong north-east winds, driving great masses of ice to the southward. Thus baffled, Captain M'Clure resolved on running to the southward of the island forming the western boundary of Prince of Wales's Strait, which he had named Baring Island, and then to sail northward along its western side. This navigation, in which he was subjected to many delays and encountered many formidable obstacles, he accomplished, and succeeded in reaching the north side of the island on the 24th of September. Had open water existed to the east the rest of the passage might have been easily performed in this way, for Barrow's Strait lay before them, the navigation of which, from their position to Lancaster Sound, was known to be practicable. The hopes of this intrepid navigator were destined again to be disappointed. On the night of the above-mentioned day the *Investigator* was frozen up, and at this point, in latitude 74° 6′ N., and longitude 117° 54′ W., they had their winter quarters in 1851, 1852, 1853. In April, 1852, a party crossed the ice to Melville Island, and deposited there a document giving an account of their proceedings, and of the position of the *Investigator*. This document was happily discovered by the officers of Captain Kellett, who had been the last person with whom Captain M'Clure held communication when he entered the ice on the west, and was now, singularly enough, the person to rescue him at the expiration of three years on the side of Melville Island on the east. Steps were immediately taken to communicate with the party in their ice-prison, Lieutenant Pim being appointed by Captain Kellett to the service. Eventually it was found necessary that Captain M'Clure and his gallant companions should abandon their ship, however unwillingly; so that the navigation of the north-west passage has not yet been accomplished.

The discovery of a new continent greatly enlarged, as we have seen, the views of mankind respecting the constitution of the globe. But imagination, no longer limited in its range by the notion of a circumambient ocean that could not be passed, soon gave rise to the belief of a southern continent, which was supposed necessary to balance the land in the northern regions of the earth. The immense body of water that was found to occupy so large a portion of the known regions of the southern hemisphere gave ample room for supposing this unknown continent to be of vast dimensions. It was imagined that it might equal in extent, as well as in wealth, the American continent. Nor was it considered necessary to exclude it from the map of the world till its existence should be proved. It appears in all the early maps as an immense mass of land surrounding the south pole, and presenting to the ocean one unbroken coast. The discovery of certain great insular tracts in the South Seas, which, from ignorance or their true nature, navigators might mistake for continental promontories or portions of coast, no doubt at first gave some countenance to the belief of the existence of antarctic land. But the delusion was gradually dispelled before the light afforded by further discovery. The Portuguese, in less than 20 years after their passage of the Cape of Good Hope, pushed their researches to the most remote islands in the Indian Ocean, including Java and the Moluccas. They appear also to have observed some part of the coast of New Guinea. The Spaniards, during their early and adventurous career, put forth strenuous exertions to explore the Southern Ocean, and several of the groups of islands scattered over its surface were discovered by their navigators. In 1607, the Dutch having wrested Java and the Spice Islands from the Portuguese, established in them the centre of their Indian dominion. A great maritime power being thus placed so near to the northern shores of the largest portion of land on the globe that is regarded as an island, it became almost impossible that New Holland could long remain unknown. It was discovered early in the 17th century, and was long supposed to form a part of the great southern continent. Van Diemen, the Dutch governor of India, sent out several vessels successively to explore its coasts. Hertog, Carpenter, Nuytz, and Ulaming made very extensive observations on the northern and western shores, but found them so dreary and uninviting that no settlement was attempted. In the year 1642 Abel Jansen Tasman was commissioned to proceed on a voyage to ascertain its extent. On the 14th August he sailed from Batavia, directing his course first toward the Isle of France. He again set sail on the 3d October, and proceeding southward and eastward, beyond the limits reached by his predecessors, he discovered and doubled the southern extremity of Van Diemen's Land, to which he gave its name; but he failed to discover that it is a separate island. Pursuing afterward his course eastward, having reached about 42° 10′ S. lat., and 170° E. long., he found himself in view of a high and mountainous country, which he named Staaten Land, but which is now known as New Zealand. He sailed along the coast toward the north-east, and after being detained by the variableness of the weather, he resumed his voyage and returned home by the Friendly Islands, discovering many islands in his progress. He arrived at Batavia on 15th June, 1643. Tasman's voyage proved that New Holland was no part of the southern continent, even if such a continent should be found to exist. Cook, who had been appointed in 1767 to conduct a voyage into the South Pacific Ocean for astronomical and geographical purposes, sailed southward in 1769 in quest of the unknown continent. Lofty mountains were seen on the 6th October, and it was supposed that the object of their search was found. But the land proved to be New Zealand. This land he circumnavigated, and found that it consisted of two large islands separated by a narrow channel. After six months employed in this manner, he directed his course westward, and reached the eastern side of New Holland early in 1770. By his extensive operations in that quarter—having run down the coast from latitude 38° to its northern extremity at Torres Strait—he left little more to be done there in the way of discovery. Passing down New Holland and New Guinea, he continued his voyage by Timor and the south coast of Java to Batavia; whence, after repairing the ship, he sailed for England, and reached the Downs on the 12th June, 1771, with his crew weakened and reduced in number by the fatigue and hardships of their long voyage. By this voyage it was proved there was no such continent as that supposed to exist to the northward of 40° south latitude. But as many ingenious and well-informed men still adhered to the opinion that there did exist a southern continent, government determined to send out a second expedition under Cook, to make such an exploration of the Pacific Ocean in the higher southern latitudes as should finally and satisfactorily settle this much agitated question.

Cook was instructed to circumnavigate the globe in high latitudes, prosecuting his researches as near to the south pole as possible, and to traverse every part of the Southern Ocean where the supposed continent could possibly lie. The expedition sailed from Plymouth 13th July, 1772, and quitted the Cape of Good Hope 22d November. Pursuing his course eastward, Cook, during three years, employed the summer months in those regions (corresponding to our winter months), in navigating high latitudes toward the South pole, and the winter months in adding to his discoveries in the South Pacific Ocean. Notwithstanding, however, that he varied his course, and traversed in every direction which he thought afforded the slightest likelihood of finding land, and actually got so far south as 71° 10′ of latitude, he was unsuccessful. Having thus scrupulously and completely accomplished the object for which he was sent out, he directed his course homeward. He had encompassed the globe in high latitudes, and was led to conclude that the southern pole is surrounded only by isles and firm fields of ice, so that the hypothesis of an austral continent had no foundation. He reached the Cape of Good Hope 22d March, 1775, and anchored at Spithead on the 30th July, having, in the space of 3 years and 18 days, sailed 20,000 leagues, mostly in inhospitable climates and unknown seas. In the course of this and his former voyage the same great navigator secured glory to his country and to himself by likewise completing the survey of the great Pacific Ocean. Some of the interesting groups of islands scattered over its vast surface had already been made known by the previous voyages of Byron, Wallis, and Carteret. Cook fully traced the great chain of the Society Islands and the Friendly Islands. He determined also the form and relations, not only of New Zealand, but of New Caledonia and other lands and islands in that region of the globe.

The extensive island of New Holland has recently become doubly interesting from the important relations which now subsist between it and Europe. In the year 1788 the establishment of a British colony on the east coast paved the way for a more complete survey. By the different expeditions undertaken from 1795 to 1799, chiefly under the direction of Bass and Flinders, the east coast, together with Van Diemen's Land and Bass's Strait, which separates that island from New Holland, were adequately explored. In 1801 an expedition was sent out by the British government under the command of Captain Flinders, for the purpose of surveying a large portion of the coast. These surveys were prosecuted with unremitting ardor and perseverance. At the same time that Captain Flinders was carrying on his survey, the French captain Baudin was employed on the same service, and in some parts the discoveries of these navigators intermingle. Some additional observations have more recently been made; and by these various expeditions the whole coast of New Holland and Van Diemen's Land has been accurately surveyed, the position of every point has been ascertained, and every inlet and bay has been traced to its termination.

The strong presumption which the researches of Captain Cook in the Southern Ocean furnished of the non-existence of an austral continent, seemed to leave no room to expect that any further doubt would be entertained on the subject. Lieutenant C. Wilkes, commander of the expedition fitted out in 1838 by the government of the United States, for the exploration of the antarctic regions, has, however, claimed for his country and for himself the honor of at length discovering a continent within the antarctic circle. While this claim is pertinaciously adhered to, no distinct and unequivocal proof is produced that the continent alleged to have been seen by the American expedition has a substantial existence. No continent or island was landed on; and, on the other hand, it is supposed that the British expedition, under the command of Sir James C. Ross, sailed over the very spot in south latitude 66°, and east longitude 163°–166°, where Lieutenant Wilkes supposed he saw mountainous land. This latter expedition was fitted out by the British government, for scientific purposes, in 1839, and arrived in Van Diemen's Land in August, 1840. The French government had likewise sent an expedition into the southern seas, under the command of Captain Dumont d'Urville, about the same time. To avoid interferences with the French and American discoveries, Sir James Ross determined on a more easterly meridian—that of 170° E.—in which to endeavor to penetrate to the south. The expedition sailed from Hobart Town on 13th November, 1840, and on 27th December encountered a chain of icebergs. On the 5th January, 1841, they entered the pack-ice, through which having forced their way, the ice having at the same time somewhat slackened, they found themselves on the 7th January again in a clear sea. Soon after 2 o'clock, A. M., of the 11th January, they discovered land, which, as they advanced southward, was found to extend continuously from the 70th to the 79th degree, with several adjacent islands. This land they called Victoria Land. It presented to their view ranges of mountains whose lofty peaks, covered with eternal snow, rose to elevations from 7 to 10 or even 12 thousand feet above the level of the ocean. The intervening valleys were filled with glaciers, which, descending from near the mountains' summits, projected in many places several miles into the sea, and terminated in perpendicular cliffs. The rocks breaking through in a few places their covering, afforded the only indication that land formed the nucleus of this, to appearance, enormous iceberg. On the 28th January, when they had nearly reached their highest latitude, about 78° S., they found that what appeared when first seen at a distance to be a high island, was a mountain 12,367 feet in height emitting flames and smoke in great profusion. This volcano lies in latitude about 77½° S., and in longitude about 167° E. From the most eastern point of land at a cape not far from the foot of this mountain, an icy barrier was found to extend eastward as far as the eye could discern. This barrier was a perpendicular wall of ice from 150 to 200 feet in height, and stretched 250 miles in one unbroken line, as was found on a second visit to the same interesting locality in February 1842; nor were they able to turn its extremity, so as to reach a higher latitude. At a point where the height of the barrier diminished to about 80 feet, they perceived from the mast-heads that it gradually rose to the southward, presenting the appearance of very lofty mountains perfectly covered with snow, but with a varied and undulating surface. And hence Sir James Ross, with nearly all his companions, felt assured that the presence of land there amounts almost to a certainty. Still, Sir James is of opinion that the recent discoveries in the antarctic regions made by the French and American navigators, and by himself, do not prove the existence of a great southern continent, but rather of a chain of islands.

In tracing the history of geographical discovery, it can not fail to be observed that while discovery by sea admits of being pursued with great advantage, on account of the rapidity of its progress and the extent of its range, it does not supersede the slower and more confined operations of the discoverer by land, which are no less necessary to make known the interior features and circumstances of the different countries.

The British dominion in India has led to much additional information respecting the interior of Asia; information which is, however, in many respects, only the revival of ancient knowledge. The great mountainous chain which forms the northern boundary of India, has been traced and found in many places to tower to such heights as to exceed the Andes, long supposed to be the highest mountains in the world. The source of the Ganges, and that of the Indus, with the early courses of these great rivers, have been found to be situated quite differently from what had been supposed to be their position by modern geographers. The mountainous territories of Cabul and Cashmere, the high interior table-land of Thibet, and the vast sandy plains of Meckran, have all been more or less explored. Information of an authentic character has also been recently obtained respecting the formerly celebrated capitals, Bochara and Samarcand. But a wide field still remains for future research.

The continent of Africa, however, is the quarter of the globe which, more than any other, has baffled the efforts of those who would explore its interior. The vast sandy deserts, high mountains, and impenetrable forests which occur on its surface, joined with the unremitting wars carried on between the petty tribes, as well as the deeply-rooted antipathy of the African Mohammedans toward the Franks, have presented obstacles of the most formidable kind. The ancients, whose knowledge of the African coasts was very imperfect, except where they border on the Mediterranean and the Red Sea, were accustomed to penetrate into the inland provinces, and are said to have been acquainted with many parts of it which are now altogether unknown. At an early period of modern history, reports that Prester John, the Christian Prince, who had been sought for in vain in the East, was to be found in the interior of Africa, induced the Portuguese to explore Abyssinia; but the accounts which they gave of the extent of that country were greatly exaggerated. From the western coast they dispatched embassies into the interior in quest of the object of their search; and on one occasion they appear to have reached the city of Timbuctoo, and to have obtained at Benin some information concerning the great interior kingdom of Ghana. The maritime nations of south-western Europe early formed settlements on the west coast of Africa, and, for commercial purposes, were naturally prompted to seek a knowledge of the neighboring nations. But it was not until the formation of the African Association in 1788 that any well-sustained efforts were made in the prosecution of discovery in the interior. There were two objects connected with the interior of Africa which had for a long time fixed the attention and awakened the curiosity of the nations of Europe. These were the city of Timbuctoo and the great central river, the Niger. Timbuctoo has been for many centuries the grand emporium of the central trade of Africa, and hence there has prevailed throughout Europe, ever since the rise of discovery and commercial enterprise, a strong desire to visit it, and to establish with it a friendly intercourse. The discovery of the course and mouth of the Niger has now opened up to commercial speculation what it is hoped will give a ready access to Timbuctoo as well as other places of traffic. The interest with which, in a geographical point of view, however, the Niger has been regarded, has arisen from the remarkable nature of the regions through which it flows, and still more from our ignorance, combined with the various and contradictory rumors which were so long abroad, respecting its course and termination. Herodotus is the earliest author who affords any ideas applicable to this subject. He mentions an expedition into the interior of Africa, undertaken by some Nassamonian youths, who, being made prisoners, were carried to a great city inhabited by negroes, and situated on the banks of a river which flowed from west to east. This stream he conjectures to be the remote source of the Nile, but the particulars given appear to leave little doubt that it was the Niger. A similar hypothesis was adopted by Strabo, Mela, and Pliny, identifying the waters of these two great rivers. But Ptolemy, whose residence in Alexandria afforded him ample means of information, rejects altogether the idea of any communication between them. He describes the Niger as terminated on the west by Mount Mandrus (Mandingo), and as giving rise to several extensive lakes as it proceeds in its course. His statements do not, however, involve any thing positive as to the direction in which it flows. The Saracens or Arabians are the next great source of information; for, in the course of the dissensions which took place among their dynasties in northern Africa, large bodies crossed the desert and founded kingdoms on the eastern part of the shore of the Niger, of which the kingdom of Ghana was the most splendid. According to their testimony, the Niger flows from east to west, and discharges itself into the sea, by which they understood the Atlantic, or great circumambient ocean. With regard to its source, they generally regarded it as the same with that of the Egyptian Nile, identifying the two rivers in the early part of their course. Some were of opinion that the waters of the Niger did not reach the sea; so that they must have supposed them to be discharged into a lake. The system adopted by modern Europeans was derived from Leo Africanus, who retained the delineations of the Niger as flowing from east to west, and falling into the ocean; but, instead of deriving it from the Nile, supposed it to rise from a lake lying deep in the interior of Africa. Following this hypothesis, all the early European navigators, when they saw the two broad estuaries of the Senegal and Gambia, concluded that one or both gave egress to the waters of the Niger. In the beginning of the 17th century, the French and English, having each formed a settlement, the one on the Senegal and the other on the Gambia, were induced by the hope of gain to seek a route up these rivers to the city of Timbuctoo; and in this enterprise they proved the falsity of the opinion which had been so long held. The streams were traced so near to their source as to become little more than rivulets; while the explorers were still far from the great central emporium of Africa, and from the great plain through which the Niger was understood to flow. This result led the two great French geographers, Delisle and D'Anville, to construct maps in which the Niger, after the lapse of so many ages, was again represented as flowing to the eastward. Instead of a single stream pursuing a course across the whole breadth of Africa and falling into the Alantic, D'Anville distinguished three rivers—the Senegal, flowing westward; the Niger, flowing eastward into a lake in Wangara; and another river still further east, and flowing in the opposite direction. The data on which this scheme rests were never fully made public.

Still new doubt was thrown around this subject by the reports collected by Mr. Lucas, who traveled under the auspices of the African Association, and who was assured at Tripoli, by a native merchant, that the river flowed with rapidity in a westerly direction. The time, however, at last arrived, when these conflicting opinions were to be silenced, and when new light was to be thrown on the subject, by the labors of our illustrious modern traveler, Mr. Mungo Park. In his first expedition, in 1795-96, he proceeded from the west coast in the direction of the River Gambia, until at Medina he left it, and turned to the north. Having passed through the kingdoms of Bondou, Kasson, and Kaarta, he reached Sego, the capital of Bambarra, where he beheld "the long-sought majestic Niger glittering in the morning sun, as broad as the Thames at Windsor, and flowing slowly to the eastward," directing his course into the depths of the interior of Africa. This stream, he found, was called by the natives the Joliba, or Great Water. Park advanced beyond this point to another town called Silla on the same river, and acquired also some valuable information respecting the further course of the stream which was the object of his research, as well as respecting the position of Timbuctoo, which he was told was not more than 200 miles from Silla. Following upward the course of the Joliba until he reached Bammakoo, which was stated to be about ten days' journey from its source, he returned to the Gambia by a more southerly tract. In 1805 this adventurous traveler was sent out at the public expense on his second expedition. After reaching Silla, he embarked at a place in its neighborhood on the Joliba or Niger, with the determination of sailing down the stream until he should reach its mouth, whithersoever its course might conduct him. He is ascertained to have passed successively the cities of Jenné, Timbuctoo, Yaour or Yaouri, and to have reached Boussa, a short distance further down, where he was killed. No part of his journal, however, after he embarked on the river, has been recovered. In the mean time, a strong and general interest being now excited in reference to African geography, information flowed in from various sources respecting the regions in the interior, as well as some parts nearer the coast. Many particulars became known concerning the countries to the east of Timbuctoo, especially the kingdom of Bornou, then the most powerful State of central Africa. The knowledge possessed of the people of the interior was also considerably increased. These circumstances prepared the way for a more successful attempt than any hitherto made to explore the interior of Africa, when Major Denham and Lieutenant Clapperton were sent out in 1822. Setting out from Tripoli with a caravan of Arab merchants, these travelers crossed the desert, and reached the great inland sea or lake called Tchad, which is the receptacle of immense volumes of water collected from the most distant recesses of inner Africa. Major Denham examined the coasts of this lake to the east and south; while Lieutenant Clapperton directed his researches westward, through the kingdom of Bornou and the country of the Fellatahs, until he arrived at Sackatoo, situated on a stream which probably flows into the Joliba. In the course of this journey, Clapperton obtained a great mass of information concerning those hitherto unvisited regions which lie eastward of Timbuctoo; but with regard to the course of the unexplored part of the River Niger (or Quorra, as it was called at Sackatoo), he heard little that could be depended upon. Having returned to England, he was again sent out by the government in command of a new expedition, with instructions that he should endeavor to penetrate to the scene of his former adventures from the coast of Guinea. In the execution of this plan of research he reached the Niger at Boussa, where Park perished; and, after traversing some of the adjoining regions on the further side of the river, as far as the great commercial city of Kano, the capital of Houssa, where he had been in his former journey, he turned again to the west, and having reached Sackatoo, there died. His servant, Richard Lander, with a praiseworthy zeal, embarked on one of the branches of the Niger for the purpose of finally determining, if possible, its termination by sailing down the stream; but he was stopped by the natives, and compelled to turn back. The city of Timbuctoo was in the mean while reached by Major Laing, who succeeded, in August, 1826, in making his way thither across the desert from Tripoli. In this famous city he spent some weeks, but he was murdered in the desert on his return; nor did the results of his inquiries and observations ever reach Europe. Such are the formidable difficulties and dangers which have hitherto encompassed the path of discovery in the interior of Africa. Still, by renewed efforts, the object of research has been gained. The grand question of the termination of the Joliba, Quorra, or Niger, has at length been fully resolved—a discovery which is the result of the fortunate and well-conducted enterprise on which Richard Lander and his brother were sent out in 1830. Having followed nearly the same route which had been taken by Clapperton in his second journey, these two travelers reached Boussa on the 17th June. They first ascended the river as far as Yaouri, and then returned to Boussa. After remaining there for some time, they embarked on the river to follow the stream in its course downward, hoping that it would conduct them to the sea. In this expectation they were not disappointed; for they reached the Bight of Benin by the larger branch, which is there called the River Nun. There is another great branch a little further to the south; and by these two outlets, with several smaller channels, the river known in Europe by the name of Niger discharges its water into the Atlantic.

The zeal for discovery in Africa, which has been so active during the last six years, has sent forth a succession of travelers (missionaries and others) to explore the southern regions of that vast continent. We can mention briefly only the most remarkable results of their researches.

It is now (1856) about six years since intelligence was received in Europe of the discovery of snowy mountains in eastern Africa. The discovery was in itself so remarkable, that the report was not at first universally credited. It was, however, subsequently confirmed. The mountains in question are Kilimanjaro, in about latitude 3½° S., and longitude 37° E.; and Kenia, in about latitude 1° S., and longitude 38½° E. They were discovered by the missionaries Repmann and Krapf, stationed near Mombas. Kilimanjaro is an isolated and very conspicuous peak, probably connected on its western side with the table-land of inner Africa. The missionaries have become acquainted with its eastern, southern, and northern aspects; but Mount Kenia has been seen only from the south, at a distance of six days' journey, or about 80 geographical miles.

Another important discovery made in the interior of Africa within the same time is that of Lake N'Gami, by the missionary the Rev. Dr. Livingston, accompanied by Mr. Oswell and Mr. Murray. It seems to be situated about 19° south latitude—about 560 miles N.N.W. of Kolobeng, the scene of Dr. Livingston's missionary labors, and the head-quarters of the Baquain tribe. These and other explorers have made us in some measure acquainted with an extensive system of rivers, between 10° and 22° S. latitude, running eastward, which, when further research shall have made them fully known, may be found capable of being rendered subservient to commercial intercourse with the surrounding countries, and to their consequent civilization. Dr. Livingston has lately returned from his explorations to the north of Lake N'Gami.

An important expedition to central Africa, headed by Mr. James Richardson, left Tripoli in March, 1850. It was sent out under the orders and at the expense of the British government. The object of this mission was to survey Lake Tchad, and to explore the neighboring countries. The scientific interests of the expedition were intrusted to two German gentlemen, Dr. Barth and Dr. Overweg. Instead of traveling from Tripoli across the desert with the great caravan, the mission formed a small caravan of its own, amounting to about 100 persons, and as many camels. The journey from Tripoli to Murzuk and thence to Ghat is less interesting than that from the latter place, where they entered on entirely new ground. But even in the former part of the march many important discoveries were made, as the travelers selected new routes not before explored, and thus rendered every part of the journey subservient to the purposes of the mission. At Ghat their personal danger was increased to such a degree that they found it necessary to trust for protection to the friendship of the sultan of the Keloës, in whose country they were detained about three months, during which time Dr. Barth made an interesting journey to Agadez, while much valuable information was also collected by Mr. Richardson and by Dr. Overweg, who had remained. At the close of 1850 the party reached Zinder, where the three travelers separated, each proceeding with his followers by another route. Mr. Richardson took the direct way to Kuka, not far from the shores of Lake Tchad, and the capital of the empire of Bornou. At Kuka all the three hoped again to meet very soon afterward, but this hope was disappointed. Mr. Richardson was of a weak constitution, yet his health appeared to suffer little from the fatigue of crossing the desert; but he sunk before he reached Lake Tchad, which was the termination of his mission, and from which he was to return by direct road to Tripoli. He died in the country of Bornou at Ungurutua, a place six days' journey from Kuka, during the night intervening between the 3d and 4th of March, 1851. Thus was added another name to the large number of those who have fallen a sacrifice to the cause of African discovery.

The two surviving travelers, undaunted by the prospect of danger, proposed as the plan of their operations to approach the Upper Nile, as soon as they had explored the vicinity of Lake Tchad, provided they were supported by the British and Prussian governments; and to be ready even to pursue their researches from Kuka to the Indian Ocean. The route in a straight line to Mombas lies nearly south-east; but from all they could learn, the route more to the south, in the direction of Lake Nyassi, seemed more practicable. The gigantic journey which they thus contemplated, lay through many powerful kingdoms, densely peopled, intersected by numerous rivers, very fertile, and abounding in forests, but where the most formidable obstacles were to be expected from the warlike dispositions of the surrounding nations.

In the mean time they prosecuted with zeal the immediate objects of the mission, embracing every opportunity of collecting information. On the 29th May, 1851, Dr. Barth started from Kuka to visit the kingdom of Adamana, which, from the accounts he had received, he judged to be the most beautiful country of central Africa. He reached Yola, the capital, on the 22d June, where he was permitted to reman only three days. He was kindly received, however, both by the sultan and by the inhabitants, and at his departure was treated with consideration and honor. Four days' journey before reaching Yola, he had to cross at the point of their junction the two principal rivers of Adamana, the Benueh and the Faro, the latter being a tributary of the former. The Benueh he describes as the largest and most imposing stream which he had seen since leaving Europe. He found it half a mile broad and about 10 feet deep. The distance of the source from the point at which he crossed it was said to be nine days' journey. This magnificent river is in fact the upper course of the Tchadda, which itself falls into the Quorra or Niger, not far from its mouth. The discovery thus made of the identity of the two streams, the Benueh and the Tchadda, has opened up a way of access to the very heart of inner Africa, which seems destined eventually to become the line from the west along which the blessings of commerce and civilization are to flow to the surrounding nations. The consideration of the immense importance of following up this discovery, and of the advantages which might be expected to accrue from it, suggested the idea of sending out a steamboat expedition from England to ascend the Tchadda. Former attempts to reach central Africa by ascending the Quorra had been attended with very disastrous consequences. But the expedition which left the British shores in May, 1854, to ascend the Tchadda was eminently successful, while not a single life was lost. It reached the mouth of the Quorra in the beginning of July, and, entering the Tchadda, ascended the stream to within about 50 miles of the confluence of the Benueh and the Faro. Thus it has beeen fully proved that this important river is navigable to Yola, the capital of Adamana.

While Dr. Barth was prosecuting this journey his fellow-traveler was employed in surveying Lake Tchad. This lake is described as an immense marsh, the only portion fit for navigation being a deep channel formed by the River Shary, which pours into the lake a vast volume of water. What Major Denham has described as small islands, were found to be extensive meadow-lands of much greater surface than the lake itself. The explorations of Dr. Overweg led to results considerably at variance with what had been reported by Denham; but the discrepancies are perhaps more apparent than real, and may find their explanation in the fact that the lake is augmented during the rainy season to an immense body of water; but during the season of drought is so much reduced by evaporation as to appear at times to be almost dried up.

In the course of the summer of 1852, Dr. Barth, setting out from Kuka, made a journey in a south-easterly direction toward the Nile; and so near did he approach to the eastern boundary of the basin of that great river, that he was able to collect information likely to throw light on some intricate questions connected with it. He succeeded also in exploring a portion of Bagirmi, a powerful kingdom between Lake Tchad and the Upper Nile, which had never before been visited by any European. In uniting, by means of his itineraries, Bagirmi with Dar Fōr, he has completed a line of direct route across central Africa from the Quorrra to the Nile; and thus from the Gulf of Guinea to the Red Sea and the Indian Ocean.

Dr. Overweg left Kuka at the same time with Dr. Barth, but took a south-westerly direction toward the Quorra. Between the end of March, the time of his setting out, and the end of May when he returned, he successfully performed an important journey, which brought him within 150 English miles of Yacoba, the great town of the Fellatahs. Dr. Barth's journey occupied a considerably longer time; and it appears that Dr. Overweg's anxiety to await the return of his companion, which was not until the 20th August, induced him to remain at Kuka, notwithstanding the danger to be apprehended from too long exposure to the influence of the unhealthy season. The consequence was, that his constitution became so seriously affected that, though he set out immediately after Dr. Barth's arrival, on an excursion to healthier regions, yet the advantage derived proved only temporary. He died on the 27th September, 1852, at Maduāra, about ten miles east of Kuka, and near Lake Tchad.

As it was known that the travelers had expected to be ready to start from Kuka toward the Indian Ocean in August or September, 1853, it was intended by their friends in England, that before they left Kuka they should be joined by an additional fellow-laborer to take a part in their arduous undertaking. Dr. Vogel, an astronomer and botanist, was accordingly sent out accompanied by two chosen volunteers from the corps of the Sappers and Miners. By a singular coincidence, on the very morning on which Dr. Vogel and his companions went on board the vessel which was to take them to Malta on their way to Tripoli, letters from Dr. Barth were received in London announcing the death of Dr. Overweg.

Though now left alone, as being the only surviving member of the mission, Dr. Barth continued to prosecute with zeal the work in which he was engaged. Up to the 23d November, 1852, he was still at Kuka; but he had fixed on the 25th of the same month to leave that place, and to enter on his journey to Timbuctoo. All his journals and papers, arranged and completed up to that date, he intended to forward to Tripoli, there to be deposited with the English consul. By the beginning of March, 1853, he had performed more than one third part of his journey, and had reached the capital of the territories of the Fellatahs, whose friendship and assistance he had secured. After being subjected to the disappointments and delays incident to the traveler in that part of the world, he reached at length the termination of his perilous journey. During his stay at Timbuctoo his life was exposed to great danger, from the influence of unfavorable climate, and much more so from the hostile disposition toward Christians of the most fanatical Mohammedan population of northern Africa. He thus describes his distressing situation during his sojourn in that magnificent city—the "Queen of the Desert," as it is justly called by the natives:—"Like a helpless vessel on the ocean waves, am I thrown about on a sea of uncertainty, between the power and passion of contending parties. Every day brings something new—now of a satisfactory kind, then again of the reverse. Death, captivity, safe return home, are my visions by turns, and it is yet impossible to say which shall be my fate." To have left Timbuctoo without sufficient protection, would have been to expose himself to certain death. Hence his stay in this place of danger was unavoidably protracted to nearly a year, when he was at last succored by Auáb, the chief of a Tuarick tribe inhabiting the regions east of Timbuctoo, along the Quorra, who came with an escort of a hundred horsemen, and conducted him in safety through his dominions, on his way back to Sackatoo.

The news of Dr. Vogel's having been dispatched from Europe to join him had reached Timbuctoo before Dr. Barth left that place. On the 1st December, 1854, he had the inexpressible pleasure of meeting him at Bundi, a small town situated at about 200 geographical miles due west of Kuka. Once more he looked upon the face of a European—his countryman—and grasped the hand of a friend in whom he could place implicit confidence. Exactly six years had elapsed since he left Europe, in company with Mr. Richardson and Dr. Overweg. Since the decease of the latter he had been isolated from civilized society, and had been left to contend single-handed with manifold hardships and dangers. To revisit Europe he now considered indispensable for the preservation of life and health; and accordingly he moved on to Kuka, whence he intended to proceed homeward without further delay. We are happy to say that he arrived at Marseilles early in September, 1855.

The limits of the great unexplored region of Africa may be roughly indicated as extending between the parallels of 10° north and south of the equator, and from Adamana in the west to the Somauli country in the east. This extensive region has just been touched by the routes of recent travelers. But in all parts of the habitable globe the spirit of research, which has already done so much, is still active; nor is it directed only to the determining of the outlines of continents and countries, or to the marking of the leading features of mountains, rivers, and cities, with their relative positions and distances. These are regarded by the geographical inquirer merely as affording a proper basis on which to rest the description of the earth considered as the habitation of man, and as affording him amply the means of improvement and happiness. The picture can be completed only by the continued labors of the scientific observer, who makes the earth, with its various productions, whether natural or artificial, the treasures hid in its bosom, the animals found upon its surface, and, above all, the human beings who people its different regions (and these in all their mutual bearings and relations), the objects of attentive examination and study.—E. B. See COAST SURVEY—LATITUDE—LONGITUDE—THE EARTH.

Georgetown (formerly *Stabröek*), the capital of British Guiana, is situated on the east bank of the Demerara, at its mouth, which is there about three miles wide, in north lat. 6° 49′ 30″, west long. 58° 11′ 30″. The town itself is one of the prettiest in the West Indies; and its streets are wide and straight, intersecting each other at right angles. The houses are of wood, with open verandahs in front, and neatly painted in cool and quiet colors; they are shaded and almost hidden by trees and shrubs, and look more like a collection of villas than a town. The street along the river side—where all the stores and shops are situated, and where business is chiefly transacted—forms, however, an exception; there every thing is plain, bare, and business-like. The ships lie alongside the wharfs or at a short distance in the stream, which is also crowded with numerous smaller vessels engaged in the island trade, or in bringing produce from the more distant estates. The hall of the legislative council, courts of justice, custom-house, treasury, and all the other public offices, are in one building of considerable extent and architectural beauty, with shady porticos, and marble-paved galleries or verandahs supported on cast-iron columns. The chief of the other public edifices are the cathedral and churches, several liberally maintained hospitals, barracks, market-place, and ice-house. Below the town is the "Fort," as it is called, but which looks more like a green field, with a few guns pointing toward the sea, and a house or two for a single officer and a dozen artillerymen. Population, (1851,) 25,508.

Georgia, lies between 30° 30′ and 35° north lat., and between 80° 50′ and 86° 6′ west long. from Greenwich, and between 3° 52′ and 8° 47′ west long. from Washington. It is 300 miles long from north to south, and 240 broad, containing 58,000 square miles. Population in 1790, was 82,584; in 1800, 162,686; in 1810, 252,433; in 1820, 348,989; in 1830, 516,567; in 1840, 691,392; and in 1850, 909,644. The State in 1850 was divided into 95 counties.

Early History of Georgia.—Until the year 1732, the territory of the State of Georgia was included in the names of Carolana and Carolina. For promoting its settlement, King George II. separated from Carolina the territory between the Rivers Savannah and Altamaha, and erected this territory, by a charter of the 9th of June, 1732, into an independent and separate government, which was called in honor of that king, the province of "*Georgia.*" It was probably from the beginning, the intention that this colony should go as far down as the St. Mary's River; for the patent says "it should go so far south as the southernmost branch of the Altamaha River." And on the maps of that time we see that it was then believed that Altamaha River had a southern branch which conducted into St. Mary's River, and the mouth of this river was therefore considered also to be the mouth of the Altamaha. The boundaries were, however, in later times actually conducted so far south. With this exception the limits of the province of Georgia suffered no changes on the coast, though in the interior the changes were great. These interior changes have, however, no relation with our hydrographical researches.—KOHL.

From the ocean, for a distance of seven miles, there is a chain of islands intersected by river, creeks, and inlets communicating with each other, and forming an inland navigation for vessels of 100 tons' burden along the whole coast. These islands consist of salt marsh and land of a gray rich soil, which produces sea-island cotton of a superior quality. The coast on the main land for four or five miles is a salt marsh. Back of this there is a narrow margin of land, nearly resembling that of the islands; these are partially or wholly overflowed at the return of the tide, and constitute the rice plantations. Then commence the pine barrens, which reach from 60 to 90 miles from the coast. Beyond this is the country of sand hills, 30 or 40 miles wide, interspersed with fertile tracts, and extending to the lower falls of the rivers. Black walnut and mulberry-trees grow abundantly in this soil. The forests produce oak, pine, hickory, and cedar. Deposits of iron ore are widely diffused throughout the State; gold is found in the northern part; granite, marble, limestone, are quarried in many places.

There were in this State in 1850, 6,378,479 acres of land improved, and 16,442,900 of unimproved land in farms; cash value of farms, $95,753,445, and the value of implements and machinery, $5,894,150, according to the official report of the Census, U. S.

Live Stock, Horses, etc.—Horses, 151,331; asses and mules, 57,379; milch cows, 334,223; working oxen, 73,286; other cattle, 690,019; sheep, 560,435; swine, 2,168,617; value of live stock, $25,728,416; of slaughtered animals, $6,339,762.

Agricultural Products, etc.—Wheat, 1,088,534 bushels; rye, 53,750; Indian corn, 30,080,099; oats, 3,820,044; barley, 11,501; buckwheat, 250; peas and beans, 1,142,011; potatoes, 227,379; sweet potatoes, 6,986,428; rice, 38,950,691 pounds; value of the products of the orchard, $92,776; produce of market gardens, $76,500; pounds of butter made, 4,640,559; of cheese, 46,976; sugar, hogsheads, 1642; maple sugar, 50 lbs.; molasses, 216,150 gallons; beeswax and honey, 732,514 pounds; wool, pounds produced, 990,019; cotton, 499,091 bales; flax, 5,387 pounds; silk cocoons, 813; hops, 261 pounds; tobacco, 423,924; hay, tons of, 23,449; clover-seed, 132 bushels; other grass seeds, 428; flax-seed, 622 bushels; and were made 796 gallons of wine. Value of home-made manufactures, $1,838,968.

The rivers are the Savannah, 600 miles long, bounding the State on the north-east, navigable for ships 17 miles to Savannah, and a part of the year for steamboats 250 miles to Augusta; the Altamaha, which is navigable for large vessels 12 miles to Darien, is formed by the junction of the Oconee and the Ocmulgee, and is navigable for sloops of 30 tons by the former to Dublin 300 miles from the ocean; the Ogeechee 200 miles long, and navigable for sloops 40 miles. Flint River, which rises in the north-west part of the State, and after a course of more than 200 miles, joins the Chattahoochee, forming the Apalachicola. The Chatehoochee, on the west border of the State, which is navigable 300 miles by steamboat to Columbus; the St. Mary's River is in the south-west part of the State.

Georgia, in 1856, had 1013 miles of railroad built, and about 300 in construction, being in advance of all the southern States except Virginia.

Manufactures, etc.—There were in the State in 1850, 35 cotton factories, with a capital invested of $1,736,156, employing 873 males and 1,399 females, and producing 7,209,292 yards of sheetings, and 4,198,351 pounds of yarn, valued at $2,135,044; 3 woolen factories with a capital of $68,000, employing 40 males and 38 females, manufacturing 340,660 yards of cloth, valued at $88,750; 3 establishments making pig iron, with a capital of $26,000, employing 138 persons, producing 900 tons of pig iron, etc., valued at $57,300; 4 establishments, with a capital of $35,000, employing 39 persons, and making 415 tons of castings, valued at $46,200; 3 establishments, with a capital of $9,200, employing 27 persons, and manufacturing 90 tons of wrought iron, valued at $15,384; 330 flouring and grist-mills, 389 saw-mills, 49 printing-offices; 5 daily, 3 tri and semi-weekly, 37 weekly newspapers, and 6 monthly publications. Capital invested in manufactures, $5,373,490; value of manufactured articles, $7,084,585. On the 1st of January, 1854, there were 15 railroads, 884 miles of which were completed and in operation, and 445 miles in course of construction.

FOREIGN COMMERCE OF THE STATE OF GEORGIA, FROM OCTOBER 1, 1820, TO JULY 1, 1856.

Years ending.	Exports.			Imports.	Tonnage Cleared.		District Tonnage.	
	Domestic.	Foreign.	Total.	Total.	American.	Foreign.	Registered.	Enrolled and Licensed.
Sept. 30, 1821	$5,979,995	$31,315	$6,011,310	$1,002,684	41,468	14,666	8,285	6,046
1822	5,483,219	1,650	5,484,869	989,591	33,860	9,745	....	....
1823	4,279,885	13,781	4,293,666	670,705	36,434	11,072	....	....
1824	4,619,753	4,229	4,623,982	551,888	36,797	12,064	....	....
1825	4,220,939	1,894	4,222,833	343,356	28,328	5,547	....	....
1826	4,366,630	1,874	4,368,504	330,993	37,905	8,563	....	....
1827	4,260,864	691	4,261,555	312,609	41,519	10,646	....	....
1828	8,104,425	....	8,104,425	808,669	25,514	9,582	....	....
1829	4,980,642	734	4,981,376	380,293	47,468	9,794	....	....
1830	5,336,626	....	5,336,626	282,436	50,394	9,485	....	....
Total	$46,632,978	$56,168	$46,689,146	$5,173,224	374,687	101,164	....	....
Sept. 30, 1831	$3,957,245	$2,568	$3,959,813	$399,940	48,426	29,045	4,892	2,183
1832	5,514,681	1,202	5,515,883	253,417	42,780	21,567	....	....
1833	6,270,040	....	6,270,040	318,990	40,022	23,232	....	....
1834	7,567,327	....	7,567,327	546,802	40,916	21,750	....	....
1835	8,890,674	....	8,890,674	393,049	33,109	25,276	....	....
1836	10,721,700	500	10,722,200	573,222	43,878	24,629	....	....
1837	8,935,041	....	8,935,041	774,349	41,025	22,358	....	....
1838	8,803,839	....	8,803,839	776,068	26,851	20,755	....	....
1839	5,970,443	....	5,970,443	413,987	31,564	19,408	....	....
1840	6,862,959	....	6,862,959	491,428	44,076	48,965	....	....
Total	$73,493,949	$4,270	$73,498,219	$4,941,252	392,647	256,985	....	....
Sept. 30, 1841	$3,696,017	$496	$3,696,513	$449,007	20,196	36,980	9,809	6,338
1842	4,299,151	1,106	4,300,257	341,764	31,450	30,209	....	....
9 mos., 1843*	4,522,401	....	4,522,401	207,482	43,055	42,033	....	....
June 30, 1844	4,283,805	....	4,283,805	305,634	23,574	38,901	....	....
1845	4,557,485	....	4,557,485	206,301	40,410	35,250	....	....
1846	2,708,003	....	2,708,003	205,495	13,493	44,748	....	....
1847	2,712,149	....	2,712,149	207,180	18,157	37,661	....	....
1848	3,670,415	....	3,670,415	217,114	17,871	31,821	....	....
1849	6,857,806	....	6,857,806	371,024	31,150	58,713	....	....
1850	7,551,943	....	7,551,943	636,964	21,039	51,524	....	....
Total	$44,859,125	$1,602	$44,860,727	$3,147,915	260,395	402,340	....	....
June 30, 1851	$9,158,879	$1,110	$9,159,989	$721,547	34,968	34,748	12,362	11,823
1852	4,999,015	75	4,999,090	474,925	22,883	40,042	....	....
1853	7,371,883	....	7,371,883	508,261	38,084	43,443	....	....
1854	4,807,675	700	4,808,375	336,951	25,326	46,454	....	....
1855	7,548,519	....	7,548,519	273,716	65,145	89,223	....	....
1856	8,091,688	....	8,091,688	574,240	63,421	83,810	....	....

* Nine months to June 30, and the fiscal year from this time begins July 1.

Principal Ports of Georgia.—Brunswick, city, and port of entry, lat. 31° 10′ north, long. 81° 35′ west. It has a spacious and commodious harbor, having 13 feet of water on the bar at the lowest tides. It is situated on Turtle River, 14 miles above the bar. The commerce of the port is small, in 1856 being only 754 tons. It is proposed to make this a naval station, and to construct a railroad from this city to Pensacola.

Savannah, city, and port of entry, situated on the right bank of the Savannah River, 17 miles from its mouth, lat. 32° 4′ 56″ north, long. 81° 8′ 18″ west. The harbor is good. Vessels drawing 14 feet water come up to the city, and larger vessels anchor at Five Fathom Hole, four miles below the city. The commerce of the place ranks next to Mobile, and is the most important port, except Charleston, from Baltimore to Mobile. The greater part of the trade of Georgia centers at Savannah, the principal articles of which are cotton, rice, and lumber. The Savannah River affords great facilities for internal commerce; and this river is connected with the Ogeechee River by a canal 16 miles long, which terminates at Savannah. The tonnage of the port, in 1856, was 31,586 tons. See STEVENS's *Hist. Geo.;* DEBOW's *Rev.*, viii., 39, x. 65, 243, 375; *No. Am. Rev.*, xxiii. 211 (by ANDREW NOXTON), xxiv. 466 (J. SPARKS); lxvii. 291 (by C. W. UPHAM); *So. Quar. Rev.*, xiii. 470, xviii. 24, iii. 40; *Ch. Exam.*, xxix. 113.

Germany.—This name was given by the Romans to a country inhabited by various tribes of different names, but nearly alike in manners, customs, language, and religion. But they comprehended under it not only the country now called Germany, but also Denmark, Norway, Sweden, Finland, Livonia, and Prussia. The modern inhabitants call themselves *Deutsch*, and their country *Deutschland;* but, as to the origin, meaning, and primary application of both names (German and Deutsch), German antiquaries are far from being agreed, though most of them seem to be of opinion that *German* is a genuine Deutsch word, compounded of *ger*, or *gerra*, a spear, and *man*, and consequently meaning spearman, or warrior. *Deutsch* seems to have been known to the Carlovingians, and it first occurs in a document of the year 813; but it is only since the time of the Emperor Otto I. (A.D. 936–73) that it has been in use as the general name of the German nation.

The Rhine on the west, and the Vistula on the east, seem to have been generally considered as the boundaries of Germany; while on the north it extended along the ocean and the Baltic Sea, and on the south was terminated by the River Danube. But such boundaries were by no means definite; for many German tribes inhabited the southern banks of the Rhine as far as the Scheldt.

Situation and boundaries.—Germany may be considered in two points of view, either politically, as the country included within the limits of the Germanic Confederation; or ethnologically, as the country inhabited by the people who speak the various branches and dialects of the Deutsch or German language. In the latter respect, the Deutsch or German nations are found to extend in a compact mass along the shores of the German Ocean and the Baltic or East Sea, from a point between Calais and Gravelines, near the Straits of Dover to the Gulf of Riga, and from that long line of boundary southward, with dimensions continually narrowing to the Alps and the Adriatic Sea. Politically considered, Germany is situate between 45° and 54′ 50″ N. lat. and 5° 43′ and 20° 50′ E. long., bounded north by the German Ocean, Denmark, and the Baltic Sea; east by West Prussia, Posen, Poland, Gallicia, Hungary, and Croatia; south by the Gulf of Venice, Italy, and Switzerland; west by France, Belgium, and Holland. Its whole extent, including rivers and lakes, is about 246,770 square English miles, which is about the 16th part of Europe, the 215th part of the whole dry land, and the 800th part of the whole surface of the globe.

Face of the country.—The southern and the central parts of Germany are occupied by numerous ranges of hills and mountains, sometimes separated only by narrow valleys, and elsewhere forming large elevated plains or table-lands, while the northern portion of the country sinks into a wide sandy moorish plain, but little raised above the level of the sea. The Tyrol and the south-eastern provinces of Austria are occupied by branches of the Alps, which present long narrow valleys, dismal precipices, cataracts, and glaciers; and the northern border of this alpine region may be defined by the towns of Bregenz, Southofen, Fuessen, Traunstein, Salzburg, Gmunden, Steier, St. Polten, and Baden. Immediately to the northward lies the valley of the Danube, which stretches almost across the breadth of Germany, declining from an elevation of about 2200 feet, near the source of the river, to about 350, on the borders of Hungary. In passing through Bavaria the valley expands into a plain of considerable extent, which, at Ratisbon on its eastern border, has an elevation of about 1000 feet, and gradually rises as it approaches the mountains that surround it. Further north the middle region of Germany is occupied by various ranges of hills, terminating northward in a line drawn through the towns of Aachen, Duren, Krefeld, Dortmund, Soest, Paderborn, Bielefeld, Teklenburg, Bentheim, Furstenau, Rehburg, Hanover, Braunschweig, Magdeburg, Dessau, Halle, Weissenfels, Wurzen, Meissen, Bautzen, Goerlitz, Liegnitz, Breslau, Ramslau, and Rosenberg. These hills form a series of elevated valleys and table-lands, the most remarkable of which is the valley of Bohemia, which has all the appearance of having been a lake before it was drained by the bursting of its mountain barriers. This region is much diversified by picturesque scenery, and abounds in verdant and well-wooded valleys, watered by clear streams. The banks of the Meyn, the Fulda, and the Moselle, are remarkable for their varied scenery, and the valley of the Rhine unites the grandeur of a fine landscape with the appearance of a highly fertile country. To the northward again of the hilly region, the country sinks into plains, which fall very gradually from an elevation of about 300 feet at the foot of the hills to the level of the sea. These plains extend through Lower Silesia, Lusatia, Brandenburg, Pomerania, Mecklenburg, Holstein, Hanover, and the lower part of Westphalia. To the west of the Elbe the flat country is almost entirely destitute of trees, and presents only a succession of level tracts, covered with heath and juniper, and of moors consisting chiefly of deep beds of turf intersected by rivers which flow in depressions from 100 to 200 feet below the general level of the plains. To the east of the Elbe the country is more sandy, but the sandy tracts are covered with pines, and interspersed with fertile spaces of sometimes considerable extent. The beds of the rivers also are generally wider and less deep than in the western part of the plain. Through the northern part of this plain a higher tract may be traced from west to east, from Oldeslo in Holstein to Schwedt on the Oder, about 70 miles from the sea. Eastward of the Oder it continues for some distance due east, then gradually approaches the sea, terminating on the banks of the Niemen near Grodno. It seems to have formed at one time the shore of the sea, and it is on its northern sides that are found those numerous erratic blocks or boulders that have attracted so much of the attention of geologists. Though it does not rise into hills, it forms the water-shed between a number of small streams that run direct to the Baltic, and others that run southward to the Elbe, the Oder, and the Vistula. To the Alpine region belong the territories of Liechtenstein, Tyrol, southern Bavaria, Styria, Salzburg, Carinthia, and Illyria; to the middle region, Baden, Wurtemberg, Hohenzollern, the greater part of Bavaria, the northern portions of Austria, including Bohemia and Moravia, Hessen, Nassau, Luxemburg, Schwartzburg, Reuss, Saxony, and Anhalt; to the low country, Hanover, Oldenburg, Braunschweig, Lippe, Holstein, Mecklenburg, and nearly the whole of Prussia.

The coal measures are widely distributed in many parts of Germany, as Bohemia, Saxony, Silesia, Rhenish Bavaria, and Rhenish Prussia, from the last of which Holland is supplied with coals.

No part of Europe yields a greater variety or abundance of mineral productions, and in no part of the world are the mines worked with so much skill or so much economy. Precious stones are discovered in many parts; rock crystal, amethysts, topazes, are found in Bavaria; chalcedony, agate, petchstein, and porcelain-jasper, in Bohemia; barytes in many parts; marbles, gypsum, and alabaster, in Bohemia; alum, near Töplitz; rock-salt and Glauber salts in various parts; and abundance of the earths calculated for making earthenware, from the coarsest description to the finest porcelain. Fossil coal is found in many districts, and much of it is consumed; but the cheapness of wood, and the prejudices of the people against the use of it in their houses, have operated to prevent the mines from being completely explored or worked to any thing approaching the extent of which they are capable. Gold is procured, though in very small quantities, by washing, in Salzburg, in Bohemia, in the Rammelsberg, and in Silesia. Silver and cinnabar are raised from the mines of the Erzgebirge in Saxony. Iron, copper, tin, lead, calamine, bismuth, cobalt, nickel, titanium, arsenic, and almost every other mineral, is more or less raised from the mines. The abundance of mineral substances everywhere scattered, and which it would be difficult to enumerate, has promoted the study of mineralogy, and given birth to the school of Freyburg, whence the pupils of Werner carried the science to every part of the world.

Soil.—The soil is generally productive. The plains in the north have indeed much arid sandy land; but nature has provided some rich and fruitful soils along the borders of the rivers, where the most abundant harvests are gathered. The south has also on its mountains much barren or slightly productive land; but the beautiful valleys and plains among the hills rival in fertility the best alluvial lands on the banks of the northern rivers. In general the soil in the north is heavy, and in the south, light; the former most adapted for corn, and the latter for wines. The best soil is in the middle, between the mountains and the sandy plains. In Bohemia, Silesia, Franconia, Saxony, and on the Rhine, the proportion of good soil is much greater than in the north or the south.

Rivers.—Germany has seven large rivers which pass through it to the sea, and in their course receive about 500 smaller streams, about 60 of which are navigable, either naturally or by means of artificial improvement. These are the Danube, Rhine, Weser, Elbe, Oder, Etsch or Adige, and Ems, some of which will be found described under their own names.

Lakes.—The chief of the German lakes is the *Boden See*, or Lake of Constance, on the borders of Switzerland. (See *Ency. Brit.*) To the eastward, among the valleys of the Alps, are several lakes of inconsiderable dimensions, as the Walchen, Kochel, Ammer, Wurm or Starenberger, Tegern, Schleier, Chiern, Grundel, Hallstadter, Traun or Gmunden See, Mond, and Kammer or Alter, lakes. Along the southern shores of the Baltic or East Sea there is a number of lakes, which form the western portion of an innumerable series, extending through Prussia into Russia and Finland, and occupying comparatively higher ground than the adjoining plains and river channels. Some of these are of considerable extent, as the lake of Schwerin in Mecklenburg and the Spirding See in East Prussia, the latter, however, beyond the political limits of Germany. At the eastern base of the Hartz are the salt and the sweet lakes (*Salzige* and *Süsse Seen*), and to the north of Minden, to the east of the Weser, is a considerable sheet of water called the *Steinhuder Meer*; and to the west of the Weser is a smaller lake called the *Dummer See*.

Climate.—The climate of Germany is very uniform in respect of the degrees of cold or heat experienced in its different regions; for though there is a difference of 9° of latitude between its southern and northern borders, that difference is compensated by the different elevations of the country, the northern part being lowland on the sea, while the midland and southern regions rise to a considerable elevation. This is indicated by the following table of places from north to south.

Places.	Latitudes.	Elevation above the sea in feet.	(Fahrenheit.) Mean temperature of the climate.		
			Year.	Winter.	Summer.
Stralsund.....	54 19	51	47°	30°	65°
Berlin.........	52 30	140	48	31	64
Gotha.........	50 57	1,010	46	29	60
Baireuth......	49 57	1,119	46	29	61
Ratisbon......	49 1	1,260	48	31	64
Munich........	48 10	1,738	48	34	65
Innsbruck....	47 16	1,905	50	29	64

In the intelligent practice of agriculture some of the Germans are not behind the most advanced of the other countries of Europe. Mecklenburg, in particular, and Holstein are distinguished for their excellent husbandry; and in Hanover, Brunswick, Bohemia, Saxony, and some parts of Prussia and Austria, it is scarcely inferior. Generally speaking, agriculture is the principal occupation of the Germans, particularly in Bavaria, Wurtemberg, Baden, Hesse, Nassau, Hanover, Brunswick, Oldenburg, Prussia, Anhalt, Holstein, and Mecklenburg; while in the Saxon duchies, Schwartzburg, and Reuss, some districts of Prussia, Bohemia, and the kingdom of Saxony, manufactures employ at least an equal, and in some cases even a greater, number of the people. The greatest contrast in respect of agriculture is to be seen in Mecklenburg and Wurtemberg. In the former, farming is conducted on a large scale; in the latter, as well as in other provinces, the land is divided into small parcels, cultivated by small proprietors or tenants, who follow ancestral usages, and are unprovided with means to make any improvements, by draining or otherwise. In the former the *Schlagwirthschaft* prevails, according to which one immense field is covered with wheat, while another is covered with oats, a third with clover, a fourth is being plowed and harrowed, and a fifth is feeding herds of cattle, the common size of farms being so much as 500,000 square *ruthe*, or almost 2000 acres; in the latter, every thing is grown checkerwise, in small patches, more like gardening than farming, the usual size of Wurtemberg farms being only from 5 to 20 square *ruthe*, or from 1-40th to 1-10th of an acre.

There are three systems of husbandry at present practiced in Germany. In the first, called the three-field husbandry, while one field is sown with winter corn, and another with summer corn, a third lies fallow; but sometimes, instead of a fallow the third field is sown with green crops, peas, potatoes, etc. In the second system, called the four-field husbandry, the principle is that the same field shall not be occupied two years together with corn, without at least one fallow intervening; as, for example, one year, rye; second, clover; third, oats, or barley; fourth, potatoes; fifth, again winter corn. This is also called the rotation system (*Fruchtwechselwirthschaft*). The third system, called the *Schlag* or *Koppelwirthschaft*, practiced in Holstein and Mecklenburg, divides a farm into a number of large parcels of equal size (*stuche, koppeln*, or *schlige*), which, after several years' continuous bearing of grain or other produce, are allowed for several years more (3 to 7) to lie fallow, or in grass for summer pasture. For these two countries this system is found very suitable, for the population there is comparatively thin.

In the different provinces of Germany different kinds of corn obtain the preference, and are most cultivated, as in the following list, where the different articles follow each other in the order in which they are named. *Bavaria*—Rye, oats, barley, spelt, wheat. *Wurtemberg and Baden*—Spelt, oats, barley, rye, wheat, maize. *Hesse*—Rye, barley, oats, wheat, spelt, maize. *Mecklenburg*—Wheat, barley, rye, oats. *Brunswick*—Barley, rye, wheat, oats.

In Germany generally, and in Mecklenburg in particular, the production of grain is greater than the consumption. Assuming the productiveness of the kingdom of Saxony as a standard, Germany could maintain about 54,000,000 of inhabitants, or 12,000,000 more than at present. The cultivation of the potato is now largely extended, particularly in Prussia. In the north-east of Germany, buckwheat is also cultivated; but the cultivation of oil plants, peas, beans, turnips, and other roots, flax, hemp, and hops, is not large enough to dispense with the importation of these articles. . About three fourths of the Germans are employed in agriculture; and many parts of the country are crowded with small proprietors or tenants, who necessarily live in a state lower than that of hired laborers. Of the great bulk of the people the food is of the poorest kind—rye-bread or potatoes; and it is chiefly owing to this general misery that Germany can export corn in most years. In bad seasons the distress is sometimes dreadful; the agricultural population having no means of procuring foreign supplies—nothing to give in exchange for bread.

Naturally, in accordance with climate and other physical circumstances, the production of wine and fruits (*Obst-und-Weinbau*) is greater in the south and west than in the north and east. The districts on the Rhine, the Lower Maine, and the Neckar, are the best; but, even in the south of Germany, there are districts, as in Old Bavaria, between the Inn and the Leech, that are less productive of fruit than even Mecklenburg and Brandenburg. In both quantity and quality, however, the south excels the north, where the best kinds of fruit only ripen with difficulty. The principal places for the production of wine have been already noticed. The quantity is estimated at about 3,000,000 of *eimers*, worth about 18,000,000 of *thalers* = about £3,000,000 sterling yearly. The cultivation of forest trees is now more scientifically practiced in Germany than in any other country, and the care of the government is now directed to the restoration of the forests, which, till recently, were completely neglected and left exposed to every kind of destructive agency. In all the States likewise, institutions for the promotion of agriculture, in all its branches, have been or are being formed. The relative proportions of ground occupied in agriculture and other natural productions in the different States is shown in the following table:

State.	Agricul-ture.	Wine.	Garden-ing.	Mea-dows.	Pastures	Wood and Forests.	Waste.
Austria......	34·0	1·2	1·7	5·1	15·5	26·0	15·5
Prussia......	48·0	0·5	1·0	6·5	11·0	24·0	9·0
Bavaria	41·0	0·4	1·0	14·0	5·0	30·6	7·0
Wurtemberg.	39·0	1·2	3·0	12·8	5·2	30·8	8·0
Baden.......	35·0	1·6	2·6	9·7	6·4	32·0	11·7
Hesse........	50·0	1·2	0.2	11·0	1·2	33·6	3·0
Mecklenburg.	75·0	...	0·2	9·0	2·8	8·0	6·0
Brunswick...	35·0	...	2·0	6·0	3·0	32·0	2·0
Nassau.......	39·0	2·0	1·4	9·0	5·0	40·0	2·6
Saxony......	70					26·0	4·0
Hanover.....	40					15·0	45·0

Germany is suitable for the cultivation of all the kinds of useful plants that belong to the temperate zones; and, owing to the equality of the climate, they are spread over all the country. The highlands of the middle region, as well as the northern lowlands, grow the different species of cereals; and in the eastern part of the latter region there are tracts of land which will bear comparison with those that are called the granary of Europe. Wheat, rye, barley, and oats are the cereals most generally cultivated; but in some districts to these are added spelt, buckwheat, millet, emmer (*Triticum dicoccum*), einkorn (*Triticum monococcum*), and maize. The potato is largely cultivated, not merely for food, but for the purpose of distillation into brandy.

The following table shows the absolute quantities (in English acres) of the ground so occupied:

State.	Agriculture.	Meadows.	Garden-land.	Wine-land.	Woods and Forests.
Austria......	15,322.812	5,217,162	362,110	415,732	15,850,837
Prussia......	18,867.581	3,074,151	493,958	38.421	8,866.652
Bavaria......	8,326,641	2,589,024	213,859	79,487	5,622,170
Wurtemberg.	2,045,859	686,369	94,628	64,347	1,493,862
Baden.......	1,444,628	391,129	34,696	53,307	1,227,641
Elect. Hesse.	876,228	256,757	447.906	788	948,153
G. D. Hesse..	976.561	266,851	365,895	23.341	685.107
Nassau	433.396	121,123	4,415	9.462	493,327
Saxony......	1,838,939	412,578	104,090	4,415	1,131,121
Weimar......	494,944	81.380	18,294	473	225,214
Coburg Gotha	278,837	84,696	7,570	....	140,049
Altenburg....	212,597	23,972	10,724	....	66,239
Meiningen...	249,187	43,528	13,247	....	226,476
Hanover.....	2,752,413	1,606,154	168,438	....	1,302,082
Brunswick...	340.030	74,440	15,771	....	299.655
Oldenburg...	464,939	155,190	27,126	....	232,099
Mecklenb'g Schwerin	2,242,261	287,038	40,374	....	372,834
Meck. Strelitz	425.826	43,528	7,570	....	135.633
Luxemburg..	251.360	61,828	10,093	1,766	199,294
Limburg.....	152.666	164.022	8.201	....	32,804
Holstein.....	1,463,793	316,688	25,234	....	167,807
Lauenburg...	173,484	29,650	4,418	....	29,650
Other States.	1,186.636	237,201	35.327	1,198	592,727
Total....	60,851,618	16.174,454	2.513.944	692.737	40,341,433

Great attention has been paid for the last 30 or 40 years to the breeding and rearing of all sorts of useful animals, and every encouragement and facility have been given by the governments to the improvements of the breeds. The following table, from WINDERLICH'S *Deutschland*, shows the number of the principal kinds of stock in the German States, in or about 1848:

States.	Horses.	Cattle.	Sheep.	Swine.
Austria......	572,800	3,981,200	4,774,300	1.205,200
Prussia......	909,700	3,543,400	11,356,400	1,271,000
Other States..	1.242.500	8.450.400	9,032.300	3,044,800
Total....	2,726,000	15,975,000	25,163,000	5,601,000

Metals and Minerals.—The whole Austrian territory produces yearly about 7000 marks of gold, whereof five sixths in Hungary and Transylvania; silver, 180,000 marks, whereof three fifths in Hungary and Transylvania; copper, 15,000 centners, whereof four fifths in Hungary and Transylvania; iron, 2,000,000 centners, whereof only one seventh in Hungary and Transylvania; quicksilver, 6000 centners; lead, 110,000; cinnabar, 1000; zinc, 12,000; tin, 950; coal, 7,500,000; salt, 5,500,000; cobalt and nickel, 20,000; arsenic, 1800; sulphur, 18,000; alum and vitriol, 160,000; graphite, 35,000; and about as much sulphuric acid. Of the German provinces, Bohemia produces silver, tin, iron, vitriol, and coal, the last equal to three fifths of the products of the whole empire; Austria and Styria produce half of the whole quantity of iron; Illyria, the quicksilver and most of the lead; and Gallicia, most of the salt.

Prussia.—No gold; 23,000 marks silver; 40,000 centners of lead; 36,000 of copper; 230,000 of zinc; 7000 of smalt; 3360 of arsenic; 35,000 of vitriol; 4,500,000 of iron; 46,000,000 of stone-coal; 11,000,000 of brown coal; 1,750,000 of salt; and stone quarries to the value of 1,500,000 thalers, = £240,000. Silesia produces zinc, iron, coal, arsenic, vitriol, and sulphur; Saxony, silver, copper, iron, etc.; the Rhine provinces, iron and coal; Westphalia, coal, and some metal and salt. Nearly 3,000,000 tons of coal are extracted yearly from the coal-field on the banks of the Ruhr; and 4 miles above Bonn are the large brown coal mines and alum works of Friesdorf. The produce of the other States amounts to about 60 marks of gold, and 125,350 marks of silver; 1,200,000 centners of iron; and the various other articles above mentioned in comparatively small quantities.

Manufactures.—In many branches of manufacturing industry the Germans have reached a high degree of excellence. German linen is known to the whole world; and the linens of Bielefield and Silesia in particular are equally valued in America as in Europe. Of late years, however, the introduction of cotton, and the high prices obtained for corn, have tended greatly to lessen the cultivation of flax, which was formerly a principal staple of agricultural industry, and the linen manufacture has suffered in consequence. With the improvement of the breeds of sheep within the last half century, the woolen manufacture has made great progress, the German cloth being now not merely equal but even superior in quality to the cloths of England and Belgium. The chief seats of the cloth manufacture are in Brandenburg, Saxony, Bohemia, Moravia, and the Prussian Rhenish provinces, from which it is exported to all parts of the world. The cotton manufacture has been established and is rapidly extending in Saxony, Austria, and along the Rhine; the silk manufacture is carried on successfully in Vienna, Roveredo, Gorz, Berlin, Elberfeld, Erefeld, and other places. Works in metal, especially iron and steel, are produced in great perfection, and large quantities in Styria, Austria, Rhenish Prussia, Westphalia, and the district of the Hartz; brass work, in Rhenish Prussia, Bavaria, and Brandenburg; gold and silver work in Augsburg, Vienna, and Berlin. Pottery and glass-making have reached a high degree of perfection; the porcelain of Vienna, Berlin, and Meissen, is much in request, on account not only of the fineness of its material, but also for the tasteful elegance of its forms and ornaments. Bohemian glass is to be met with in all parts of the world. The manufacture of leather is particularly extensive in Rhenish Prussia; of soap, tallow wares, and wax, in many places. Paper-making is carried on to a great extent, and of late has been very much improved in quality. Sugar-refining is carried on in Hamburg, Berlin, Potsdam, and other places; brewing of beer, to a great extent in Bavaria; and ardent spirits (Branntwein), to a still greater extent in the north. Ship-building and the connected trades are of little importance; but German industry is much distinguished in the making of mathematical, physical, surgical, and musical instruments; the chief seats of these branches of trade being Munich, Vienna, Berlin, and Cassel. German clocks and wooden articles, manufactured in the Tyrol and other mountain provinces, are exported to all parts of the world. The great progress which the Germans have made in manufacturing industry since 1815 is chiefly the result of extraordinary exertions on the part of the German governments. In every district, industrial schools have been established or extended: and in all the chief towns there are schools and institutions for instruction in the higher branches of art, where pupils are trained in both theory and practice at the expense of the government. Numerous societies also have been formed for the promotion of art and industry.

Commerce.—The commerce of Germany has always been extensive; but the abolition of the innumerable State custom-houses and tolls, and the long-continued peace, have given an immense impulse to its activity. Germany exports corn and timber to England and the Netherlands; linen to Spain, Portugal, Poland, Russia, America, and Africa; woolen cloth to western Asia, and even to China; iron wares to every part of Europe; and lead to France. The exportation of fat cattle to England is also becoming a great trade. The other principal articles of export are horses, glasswares of all kinds, cobalt, galmei (siliceo-carbonate of zinc), potash, porcelain, hides and skins, honey, wax, lime, gypsum, copper, horns, bones, rags, mill-stones, turnip seed, swine's bristles, vitriol, tin, and spirits. The chief articles of import are sugar, coffee, tea, cacao, rice, vanilla, rum, and other colonial produce, spices, drugs, dried fish, cheese, tobacco, olive oil, and southern fruits, French, Spanish, and Portuguese wines and liquors, cotton, raw silk, cotton and silk stuffs, leather, train oil, and many smaller articles. The intercourse within Germany is much facilitated by excellent carriage roads; and all the chief towns are now connected by railways. The principal rivers are also made available for the transport of bulky commodities, and were connected by several canals before the introduction of the far superior method of locomotion by railways.

The principal seats of the inland trade are Vienna, Prague, Reichenberg, Brunn, Olmütz, Troppau, Linz, Steyer, Salzburg, Grätz, Botzen, Roveredo, and others, in the Austrian provinces; Berlin, Breslau, Cologne, Magdeburg, Frankfort-on-the-Oder, Naumburg, Posen, Traustadt, Aachen, Coblentz, Elberfeld, Erfurt, Munster, Minden, and others, in the Prussian territory; Leipzig, in Saxony; Munich, Augsburg, and Nurnberg, in Bavaria; Frankfort-on-the-Maine, Cassel, Brunswick, Hanover, Mentz, etc. But of all these places four hold the first rank; Vienna for the south-east; Augsburg for the south-west; Frankfort-on-the-Maine for the north-west; and Leipzig for the north-east. Large fairs are held twice or thrice a year in Leipzig, the two Frankforts, Brunswick, and other places; but it is only in those named that these fairs are of much importance. Those of Leipzig are celebrated for the sale and exchange of books. Great wool-markets are likewise held in Berlin, Breslau, Dresden, Magdeburg, Prague, Stettin, etc. See FAIRS.

AN ACCOUNT SHOWING THE PROPORTION OF THE REVENUES OF THE GERMAN CUSTOMS UNION RAISED IN THE DIFFERENT STATES RESPECTIVELY, IN THE YEAR 1851, AND THE DISTRIBUTION THEREOF ACCORDING TO POPULATION.*

States.	Population.	Amount of common gross receipts.	Import duties. Amount of common nett receipts for distribution.	Amount payable to each State according to its population	Export and transit duties payable to each State according to its population	Import, export, and transit duties payable to each State, according to its population.	Balance due to or from the common fund which each State has had	
							To pay.	To receive.
		Thalers.†	Thalers.	Thalers.	Thalers.	Thalers.	Thalers.	Thalers.
Prussia...........	16,669,153	15,572,929	14,847,476	11,211,383	244,203	11,455,586	3,111,161	....
Luxemburg.......	189,783	77,114	10,445	127,645	2,241	129,886	....	136,011
Bavaria...........	4,526,650	1,210,539	904,991	3,044,546	53,463	3,098,009	....	2,166,021
Saxony...........	1,894,431	2,119,847	1,995,287	1,274,161	29,736	1,303,897	786,761	....
Wurtemberg......	1,805,558	348,527	330,287	1,214,387	21,325	1,235,712	....	899,766
Baden............	1,360,599	652,625	358,482	915,115	16,070	931,185	....	534,069
Hesse-Cassel......	731,584	433,046	342,256	492,051	8,641	500,692	....	157,484
Hesse-Darmstadt..	862,917	412,808	402,501	580,383	10,192	590,575	....	191,371
Thuringian States.	1,014,954	891,793	391,793	682,640	15,931	698,571	....	306,489
Brunswick........	247,070	390,148	229,528	166,175	3,534	169,709	63,289	....
Nassau...........	425,686	74,829	71,310	286,309	5,028	291,339	....	219,591
Frankfort.‡.......	....	861,492	636,384	....	....	....	649,541	....
Total.........	29,728,385	22,545,687	20,005,240	19,994,795	410,364	20,405,159	4,610,752	4,610,752
			Less 10,445§					
			19,994,795					

* Compiled from the official "Centralblatt der Abgaben," etc., Berlin, 1852. By J. G. Flugel, U. S. Consul, Leipzig.
† The thaler is very nearly worth 70¼ cents of our money; more exactly, it is equal to 70·09 cents.
‡ Frankfort is regulated by a specific arrangement, and not by population.
§ A special payment by Prussia, on account of the Union.

The principal commercial sea-ports are Hamburg, Bremen, and Embden, on the North Sea; Lubec, Rostock, Stettin, Dantzig, Königsberg, and Memel, on the East Sea; and Trieste on the Adriatic. Hamburg is one of the principal commercial towns of Europe, and with its neighbors Altona (in Holstein), Bremen, and Embden and the Baltic ports, connects Germany with the countries of the north and west, and with America, India, etc. Trieste forms the communication with the south of Europe and the Levant.

Commerce was not a little impeded by the different money systems of different parts of Germany; but, on the other hand, it was much facilitated by the establishment of banks and exchanges in the principal towns. Of late years also the postal system has been very greatly improved, but the German governments have not yet seen their way to the adoption of the British penny postage. They can not indeed expect, in the circumstances of their country, that enormous increase of the number of letters that would compensate the diminution of rates.

The internal trade of Germany has been greatly facilitated by the formation of the customs unions and commercial treaties, of which an account has been given in the articles EUROPE and HANSEATIC LEAGUE.

The preceding table shows the proportions of revenue drawn by the different States.

Political State.—As settled by the treaty of Vienna, in 1815, Germany was divided into 40 sovereign States, or portions of States; but the number is now reduced to 35, as stated in the following table:

TABLE OF THE THIRTY-FIVE SOVEREIGN STATES.

Names.	Area in English sq. miles.	Population in 1852.	Title of Sovereign.
Austrian provinces	75,979	12,919,300	Kaiser.
Prussian provinces	71,987	12,937.228	King.
Bavaria	31,392	4,559,452	"
Hanover	14.769	1.819.253	"
Wurtemberg	7.632	1,733.269	"
Saxony	5,772	1,987,832	"
Hesse-Cassel	4.439	755.350	Elector.
Baden	5,918	1,356,943	Grand-Duke
Mecklenburg-Schwerin	4,815	542,763	"
" Strelitz	767	99,750	"
Hesse-Darmstadt	3.761	854,314	"
Oldenburg	2,421	285,226	"
Luxemburg	2,308	394,262	"
Saxe-Weimar-Eisenach	1,419	262,524	"
" Coburg-Gotha	799	150,451	Duke.
" Meiningen-Hildburghausen	888	166,364	"
" Altenburg	510	132,849	"
Holstein and Lauenburg	3.719	550,000	"
Nassau	1.757	429.060	"
Brunswick	1,507	267,177	"
Anhault Dessau-Cothen	666	111.759	Prince.
" Bernburg	340	52,641	"
Waldeck	461	59.697	"
Lippe-Detmold	437	106.615	"
Schwarzburg-Rudolstadt	410	69,038	"
" Sondershausen	359	74,956	"
Reuss, elder	145	34,896	"
" younger	448	79,824	"
Schaumburg-Lippe	206	29,000	"
Liechtenstein	53	7,000	"
Hesse-Homburg	166	24,941	Landgrave.
Hamburg	151	211,250	City.
Lubec	142	48,425	"
Bremen	106	88,000	"
Frankfort	91	73,150	"
Total	246,740	43,286,116	

The Saxon princedom of Gotha became extinct in 1826 by the decease of the last grand duke, and his territories were divided by compact among the collateral relatives, the princes of Coburg, Meiningen, and Hildburghausen, the last of whom ceded Hildburghausen to Meningen, and assumed instead the additional title of Altenburg, from the chief town of that portion of the Gotha territory that fell to his share. The prince of Coburg-Saalfeld likewise ceded Saalfeld to Meiningen, and received Gotha in its stead. In 1846, the lordship of Kniphausen was aborbed in Oldenburg; in 1847, Anhalt-Cöthen became annexed to Anhalt-Dessau; and in 1849, the two princes of Hohenzollern abdicated the government of their States in favor of their kinsman, the king of Prussia.

Confederation.—These States exhibit every form of government from absolute autocracy to democracy; but even in those that are constitutional the authority of the sovereign is but feebly limited by his States. They are all united into a *bund*, or confederation, the object of which is the maintenance of the external and internal security of Germany, and the independence and inviolability of the several States. The Confederation is represented by the Diet, which is composed of the plenipotentiaries of all the States, and is the constitutional organ of its will and action; but the Diet has no power of self-action, the plenipotentiaries that compose it acting only according to the special instructions of their respective sovereigns; and there is no central executive government to carry its resolutions into effect. In fact, it has been found that there is no power of insuring the combined action of the members for any object or purpose whatever, either civil or military; though, having many interests in common, and the territories of the smaller States, in multifarious parcels, being so intermingled that with most of them separate action would be impossible, they naturally follow the same course of policy, modified by the influence of the powerful neighbors at whose mercy they would seem to lie. The management of the ordinary business of the bund is intrusted to an ordinary and permanent Diet, at which the plenipotentiary of Austria presides; but there are only 17 votes to be divided among the 35 States, Austria, Prussia, and the larger States having one each, and only six being allotted to the smaller States and cities. When fundamental laws are to be made or changed, when measures are to be taken that relate to the federal act itself, when changes of organic institutions or other arrangements of general interest are to be adopted, when war or peace is to be made, or when a new member is to be admitted, the Diet becomes a general assembly, a *plenum*, in which 70 votes were orginally distributed among the members in classes, Austria, Prussia, Bavaria, Saxony, Hanover, and Wurtemberg, having each 4; five others having each 3; three having each 2; and the smaller States each 1 vote. The Diet holds its sittings at Frankfort-on-the-Maine, and has ostensibly at its disposal, in terms of the federal act, a numerous army, of whose constitution and efficiency we have already given an account in the article EUROPE.

Das Europaïsche Staaten System, etc., Von Dr. HEINRICH BERGHAUS; vol. iv. of his *Allgemeine Lander und Volkerkunde; Das Deutsche Land und seine Bewoher*, Von CARL WINDERLICH, Leipzig, 1852; *Deutschland und das ubrige Europa*, Von Dr. FREIHERR FRIEDRICH WILHEIM VON REDEN, Wiesbaden, 1854; *Universal Lexikon*, etc., Von H. A. PIERER, VIERTER BAND, Altenburg, 1850, articles DEUTSCHLAND, etc.—W. J. & J. L——IE. See HUNT'S *Mag.*, ix., 399, xi., 491, xiv., 159, 227, xv., 225; *Westm. Rev.*, lv., 277; *Edinb. Rev.*, lxxix., 54; *Living Age*, xxx., 283; *For. Quar.*, xxii., 300; *Br. and For. Rev.*, iv., 169; *N. Am. Rev.*, ii. (E. EVERETT), 1, viii., 55.

German Silver, sometimes called white copper, or pakfong, is an alloy composed generally of copper, zinc, and nickel, the proportion varying according to circumstances. When they are intended as a substitute for silver, they are: copper, 50 parts; nickel, 25; and zinc, 25 in the 100. But the proportions in the genuine German silver are as follows: copper, 40.4; nickel, 31.6; zinc, 25.4; iron, 2.6.

Geropiga, or **Jerupiga**, a factitious liquor imported from Portugal, and used in the adulteration of wine. A pipe (about 105 gallons) of this compound is said by Mr. Consul Johnston to contain about 35 gallons of brandy at 25 degrees over proof, the other constituents being coloring and sweetening matters and unfermented grape-juice. But the proportion of spirits and the description of the other ingredients which enter into its composition, and which are sometimes of a very noxious character, vary very widely in different samples. Generally, however, geropiga may be said to be strong, sweet, and high-colored. Besides being mixed with port, sherry, and other wines, it is substituted in various beverages, especially in the United States, for spirits and sugar. This villainous compound is allowed to be imported at the same duty as wine, provided the proof spirits in it do not exceed 33 per cent. of its quantity. It is also permitted to be mixed in the bonded warehouses in the docks with wine in the same proportions relatively to its strength as brandy; that is, when it is only half the strength of the latter, double the quantity may be used, and so on. This license has been much, and, as we think, justly, objected to. There can, of course, be no check, and, perhaps, no good objection, to the compounding of wines in Portugal; but one should think that the facilities for adulteration in the shops of the dealers are here quite enough without legitimating the practice in the docks. It is difficult, indeed, to see what purpose can be served by this indulgence, unless it be to execute and facilitate the commission of fraud. Geropiga being confounded in Portugal with brandy and here with wine, the quantity exported from the former and imported into the latter is not easily ascertained. It appears, however, that in 1848, 481 pipes were shipped from Oporto for England, and 1063 pipes for the United States. See Parliamentary paper, No. 314, Session 1855, etc.

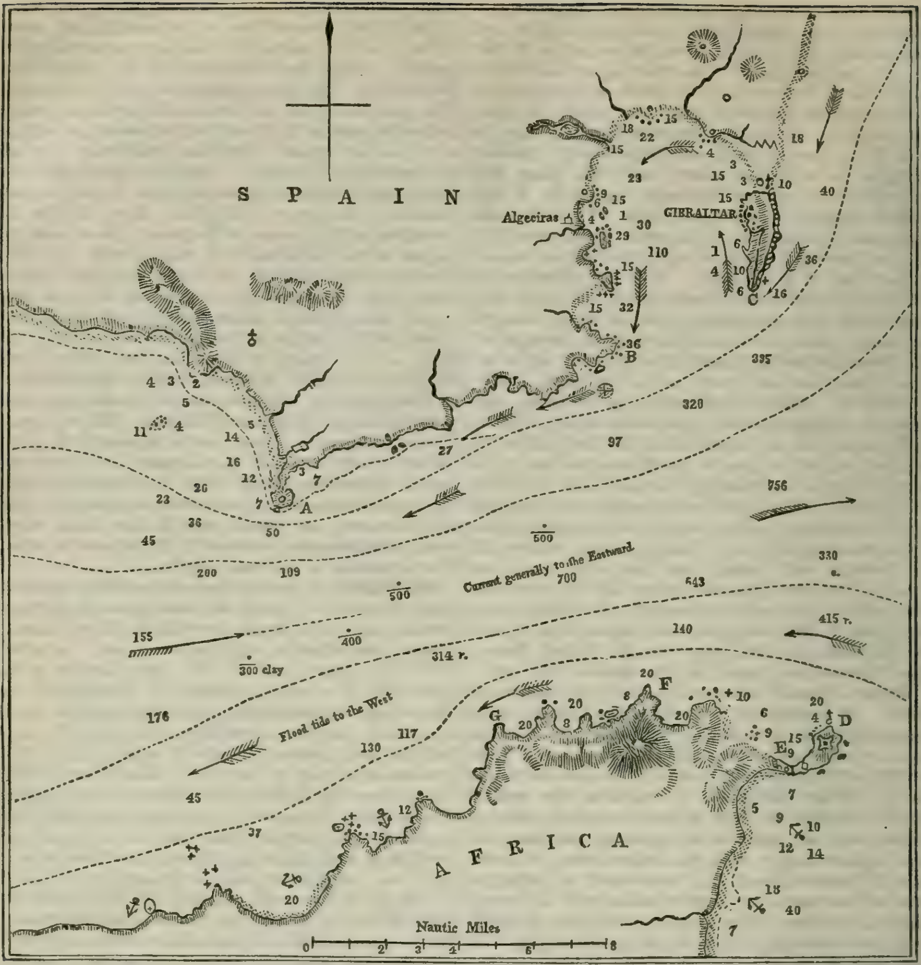
Ghee, a kind of butter much used by the natives of India. It is prepared by boiling fresh-drawn milk (generally that of buffaloes) in earthen pots for an hour or more, and adding, after it has cooled, a little curdled milk called *tyre*, in order to promote its coagulation. When this process is completed, the curdled mass is churned for half an hour, some hot water is added, and the operation of churning continued for half an hour longer, when the butter forms. Its tendency to become rancid may be obviated by boiling it until all the water that may be mixed with it is evaporated, and then adding some tyre and salt, or betel-leaf, and excluding it from the air in closed jars. In this way it may be preserved for many months. Ghee is an article of considerable commercial importance in many parts of India, though from its strong smell and flavor it is considered unpalatable by Europeans. See BUTTER.

Ghent (Lat. *Ganda*; Fr. *Gand*; Flem. *Gend*; Ger. *Gent*), a city of Belgium, standing on the Rivers Scheldt and Lys, whose numerous branches traversing the town form canals in all directions, and so intersect each other as to partition the town into 26 islands, which are connected by 42 large and 46 small bridges. The number of fine promenades forms another striking and pleasing feature of Ghent. Of these the most remarkable is the Coupure, formed by rows of trees extending along the Bruges Canal. In general, the town is well built, and occupies a larger area than most European towns, in proportion to the number of houses and the population. The general aspect of the city, without being highly picturesque, is very agreeable.

The cotton manufacture is extensively carried on in Ghent, employing about £1,800,000 of capital, engaging upward of 20,000 persons, and annually producing about 1,000,000 pieces of plain and printed calicoes. Sugar-refining is also extensively carried on. The other important manufactures are common and table linens, flannels, serges, woolen cloths, silks, ribbons, lace, thread, hosiery, wax-cloth, oil, chemicals, armor, mathematical, physical, and surgical instrument, hardware, bronze, and crystal, carriages, paper, tobacco, blue, starch, delft, etc. The important branches of trade are in corn, oil, seed, Flemish linens, and wine. About 20,000 pieces of linen are exposed for sale every Friday; and the annual fairs are very numerously frequented, besides the horse-fairs held in mid-lent and on 23d July. The great general fair is held in August. The governor of the province resides in Ghent, which is also the seat of a tribunal of first resort, as well as of a court of appeal, which has jurisdiction over all the province of Flanders. Ghent also gives title to a bishop, and is the head-quarters of the first of the four divisions of the army of Belgium. From 1792 to the overthrow of the power of Napoleon, Ghent was the capital of the department of the Scheldt. In 1814 Flanders became part of the kingdom of the Netherlands; and the same year the treaty of peace was signed here between Great Britain and the United States, which put an end to the war of 1812–'15. In 1815, on the return of Napoleon from Elba, Louis XVIII. took refuge in Ghent; and in the revolution of 1830, this city, with the rest of Flanders was comprised in the new kingdom of Belgium. The city seems now as prosperous as ever, and is increasing in population as well as in all the elements of wealth and power. Ghent is in lat. 51° 3′ 12″N., long. 3° 43′ 51″ E., at the intersection of the railways connecting Lille with Antwerp, and Ostend with Malines, from which towns it is respectively distant 42, 32, 38, and 33 miles. The population in 1851 was 106,704.

Gibraltar, a famous fortress near the southernmost extremity of Spain, and contiguous to the narrowest part of the Strait, to which it gives its name, joining the Atlantic and Mediterranean. Lat. 36° 6′ 30″ N., long. 5° 21′ 12″ W. It is situated on the west side of a rocky mountain or promontory, the *Mons Calpe* of the ancients, projecting into the sea, in a southerly direction, about three miles, being from one half to three quarters of a mile in width. The southernmost extremity of the rock is called Europa Point. Its northern side, fronting the isthmus which connects it with Spain, is almost perpendicular, and wholly inaccessible; the east and south sides are so rugged and precipitous as to render any attack upon them, even if they were not fortified, next to impossible; so that it is only on the west side, fronting the bay, where the rock declines to the sea, and the town is built, that it can be attacked with the least chance of success. Here, however, the strength of the fortifications, and the magnitude of the batteries, are such, that the fortress seems to be impregnable, even though attacked by an enemy having the command of the sea. It was taken by the English in 1704, but the fortifications were then very inferior to what they are at present. Toward the end of the American war, it was attacked by a most formidable armament, fitted out jointly by Spain and France; but the strength of the place, and the bravery of the garrison, defeated all the efforts of the combined powers. Population about 16,000, exclusive of the troops, which usually amount, in time of peace, to about 3,000.

Trade.—Gibraltar is of considerable consequence as a commercial station. Being a free port, subject to no duties, and few restrictions, she is a convenient entrepôt for the English and other foreign goods destined for the supply, principally through illegitimate channels, of the contiguous Spanish provinces. Its importance, in this respect, increased rapidly during the 10 years ending with 1840; so much so, that while the declared value of the various articles of British produce and manufacture exported to Gibraltar in 1833 amounted to only £385,460, they amounted to £1,111,176 in 1840, and to £1,053,367 in 1841. But since a more liberal system began to be introduced into Spain, the exports of British products to Gibraltar have declined. In 1851 they were valued at £481,286. England also sends to Gibraltar considerable quantities of foreign and colonial merchandise, most part of which are destined for the supply of Spain.



References to Plan.—A, point and light-house of Tariffa, lat. 36° 0′ 30″ N., long. 50° 35 15″ W. The light-house was erected in 1813, and the light revolves. B, Cabrita Point. C, Europa Point, the extremity of the rock of Gibraltar. D, town and fortress of Ceuta, on the African coast. E, Little Ceuta Bay. F, Point Leona. G, Point Cires. The soundings and the direction of the currents are marked in the chart. Variation in the Straits, 22° 31′.

The Bay of Gibraltar is spacious; and, being protected from all the more dangerous winds, affords a convenient station for ships. Two moles have been constructed, at a vast expense, for the protection of the shipping. The old mole projects from the north end of the town, N.W. by N. 1100 feet into the sea; the new mole is 1½ miles more to the south, extending outward about 700 feet; it has an elbow formed by the shore, and in winter large vessels anchor inside; the furthest out in from five to six fathoms. The plan gives a better idea of the position of Gibraltar, as well as of the Straits, than could be derived from any description. It is taken from Captain Smyth's chart of the Mediterranean.

Gibraltar is of great importance to Great Britain in a military and naval point of view, being, in fact, the key of the Mediterranean, and affording a convenient and secure station for the outfit, refreshment, repair, and accommodation of many ships of war and merchantmen. The revenue collected in the town amounts to from £30,000 to £40,000, which is about sufficient to defray the public civil expenditure of the place. The expense annually incurred in Great Britain on account of the garrison, in time of peace, amounts to about £200,000—a small sum compared with the important political and commercial advantages it is the means of securing.

Money.—The effective or hard dollar = $1 05; the current dollar being estimated at ⅔ hard dollars = 70 cents. Reals and quarters of both hard and current dollars are the same, being, the former, = 4½d., and the latter 1 1-12d.

Accounts are kept in current dollars (pesos), divided into 8 reals of 16 quartos each; 12 reals currency make a cob or hard dollar, by which goods are bought and sold; and 3 of these reals are considered equal to 5 Spanish reals vellon.

Gibraltar draws on London in effetive dollars of 12 reals, and London on Gibraltar in current dollars of 8 reals. The exchange of Gibraltar and Cadiz, and other cities of Spain, is in hard dollars at a per centage, which varies considerably, and mostly in favor of Gibraltar.

Weights and Measures are those of England, excepting the arroba, = 25 lbs. English. Grain is sold by the fanega, 5 of which make 1 Winchester quarter. Wine is sold by the gallon, 100 of which are equal to 109·4 English wine gallons.

The commercial relations between the United States and Gibraltar are regulated by enactment of the imperial Parliament, and are burdened with but few restrictions, beyond the usual port charges, harbor and police regulations, quarantine laws, and a tariff of duties which comprehend not more than five or six ar.

ticles of import. Of late years, the general navigation and commerce of Gibraltar have gradually decreased, owing mainly to the fact that the Mediterranean and Levant markets, which heretofore chiefly supplied their wants from Gibraltar importations of East and West Indian and United States' produce, now import direct from the places of growth; thus diverting from that port the large importations which, in former years, constituted Gibraltar the great dépôt for all foreign produce destined not only for these markets but also for the markets of Spain and Portugal. Other causes have also contributed to bring about this general decline in the trade and commerce of Gibraltar. In former years, the commercial prosperity of this fortress depended largely on the success of smuggling into Spain and Portugal—a business which for many years gave brisk and highly remunerative employment to a great number of small vessels under 100 tons' burden, and augmented the amount of foreign importation largely beyond the ordinary demands for home consumptions or legitimate commerce. This trade having become too hazardous, is now altogether abandoned, so that the commerce of Gibraltar may be said to be limited to the actual retail wants of the fortress, and the demands of an unimportant trade with the adjacent coast of Barbary. The following table exhibits the tonnage and number of vessels from the United States, arriving at and clearing from Gibraltar during the years 1852, 1853, and 1854:

YEARS.	INWARD.		OUTWARD, DIRECT FOR THE UNITED STATES.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
1852.	30	7,321	67	19 767
1853.. . ..	25	5,242	None.	None.
1854 .	55	12,189	1	197
Total.....	110	24,752	68	19,964

The value of the exports and imports from and to the United States and Gibraltar, during two years, will be seen from the following table:

Years.	Exports to Gibraltar.	Imports from Gibraltar.
1853... ..	$236,014	$61,784
1854...	527,772	59,673
Total.......	763,786	121,457

It will be perceived from the above tables that our exports in 1854 more than doubled those of the preceding year. This is accounted for by the increasing demand for articles of American produce and manufacture, to keep up the supplies for the coasting trade of Gibraltar, chiefly with the Barbary States and the eastern and western coasts of Spain and Portugal. The merchandise which constitutes the great bulk of our exports to Gibraltar is of the growth and produce of the United States, and, with the few exceptions already adverted to, is admitted free of duty. Yet, notwithstanding this exemption from all import duties, and the great increase of our exports in 1854 over those of 1853, the United States' consul at Gibraltar, in a recent dispatch, informed the Department of State that "Gibraltar does not offer any greater advantages to the merchants of the United States in the sending out of produce, merchandise, or articles of any kind, than other markets of Europe; indeed it has been of late years a very insignificant market, and offers very little encouragement for any extensive operations."

Navigation and Commerce.—The number of sailing vessels entered and cleared at the port of Gibraltar in 1854, either for commercial operations or for supplies, was 3917, with an aggregate tonnage of 698,713 tons.

In 1853, this general movement comprised 4399 vessels, with an aggregate tonnage of 801,975 tons, showing a decrease for 1854 of 482 vessels and 103,262 tons. Compared with 1853, the increase was chiefly with Spain, Morocco, Sardinia, the United States, and Tuscany; and the diminution with all other countries, but more notably with England, Russia, and Turkey. The increase in the movements between Gibraltar, Spain, and Portugal was owing to the fact that many vessels being unable, by reason of political difficulties, to prosecute their voyage to the Black Sea, entered the ports of these two kingdoms freighted only with salt. Besides, the exportation of grain from the ports of Spain was larger than in former years. The increase with Morocco was attributed to the privilege then granted of exporting grain from that regency. The decrease with England, Russia, and Turkey, is explained by the interruption which the war occasioned to the general commerce of the Black Sea. Vessels of the United States, as well as those of all other nations, are exempt from tonnage duties or taxes in the port of Gibraltar. They are subject only to a small impost, called "light duties," of 50 cents each vessel, for support of the light-house erected on Europa Point, and also to the following rates of anchorage dues. [Vessels of war of all nations are exempt from all port charges].

Square-rigged vessel, with three masts ..	each	$10 00
Brig-rigged vessel........................	"	8 00
Schooner, sloop, etc......................	"	5 00
Small coasting-vessel.....................	"	4 00

A particular description of the merchandise imported from the United States, with a corresponding table of duties, will be found annexed. Rum, whisky, spirits, etc., in casks, whether in bottles or otherwise, if the full contents of the casks shall exceed 10 gallons:

		Cents.
Botassa	each	50
Pipe, or butt, or puncheon....	"	43
Hogshead.....	"	21¼
Tierce...........	"	14
Quarter-cask..........................	"	10¼
Cask less than a quarter-cask, being liable to the wharfage toll............	"	5½

Tobacco, in hogsheads or kegs, as commonly imported from the United States of America, or in rolls, as imported from Brazil, viz.:

		Cents.
Hogshead................................	each	43
Keg or roll not exceeding 1¼ cwt...........	"	3¼
Roll or keg, from 1¼—2 cwt.................	"	5¼
Roll or keg, from 2—5 cwt..................	"	13¼

Kegs exceeding 2 cwt., and rolls exceeding 5 cwt., to pay wharfage each as half a hogshead; and, in case of disputes, the tobacco is to be weighed at the expense of the merchant.

Gibraltar, Bay of, or as it is sometime called, *Algeciras Bay*, is bounded by the rock of Gibraltar on the one side, and the head-land of Cabrita on the other. Its greatest length is about eight miles from north to south, its greatest width about five miles from east to west, and its circuit nearly 40 miles. Its depth in the centre is about 110 fathoms. In spring tides the water rises in the bay about four feet. Algeciras, from whose name the bay is sometimes called, is a fortified Spanish town on the west side of the bay, over against Gibraltar. Near it is the beautiful little island called Isla Verde, Green Isle.

Gibraltar, Straits of, the narrow channel which separates the south of Spain from the north of Africa. The width at the narrowest part, between Cabrita Point and the opposite shore, is 13 miles. We have an excellent chart of the Straits by Don Vincente Tefino de San Miguel, with the additional observations of Captain H. W. Smyth, R. N., from which it appears that there is a continual current flowing from the ocean in the middle of the Straits, which has a velocity varying from three to six miles per hour, and is 3¼ miles in breadth. There are two lateral currents, which have a mean breadth each of 2½ miles; but they change their direction with the changes of the tide. At the time of ebb these lateral currents have a velocity equal to that of the central one. The depth of the Strait, in the meridian of Cape St. Vincent, is 100 fathoms; but, in passing upward, the channel regularly and rapidly deepens, until, opposite to Europa Point at Gibraltar, the depth of water is 1000 fathoms. It is remarkable, that though the oceanic current at the Straits, and that of the Bosphorus at the Dardanelles, continually pour their waters into the Mediterranean, its level is not raised. But Dr. Halley, long ago, showed that the evaporation from its surface was fully equal to maintain it at the same level, notwithstanding those additions, and that of the rivers it received. The current is sufficiently strong to be dangerous to vessels sailing into the Atlantic, and can only be overcome by a brisk wind from the Levant.

Commerce of the United States with Gibraltar, from October 1, 1820, to July 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821	$956,111	$513,635	$1,469,746	$1,234,263	$32,190	$603,360	20.954	....
1822	525,708	625,074	1,150,782	490.378	5.000	53,661	15,347	....
1823	875.604	1,028,272	1,903,876	477,769	3,804	181,695	22,985	....
1824	934,402	934,445	1,868,847	693,844	2,110	311,371	27,285	1,102
1825	861,733	941,981	1,803,714	748.546	146,287	101,704	20,363	584
1826	692,396	1,055,525	1,747,921	677,806	10,500	94,688	24.148	921
1827	1,040,999	864,387	1,905,386	828,953	3,000	89,278	26,790	68
1828	899,411	506,719	1,406,130	666,578	36,000	37,391	26,446	91
1829	301,132	160,130	461.262	247,471	10,572	58,798	8,701	....
1830	513.248	370,150	883,398	90,028	59,880	7,860	13.450	....
Total	$7,600,744	$7,000,318	$14,601,062	$6,155,636	$309,343	$1,539,806	206,469	2,766
Sept. 30, 1831	$429,087	$165,786	$594,873	$150,517	$20,000	$8,500	11,703	....
1832	428,833	185,074	613,907	279,858	33,516	8,320	14.989	431
1833	573,076	164,570	737,646	182,508	300	2.300	18,311	1,370
1834	506,703	283,785	790,488	200,691	....	24.947	12,993	590
1835	553,582	265,000	818,582	160,200	74,938	4,460	15,194	400
1836	635,198	225,177	860,375	245,978	6,597	....	14,522	1,120
1837	361,031	203,870	564,901	207,173	17,034	888	10,387	1,873
1838	609,818	152,371	762,189	25,624	9,693	....	11,496	1,911
1839	802.247	148,387	1,050,634	99,178	9,356	....	13,864	2,164
1840	643,344	257,110	900,454	32,567	....	460	11,312	877
Total	$5,642,919	$2,051,130	$7,694,049	$1,584,294	$171,434	$49,875	134,771	10,736
Sept. 30, 1841	$1,020,931	$98,989	$1,119,920	$21.079	....	....	17,868	794
1842	466,937	115,961	582,898	12,268	$15,213	....	12,115	1.758
9 mos. 1843	218,251	38,197	256,448	23,915	....	$20,878	6,941	1,568
June 30, 1844	502.462	77,421	579,883	44,274	8,460	13,471	13,873	2,413
1845	426,107	163,564	589.671	92,118	47,890	12,222	11,691	1,097
1846	463,241	129,651	592,892	27,806	44,643	....	....	....
1847	365.360	55,026	420,386	26,969	2,790	....	8,219	1,713
1848	310,400	61,545	371,945	4.445	16,920	....	9,526	772
1849	723,819	78,467	802,286	1,193	18,035	....	13,139	1,540
1850	186.307	60,482	246,789	44,269	42.085	....	7,650	806
Total	$4,683,815	$879,303	$5,563,118	$298,336	$196,036	$46,571	101,022	12,461
June 30, 1851	$177,904	$52,529	$230,433	$73.604	$5,580	....	3,900	1,962
1852	229,302	49,157	275,759	105.853	16,000	....	7,578	1,802
1853	169,444	66,570	236,014	61,784	44,500	....	5,242	1,330
1854	446,445	81,327	527,772	59,673	12,741	....	12,189	624
1855	225.365	128,379	348.744	66,541	....	....	8,063	1,302
1856	372.523	56,493	429,016	38,126	26.400	1.376	10,640	118

Gild, or **Guild**, a company of merchants or manufacturers, whence the halls of such companies are denominated Gild or Guild Halls. See Guild.

Gilding. First practiced at Rome, about 145 B. C. The capitol was the first building on which this enrichment was bestowed.—*Pliny.* Of gold leaf for gilding, the Romans made but 750 leaves, 4 fingers square, out of a whole ounce.—*Pliny.* It consequently was more like our plating.—*Trusler.* A single grain of gold may now be stretched out under the hammer into a leaf that will cover a house.—*Dr. Halley.* Gilding with leaf gold on *bole ammoniac* was first introduced by Margaritone, in 1273. The art of gilding on wood, previously known, was improved in 1680.—*Haydn.*

Gilding is the application of a superficial coat of gold on wood, metal, and other materials. The beauty and durability of gold render it the most valuable of all ornamental substances; but, on account of its weight and high price, its use in these respects would be exceedingly limited, were it not the most extensible and divisible form of matter, so that it may be made to cover a larger surface than an equal quantity of any other body. Metals are usually covered with gold by the process of *water gilding.* It consists in perfectly cleaning their surface, and then, in the case of silver, for instance, rubbing it over with a solution of gold in mercury, called *amalgam of gold:* the vessel is then heated over a clear charcoal fire, by which the mercury is driven off, and the gold left adhering to the silver surface, upon which it is afterward burnished. The surface of copper or brass is usually prepared by cleaning and rubbing it over with a solution of nitrate of mercury, which amalgamates the surface, and enables the gold amalgam, when subsequently applied, to adhere; heating and burnishing are then resorted to as before. Brass and copper buttons are gilt in this way; and the requisite quantity of gold is so small that twelve dozen buttons of one inch diameter may be completely gilt upon both surfaces by five grains of gold. Other kinds of gilding are performed by gold leaf, which, if intended for outdoor work, is laid on by the help of *gold size,* which is drying oil mixed with calcined red ochre; or, if for picture and looking-glass frames, they are prepared by a size made by boiling parchment clippings to a stiff jelly, and mixed with fine Paris-plaster or yellow ochre. The leaves of books are gilt upon the edges by brushing them over, while in the binder's press, with a composition of four parts of Armenian bole and one of powdered sugar candy mixed up with white of egg; this coating, when nearly dry, is smoothed by the burnisher, then slightly moistened, and the gold leaf applied and burnished. To impress gilt figures on book covers, the leather is dusted over with finely-powdered mastic: the iron tool by which the figure is made is then moderately heated and pressed upon a piece of leaf-gold, which slightly adheres to it; being then immediately applied to the leather with a certain force, the tool makes an impression, and, softening the mastic, transfers and fixes the gold. In gilding glass and porcelain, powdered gold is blended with gum-water and a little borax, and applied by a camel-hair pencil; the article is then put into an oven or furnace; the gum burns off, and the borax, by vitrifying, cements the gold to the surface, upon which it may afterward be polished by the burnisher. Within the last few years nearly all the gilt articles manufactured at Birmingham, such as buttons, neck-chains, ear-rings, and so forth, have been gilt by a process in which, after the articles have been properly cleansed by a weak acid, they are immersed in a hot solution of nitro-muriate of gold, to which a considerable excess of bicarbonate of potash has been added; in the course of a few seconds they thus receive a beautiful and permanent coat of gold.

Gilead-tree, the Balsam of (Amyris gileadensis), is a native of Arabia, and grows spontaneously in the mountains of Yemen. Although not indigenous to Judea, it was cultivated with great perfection many years before Christ, in the gardens of Jericho, on the banks of the Jordan; and it is from Gilead, in that country, whence the merchants brought the resinous product to Egypt, that is derived the appellation of "Balsam of Gilead." This shrub, or tree, which seldom exceeds 14 feet in height, has a trunk 8 or 10 inches in diameter, with many spreading, crooked, purplish branches, having protuberant buds, loaded with aromatic resin. The great value set upon this drug in the East is traced to the earliest ages. When Alexander the Great was in Judea, a spoonful of the balsam was all that could be collected on a summer's day; and, in the most plentiful year, the great royal park for these trees yielded only six gallons. It was consequently so dear that it sold for double its weight in silver. That of the best quality is said to exude naturally, but the inferior kinds of the present day are extracted by boiling the branches. It is at first turbid and white, of a strong, pungent, agreeable, aromatic odor, and of a slightly bitter, acid taste; upon being kept, it becomes thin, limpid, of a greenish hue, then of a golden yellow, and at length of the consistency of honey. This balsam is highly prized among eastern nations, particularly by the Turks and Arabs, both as a medicine and an odoriferous unguent and cosmetic. It has been highly extolled as a powerful anti-septic, vulnerary, and preventive of the plague. Its great scarcity, however, has prevented it from coming into use among European and American practitioners. It is extremely liable to adulteration, and, from its high price, and difficulty to be obtained, it is believed that not a single ounce of the genuine article can be found in this country, nor even in Europe.—D. J. BROWNE's *Report, U. S. Patent Office*, 1855.

Gill, a measure of capacity. See WEIGHTS AND MEASURES.

Gimbals (Lat. *gemellus, twin*), the two brass rings or hoops within which a ship's compass is suspended in its box, in order to counteract the effect of the ship's motion and keep the card horizontal. These rings move one within the other, each perpendicularly to its plane, about two axes placed at right angles to each other. By this contrivance the compass, having a free motion in two directions at right angles to each other, maintains a vertical position, and consequently the card is horizontal. Gimbals are also applied to other instruments, such as the portable or mountain barometer, etc.

Gimleting the anchor. Turning it by the stock round its shank as an axis, like a gimlet.

Gimp. Silk twist, interlaced with brass or other wire.

Gin. (Fr. *genièvre, juniper.*) Ardent spirit flavored by the essential oil of juniper. It was originally made by the Dutch, and is hence distinguished in this country by the name of Hollands. The liquor bearing the above name in this country is of British manufacture, and is frequently flavored by oil of turpentine, and rendered biting upon the palate by caustic potash. In Holland, the finest gin bears the name of Schiedam, the principal place of its manufacture, and where there are many distilleries.

The English act for laying an excise upon gin passed July, 14th, 1736; it had been found, in the preceding year, that in London only, 7,044 houses sold gin by retail; and it was so cheap that the poor could intoxicate themselves, and be disabled from labor for one penny. The heavy excise of 5 shillings per gallon, and obliging all retailers to take out a license, in a great measure put a stop to this depopulating evil.—*Salmon.* About 1,700 of these houses were suppressed in London in 1750.—*Clarke.*

The Dutch have been long famous for their manufacture of an ardent spirit flavored with juniper, and known by the names of *Hollands, Schiedam, Gin,* and *Geneva;* the last being derived from the word "*genièvre,*" the juniper berry, and the word gin being a contraction thereof. The distillers at Schiedam seem for the last 60 years at least to have followed very much the same practice in the manufacture of this spirit, most of the accounts published during that period by individuals who have gone over to study the manufacture, agreeing in the details. Generally 112 lbs. of malt of big, weighing about 37 lbs. per bushel, and 228 lbs. of best unmalted rye from Riga, weighing about 54 lbs. per bushel, are mashed in about 100 gallons of water of the temperature of 162°. The tun is then carefully covered and left undisturbed for about 2 hours. The contents are then well stirred up, when the clearest part of the spent wash of a previous distillation, and as much cold water as will reduce the strength of the wort to about 33 of Dicas's hydrometer, and lower the temperature to about 80° are added. About half a gallon of good yeast is then added; active fermentation is thus excited, the temperature rises to 90°, and the whole is over in two days. The whole wort (grains and all) is then transferred to the still, and the distillation is continued till spirit ceases to come over. A very weak spirit is thus obtained, as used to be the case in this country with the old form of still. This, or the *low wines* as it is termed, is subjected to a second distillation after having mixed with it some juniper berries and hops. Old juniper berries are preferred for this purpose, and they are added in the proportion of 2 lbs. of berries to the 100 gallons of low wines; a quarter pound of salt, and a handful of hops, are often also added. These ingredients give the spirit that peculiar flavor which has led it to be styled genièvre—geneva—gin. The quantity of spirit obtained varies from 18 to 21 gallons per quarter of grain, a quantity fully as great as is yielded by the best conducted distilleries in this country.

According to recent examinations and experiments to detect the adulteration of liquors, gin appears to be generally diluted for the purpose of lowering the price, and various decoctions are subsequently introduced to supply the peculiar properties supposed to belong to the pure spirit. Many of these articles, however, although "possessing very terrifying names, as oil of vitriol, or sulphuric acid, can not in the proportions in which they are used, be looked upon as poisons." It is, for instance, believed that pure gin—that is, alcohol flavored with juniper-berry, is not to be met with, inasmuch as all rectifiers appear to use "gin-flavorings," made from various aromatic and carminative substances, such as orange peel, coriander, etc., which please the palate of the consumer better than pure gin, of which, indeed, the public scarcely know the taste. If a retailer "never sold any thing but absolute alcohol, it could not be drank by the public without their being greatly injured. The publican would then have to dilute it with such a quantity of water as would render it suitable as a beverage." The publican does not profess to sell absolute alcohol, and the public knowing nothing of the nature of the manufacture of gin, are content with what is usually sold under that denomination; the term gin being merely conventional, and applying equally to the mixture sold by the publican as to the spirit sent out by the distiller, and is, in fact, more generally understood to represent the mixture. For the same reason the revenue does not sustain loss, because no man could drink proof spirits, and if the publican did not dilute the spirit, he "must fall back upon the wholesale dealer and have it made up to the strength he requires, sweetened and all."—*Report to House of Commons*, July, 1856. See Leone Levi's *Annals of British Legislation*, Part ix., Dec., 1856.

Gin, in *Mechanics*, a contrivance for raising heavy weights, driving piles, etc., which consists of three spars set up in a pyramidal form, and furnished at top with a tackle which is worked by a windlass beneath. The name *gin* is also applied to a machine with which the fibres of cotton are disentangled, by means of a series of revolving spikes. This operation is termed *ginning*. See Cotton Manufacture.

Ginger (Ger. *Inwer;* Du. *Gember;* Fr. *Gengembre;* It. *Zenzero;* Sp. *Jenjibre; Agengibre;* Rus. *Inbir;* Lat. *Zingiber;* Pers. *Zungeoeel;* Arab. *Zingibeel*), the roots of a plant (*Amomum Zingiber*), a native of the East Indies and China, but which was early carried to and succeeds very well in the West Indies. After the roots are dug, the best are selected, scraped, washed, and dried in the sun with great care. This is called *white ginger;* while the inferior roots, which are scalded in boiling water before being dried, are denominated *black ginger*. Preserved ginger is made by scalding the green roots, or the roots taken up when they are young and full of sap, till they are tender; then peeling them in cold water, and putting them into a thin syrup, from which they are shifted into the jars in which they come to us, and a rich syrup poured over them. Dried ginger has a pungent, aromatic odor, and a hot, biting taste. It is imported in bags, each containing about a cwt. The white brings the highest price, being more pungent and better flavored. The external characters of goodness in both sorts of dried ginger are, soundness, or the being free from worm holes, heaviness, and firmness; the pieces that are small, light, and soft, or very friable and fibrous, should be rejected. The best preserved ginger is nearly translucent; it should be chosen of a bright yellow color; rejecting that which is dark-colored, fibrous, or stringy.—Milburn's *Orient. Commerce;* Thomson's *Dispensatory*. The ginger plant could without doubt be grown to advantage in many of the southern States. The amount of ginger annually imported into the United States is valued at upward of $60,000.

Ginseng (Du. *Ginseng, Ginsem;* Fr. *Ginseng;* Ger. *Kraftwerzel, Ginseng;* It. *Ginseng;* Sp. *Jinseng;* Chin. *Yansam;* Tart. *Orhota*), the root of a small plant (*Panax quinquefolium* Lin.), growing in China, Tartary, and several parts of North America. The latter is what we generally see in England, and is an article of trade to China, which is its only market. Large quantities were formerly exported from this country; but it is now carried direct to China by the Americans. It is sometimes exported crude, and sometimes cured or clarified. Within these few years, is has been discovered in the Himalaya mountains, and small quantities have been thence sent to Canton; but the speculation has not succeeded. It is only about 40 years since it began to be sent from America to China. Previously to the present century, the Chinese drew their supplies from the wilds of Tartary, and the root brought an exorbitant price. Crude ginseng now sells in the Canton market at from 60 to 70 dollars per picul, and prepared at from 70 to 80 dollars. In 1852, there were sent from the United States to China, 158,455 lbs. ginseng, valued at 102,073 dollars.—*Papers laid before Congress*, January 1st, 1853.

Glacier, a name given to masses of ice which descend from snowy mountains into the adjacent valleys, where they obtain a level often far below the upper limit of the surrounding vegetation. The following are the synonyms for a glacier in some different languages and dialects: in French, *glacier;* German, *gletscher;* Italian, *ghiacciaja;* Tyrolese, *fern;* in Carinthia, *käss;* in the Vallais, *biegno;* in part of Italy, *vedretto;* in Piedmont, *ruize;* in the Pyrenees, *serneille;* in Norway, *iisbræ* or *iisbrede;* in Lapland, *geikna* or *jegna;* in Iceland, *jökull* or *fall-jökull*. The characteristic appearance of a glacier can be nowhere better studied than in Switzerland and Savoy. The icy mass of the glacier of Bossons at Chamouni—which descends immediately from the highest part of Mont Blanc, but lies, summer and winter, in the valley at a height of no more than 3500 English feet (the height of perpetual snow being about 9000 feet), where it is embosomed among luxuriant wood, and is almost in contact with corn-fields—exhibits a spectacle which none who have once seen it can forget, and which attracts more interest and curiosity the more carefully it is considered. The lower glacier of Grindelwald, descending to 3400 feet, is another familiar example of the same phenomenon. In the arctic regions true glaciers also exist, which, descending the valleys (often of great width and little inclination), enter the sea, and, breaking off, supply the floating ice-islands or icebergs, which frequently drift into comparatively low latitudes. These glaciers do not essentially differ from those of Alpine countries.

The diminution of temperature as we ascend the slopes of mountains, is indicated by successive tones of vegetation, and finally by the occurrence of perpetual snow. Thus in the high mountains of the Andes and Himalaya, between the tropics, the commencement of perpetual snow is found at from 15,000 to 18,000, or even 19,000 feet, according to circumstances; while in southern Europe, the level is from 8000 to 9000 feet, and in Norway from 5500 to 3000 feet, according to the latitude and the distance from the sea. It was first shown by Baron Humboldt and Von Buch that the limit of perpetual snow depends principally on the temperature of the summer, and not upon that of the whole year. It has been already explained that an accumulation of snow, even frozen snow, does not constitute properly a glacier. A glacier is a mass of ice, having its origin in the hollows of mountains where perpetual snow accumulates, but which makes its way down toward the lower valleys, where it gradually melts, and it terminates exactly where the melting, due to the contact of the warmer air, earth, and rain of the valley, compensates for the bodily descent of the ice from the snow reservoirs of the higher mountains. From this it is evident, without any formal measurements, that A GLACIER IS ICE IN MOTION.

Geographical Distribution of Glaciers.—Glaciers are not peculiar to any country or region of the earth. It may be that there are extensive snowy mountains wholly devoid of them, as is supposed to be the case in tropical South America; but even this exception requires confirmation. There are peculiarities in the form of mountains, and still more in climate, which, as we shall see, favor the formation of glaciers, or may even totally prevent it.

Glasgow, a great commercial and manufacturing city of Lanarkshire, in Scotland, situated on the northern bank of the River Clyde. According to the determination of Dr. Wilson, the latitude and longitude of the Macfarlane Observatory, in the college garden of Glasgow, are 55° 51′ 32″ N., and 4° 17′ 54″ W. Glasgow is therefore nearly eight miles further south, and 1° 1′ further west. The difference between the clocks in Edinburg and Glasgow is 4° 27′ 4″.

Glasgow owes its present greatness to its advantageous situation on a fine river, in one of the richest coal and mineral districts of the empire. Originally, however, the Clyde was much incumbered by fords and shallows, and for a lengthened period it served rather to excite and disappoint expectation, than to confer any real commercial advantage on the city.

In 1662, after several other schemes had failed, the magistrates of Glasgow purchased the ground on which Port Glasgow (16 miles down the river) now stands, where they formed a harbor and a graving dock, the first work of its kind in Scotland. For a considerable period the intercourse between Glasgow and its newly-acquired port was principally carried on by land carriage; but from 1665 attempts were every now and then made to deepen the river. In 1688 a quay was formed at the Broomielaw; but even so late as 1775 no vessel drawing six feet of water could reach Glasgow, except at spring tides. At length, however, a plan, proposed in 1769 by Mr. Golburn, engineer of Chester, for deepening the river to seven feet at neap tides, was adopted, since which time, by the continued use of numerous dredging machines a depth of from 16 to 18 feet of water at high water neaps has been obtained. In the year ending the 30th June, 1854, 25 ships drawing 18 feet of water, and 4 drawing 19 feet, came safely to the Broomielaw, while the largest steam vessel afloat, the *Persia*, of 3,600 tons' burden, was launched in 1855 into the river, about one mile below Glasgow, and came up to the harbor to receive her machinery. The work of deepening and straightening the river is still vigorously prosecuted. Six dredging machines and two diving bells are in constant employment. The river, for seven miles below the city, is very much widened, and forms nearly a straight line—the sloping banks, formed of whinstone, being constructed in imitation of ashlar. The accommodation for shipping at the Broomielaw, or harbor, is now also very greatly extended. It comprises about 48 acres of water. The quays extend about two miles in length, are amply furnished with sheds for goods, cranes, etc., and have the important advantage of being directly connected, by means of the General Terminus Line, with the various railways that centre in the city. The parliamentary trustees for managing the river have, also, acquired ground on the north side of the harbor, on which they have power to construct extensive docks. They may, also, construct a basin on the south side.

The total expenditure on the river and harbor, including works, purchases of ground, etc., down to 1854, was above £2,000,000, of which about £1,500,000 has been raised as revenue. The influence of these improvements on the shipping and trade of Glasgow has been most striking. At present, a greater number of sailing vessels and of steamers belong to Glasgow than to any other Scotch port, and the harbor is constantly crowded with ships from foreign ports, coasting vessels and steamers. The steam-packets belonging to the Clyde that ply to Liverpool, Dublin, and Belfast, are among the finest vessels of their class in the empire. In all, there belonged to Glasgow, on the 31st December, 1854, 601 vessels of the aggregate burden of 192,895 tons.

The Clyde, upon which the city of Glasgow is situated, is one of the principal rivers in Scotland, and has its rise among the mountains that separate the counties of Dumfries and Lanark. The length of this stream, from its source to its junction with the western sea, is about 100 miles. Along its whole course it is beautified by magnificent natural scenery and embellishments of art. Its banks are crowded with the abodes of industry and a thriving population. The site of Glasgow occupies both sides of the river; and though at the distance of above 30 miles from the influx into the sea, the tide, which flows a considerable way above the town, gives it a command of trade and means of ready conveyance for commercial purposes to every quarter of the globe. See articles CLYDE, GREAT BRITAIN, and SCOTLAND.

The first steam-engine in Glasgow connected with cotton-spinning was erected in 1792; but it was not till the beginning of the present century that any considerable quantity of yarn was spun in Scotland. In 1850 the number of spindles employed in cotton-spinning, connected with or dependent on Glasgow, amounted to 1,683,093, and the cotton consumed amounted to about 45,000,000 pounds, or 120,000 bales. At present (1856) the consumption does not appear to have increased. The power-loom was first introduced into Glasgow in 1793 by Mr. James Robertson, who brought two from the Hulks in the Thames. In the following year 40 looms were fitted up at Milton, and in 1801 Mr. John Monteith had 200 looms at work at Pollockshaws, near Glasgow. In 1831 the power-looms in or dependent on Glasgow had increased to 15,137; in 1850 they amounted to 23,564, and produced the daily average of 625,000 yards of cloth; at present (1856) there are about 26,000 or 27,000 power-looms, and consequently the daily produce is not only greater from this cause, but also from an increase in speed. The number of persons employed in the cotton factories throughout Scotland, and which may be said to be all connected with or dependent on Glasgow, in 1850 was 8797 males, and 27,528 females, total 36,325; while the motive power was, steam, 71,005 horse-power; water, 2812. In addition to the cotton spun for weaving, there are several very large manufactories of sewing thread; and to that of power-loom weaving there must be added all the beautiful fabrics that are still made by the hand-loom, and which employ a vast number of persons and a large capital. These consist of muslins, plain and fancy harness-curtains, jaconets, cambrics, ginghams, checks, and colored tissues of all kinds; while, of late years, mixed fabrics, consisting of cotton and silk, cotton and linen, and cotton and wool, have all been manufactured to a great extent. To the many thousand hand-loom weavers that still reside in Glasgow, must be added those who reside in all the villages for many miles round, and even in some of the more distant towns in Scotland and north of Ireland, to form any adequate idea of the extensive and wide-spread textile manufacturing interests of Glasgow. See articles EMBROIDERY, CLYDE, and STEAM NAVIGATION.

The next great branches of industry, of which Glasgow is the central mart, are its coal and iron trades. Although coal, from a pretty remote period, has been wrought round the city chiefly for domestic uses, it has only been since the introduction of the steam-engine, and still more since the discovery of the economical mode of smelting iron by the hot blast, that the vast and closely-packed mineral wealth of its neighboring districts has been at all fully developed and turned to profit.

Steamship-building.—Of all the branches of industry belonging to Glasgow and its harbor, there is none of modern date which has made such rapid progress as that of steamboat-building, and marine engine-making. From the first start of the little *Comet*, in 1812, till 1820, there were at the most only one or two river steamers launched yearly, and of a tonnage so small as to be scarcely worth notice. About that period this manufacture received a new impulse, and began at once fairly to develop itself. From 1821 to 1830 there were 38 steamers built, with a tonnage of 4,200; from 1831 to 1840 there were 94 steamers, with a tonnage of 17,623; from 1841 to 1850 there were 167 steamers, with a tonnage of 81,447; while during the three years from 1851 to 1853 there were 206 steamers, with a tonnage of 141,713. The present magnitude of this industry may, however, be best appreciated from the fact that during the years 1853 and 1854, the then 32 ship-builders on the Clyde had constructed or contracted for no fewer than 266 vessels, including both steam and sailing, having an aggregate tonnage of 168,000, for which also marine engines were constructed or in progress, of 29,000 horse-power: the average of these vessels being 630 tons, and involving the enormous cost of nearly £5,000,000 sterling.

The whole number and tonnage arriving at the harbor of Glasgow during the years 1828–1854, were as follows:

Years.	SAILING VESSELS.		STEAM VESSELS.	
	No.	Tonnage.	No.	Tonnage.
1828	4,405	214,315	7,100	481,946
1840	5,337	271,942	11,149	894,387
1850	5,857	391,033	9,195	873,159
1854	6,322	504,008	11,880	1,090,804

The progress and present condition of the river and harbor, however, are probably best exhibited by the following abstract of the revenue of the trust at six different periods:

1800	£3,319	1840	£46,481
1820	6,328	1850	64,243
1830	20,296	1854	86,580

Abstract Account of the total Number of Arrivals of Sailing and Steam Vessels arrived at the Harbor of Glasgow, Foreign and Coastwise, in the Year ending June 30th, 1854.

Vessels' tonnage.	Sailing vessels.	Steam vessels.	Vessels' tonnage.	Sailing vessels.	Steam vessels.
Under 40	2,844	2,726	300—350	61	65
40— 60	1,462	469	350—400	56	375
60— 80	609	2,536	400—450	33	76
80—100	313	3,402	450—500	36	5
100—150	285	1,545	500—600	48	1
150—200	239	285	600—700	24	6
200—250	186	28	700 &upwd.	34	9
250—300	89	361	Total.....	6,322	11,880

Port Charges, Harbor, or Quay Dues.—On all vessels arriving at the harbor of Glasgow, 2d. per register ton; except on steam-vessels trading on the River Clyde within the Cumbraes, or navigating the Crinan Canal, which are charged 1d. per register ton. On all vessels remaining in the harbor for any period exceeding 24 lawful days, 1d. per ton per week.

Weighing-dues.—Each cart, wagon, or other carriage-load, or weight, not exceeding 12 cwt., 1d. each; exceeding 12 cwt., 8d. each. N. B. Weighing-dues, not exigible when the correct weight of the goods is furnished.

Crane Dues.—Each hoist not exceeding 12 cwt., 3d.; from 12 to 15 cwt., 4d.; from 15 to 20 cwt., 6d. Each ton of machinery, and other articles exceeding 1 ton, 1s.; hemp per ton, 6d.; marble do., 1s.; timber do., 6d. Taking out and putting in machinery, etc., of steamboats, from £2 2s. to £8 8s., according to the number of hoists and trouble. Cranesmen's time per hour, or part of an hour, 6d. Charges for water supplied by the Clyde Trustees to vessels in the harbor, viz.: Vessels under 25 tons register, 6d. each; 25 tons and under 50, 1s. each; 50 tons and under 100, 1s. 3d. each; 100 tons and under 150, 3s. each; 150 tons and under 200, 5s each; 200 tons and under 300, 8s. each; 300 tons and under 400, 9s. each; 400 tons and upward, 10s.

N. B. Steam-vessels regularly supplied oftener than once a week, to be charged half the above rates. Masters of vessels requiring water, will obtain orders, on application, at the weighing-boxes on the quays. *Planks and Stages.*—For loading or discharging vessels, 1s. each plank or stage per week. *Rhones.*—One penny for each wagon of coal loaded, with 1s. extra on each cargo for removing the rhone to and from the vessel. *Ballast.*—The Clyde Trustees remove ballast from vessels on either side the harbor, at a rate not exceeding 1s. per ton, and supply clean stone ballast at 1s. per ton. The River Clyde is divided into three stages, and the following are the tonnage dues exigible upon each, viz.: The first stage extends from Stockwell-street Bridge to the Old Ferry at Renfrew, being about 600 yards to the east of the present ferry, and the dues on goods carried or conveyed thereon, are two thirds of the tonnage dues exigible by the trustees. The second stage extends from the Old Ferry at Renfrew to the mouth of Dalmuir Burn; and the dues exigible thereon are one sixth of the tonnage dues; and the third stage extends from Dalmuir Burn to Newark Castle; and the dues exigible thereon are one sixth part of the tonnage dues.

The above is the whole charge *upon the ship* for the voyage *in* and *out* if a ship sail in ballast. If she loads an outward cargo, the tonnage dues thereon will be charged according to the rates specified above. *The charges for lights* are as follows, viz.: northern lights, 8½d. per register ton; Cambrae lights, 1d. per register ton. The charge for unloading and taking in a cargo is per agreement with licensed lumpers or porters who ply on the quay for hire. There are no fixed rates, but the following charges may be considered pretty near the mark: unloading cotton, 15s. per 100 bales, or about 9d. per ton, and for taking in iron, 9d. per ton. The other items of charge of a public kind affecting the ship are, towing up and down the river, planks and stages for discharging and loading the cargoes, supplying the ship with water and the removal of ballast, if any on board, and ships loaded with cotton usually have ballast. The following is a *pro forma* account of the charges on a ship of 500 tons arriving with cotton, remaining in the harbor for a month, loading iron, and leaving:

Anchorage or harbor dues, 500 tons, at 2d. per ton	£4	3	4
River or tonnage dues inward, say 300 tons cotton, at 1s. 4d. per ton	20	0	0
Shed dues on do. at 1¾d. per ton	2	3	9
Lumper's charge for unloading cargo, do. at 9d.	11	5	0
River or tonnage dues outward, say on 700 tons iron at 7d.	20	8	4
Shed dues on do., at 1¾d.	8	12	11
Lumper's charge for loading, at 9d.	26	5	0
Northern lights. In and out, on ship 500 tons, at a fraction under 9d.	17	19	2
Clyde lights, in and out, on do. at 1d.	2	1	8
Towing ship up and down river, 9d. each way, at 1s. 6d	37	10	0
Planks and stages, discharging and loading, say	1	10	0
Supplying ship with water in harbor	0	10	0
Discharging and removing ballast	7	10	0
Total	£154	19	2

On all ships arriving at the Broomielaw, either from foreign ports or coastwise, 2d. per register ton is payable to the River Trustees in name of harbor or quay duty, over and above the river or tonnage rates on the cargo.

Entrance to the River.—As a guide to mariners, it may be mentioned that vessels of 19 feet draft of water can arrive at the harbor of Glasgow, and that vessels drawing 17 feet are considered regular traders. Vessels drawing 15 to 16 feet may always arrive and depart without touching the bottom. At the entrance to the river, vessels are placed under the charge of pilots, who are well acquainted with the channel, which is well marked with beacons and buoys. It may be considered that the river is deepening at the rate of one foot in every five years. A ship on reaching the mouth of the river had best commence ascending at half-tide. There are no particular usages connected with the harbor of Glasgow beyond those adopted on most other rivers and harbors. Lights are permitted in the harbor from 6 A.M. to 10 P.M.

Glasgow may be said to be *cosmopolitan* in her commerce and manufactures, uniting within herself the busnesses and trades of almost every other town and city in the United Kingdom. It hence follows that while one branch of manufacture or trade may be dull, another may be prosperous, and accordingly Glasgow does not feel any of those depressions which so frequently occur in places which have only one or two branches of manufacture or commerce. The great industrial occupations of Glasgow are its cotton-spinning and weaving; its collieries and iron manufactures; its iron ship-building and machine-making, and its chemical manufactures. According to Dr. Strang, the consumption of raw cotton in Glasgow in 1854 was above 1,900 bales per week, of from 430 to 440 pounds each, and the number of power-looms dependent on Glasgow was from 26,000 to 27,000, producing daily about 700,000 yards of cloth. In the west of Scotland, of which Glasgow is the central mart, there were, in 1854, 6,448,000 tons of coal drawn from the pits, of which 2,152,800 tons were consumed in the manufacture of pig iron, 367,200 in the conversion of pig iron into malleable iron, making in all, 2,520,000 tons used in connection with the manufacture of iron, while 926,221 tons were shipped, and 148,312 tons sent beyond the boundaries by railways, leaving for the manufacturing consumption and domestic use of the Glasgow district 2,853,427 tons. The produce of pig iron in the counties of Lanark and Ayr, in 1854, amounted to 717,600 tons, 122,684 tons of which were shipped direct to foreign countries, 294,194 tons were sent coastwise from the Clyde, Port Dundas and the western ports of the Clyde estuary, while 22,865 tons were sent away by railways, and 171,360 tons were converted into malleable iron, leaving the remaining 106,497 tons for foundery and other purposes of the district. Malleable iron during the same year was manufactured to the extent of 122,400 tons. The value of the whole coal and iron business to the district in 1854 may be reckoned at about £4,872,000, of which £1,973,000 was paid in wages to 33,900 persons.

The chemical products of Glasgow are multifarious, consisting of sulphuric, muriatic, nitric, and acetic acids and their various salts; bleaching-powder, soda, soap, cudbear, bichromate of potash, sugar of lead, iodine, salts of ammonia, alum, prussiate of potash, naptha, pitch, oil, animal charcoal, bone tar, cream of tartar, etc., etc. The works of St. Rollox, situate in the north-east quarter of Glasgow, constitute perhaps the largest chemical establishment in the world. They cover about 12 acres of ground, employ above 1000 men, consuming annually about 20,000 tons of common salt, and 80,000 tons of coal, and producing of soda, bleaching-powder, sulphuric acid, and soap, etc., about 25,000 tons. The lofty chimneys of St. Rollox are among the curiosities of the city, one of them being 450 feet high, 50 feet diameter at the base, and 14 feet at the top. While commerce and manufactures had thus given the city a stimulating and onward progress, science and art had also added their mighty aid in effecting improvement. As a proof of this it may be be mentioned that in 1759 the first act for deepening the River Clyde was obtained; and that, in 1764, James Watt made in Glasgow his first model of a steam-engine.

Population.—If the foregoing tables give some idea of the advance of Glasgow as a commercial and manufacturing city, the following table of its progressive population during the present century will render this more apparent:

Years.	Males.	Females.	Total.
1801........	....	....	83,769
1811........	....	....	110,460
1821........	68,119	78,934	147,043
1831........	93,724	108,702	202,426
1841........	133,318	147,369	280,682
1851........	163,731	183,270	347,001

In 1855 the estimated population of Glasgow and its suburbs was about 400,000, having been nearly quintupled in 50 years!

CUSTOMS DUTIES COLLECTED AT GLASGOW, AND THE NUMBER AND TONNAGE OF THE SHIPS BELONGING TO THE PORT IN THE UNDERMENTIONED YEARS.

Years ending Jan. 5.	Duties.	No. of ships.	Tonnage.
1795..........	£125	..	....
1806..........	1,323	..	....
1812..........	3,124	35	2,620
1815..........	8,300	59	4,839
1820..........	11,000	85	6,604
1825..........	41,154	111	14,084
1830..........	59,013	233	40,978
1835..........	270,667	297	54,335
1840..........	468,974	351	71,878
1845..........	551,851	472	111,620
1850..........	640,568	507	137,909
1855..........	666,818	601	192,895

Glasgow now ranks as the fourth exporting port in the empire, being in this respect surpassed only by Liverpool, London, and Hull.

ACCOUNT OF THE DECLARED VALUES OF THE PRODUCE AND MANUFACTURES OF THE UNITED KINGDOM EXPORTED FROM GLASGOW, PORT GLASGOW, AND GREENOCK, IN 1852, 1853, AND 1854, RESPECTIVELY; SHOWING ALSO THE AMOUNT OF CUSTOMS DUTIES COLLECTED AT EACH OF THESE PORTS IN THE ABOVE YEARS.

Ports on the Clyde.	Aggregate value of exports of British and Irish produce and manufactures.		
	1852.	1853.	1854.
Glasgow......	£3,570,375	£4,968,630	£4,905,557
Port Glasgow.	73,021	107,295	95,433
Greenock.....	418,697	437,522	554,508
Total.....	£4,062,093	£5,513,447	£5,555,498

Ports on the Clyde.	Amount of customs duties collected on imported articles.		
	1852.	1853.	1854.
Glasgow......	£652,665	£687,974	£666,818
Port Glasgow.	82,411	104,954	90,596
Greenock.....	429,308	426,150	547,754
Total	£1,164,384	£1,219,078	£1,305,468

Glass (Ger. and Du. *Glas*; Fr. *Vitre*, *Verre*; It. *Vetro*; Sp. *Vidrio*; Rus. *Steklo*; Lat. *Vitrum*), a transparent, brittle, factitious body. It is formed by mixing together some sort of siliceous earth, as fine sand, or pounded flint, with an alkali, such as soda, pot-ash, or pearl-ash, and subjecting them to a strong heat. By this means they are melted into a transparent, soft, tenacious mass, that may, when hot, be formed into thin plates, bent and shaped in every possible way. When cool it becomes brittle, and is denominated glass. Litharge, minium, borax, the black oxyd of manganese, etc., are sometimes used in the manufacture of glass, according to the purposes to which it is to be applied.

The kinds of glass, and their ingredients, are stated by Dr. Ure as follows:

"There are five distinct kinds of glass at present manufactured: 1. Flint glass, or glass of lead; 2. Plate glass, or glass of pure soda; 3. Crown glass, the best window glass; 4. Broad glass, a coarse window glass; 5. Bottle, or coarse green glass.

"1. *Flint Glass*, so named because the siliceous ingredient was originally employed in the form of ground flints. It is now made of the following composition:

	Parts.
Purified Lynn sand..........................	100
Litharge, or red lead.........................	60
Purified Pearl-ash............................	30

"To correct the green color derived from combustible matter, or oxyd of iron, a little black oxyd of manganese is added, and sometimes nitre and arsenic. The fusion is accomplished usually in about 30 hours.

"2. *Plate Glass.*—Good carbonate of soda, procured by decomposing common salt with pearl-ash, is employed as the flux. The proportion of the materials is,

Pure sand...............	43·0
Dry subcarbonate of soda................	25·5
Pure quicklime..........................	4·0
Nitre...................................	1·5
Broken plate glass......................	25·0—100·0

About 70 parts of good plate glass may be run off from these materials.

"3. *Crown, or fine Window Glass.*—This is made of sand vitrified by the impure barilla manufactured by incineration of sea-weed on the Scotch and Irish shores. The most approved composition is,

	By measure.	By weight.
Fine and purified.........	5	200
Best kelp ground.	11	330

"4. *Broad Glass.*—This is made of a mixture of soap-boilers' waste, kelp, and sand. The first ingredient consists of lime used for rendering the alkali of the soap-boiler caustic, the insoluble matter of this kelp or barilla, and a quantity of salt and water, all in a pasty state. The proportions necessarily vary. Two of the waste, one of kelp, and one of sand, form a pretty good broad glass. They are mixed together, dried, and fritted.

"5. *Bottle Glass* is the coarsest kind. It is made of soapers' waste and river sand, in proportions which practice must determine according to the quantity of the waste; some soap-boilers extracting more saline matter, and others less, from their kelps. Common sand and lime, with a little common clay and sea salt, form a cheap mixture for bottle glass."

Historical Notices with respect to Glass.—The manufacture of glass is one of the very highest beauty and utility. It is most probable that we are indebted for this wonderful art, as we are for the gift of letters, to the Phœnicians. According to Pliny (*His. Nat.*, lib. xxxvi., c. 26), glass had been made for many ages, of sand found near the mouth of the small River Belus in Phœnicia. "The report," says he, "is, that the crew of a merchant ship laden with nitre (fossil alkali) having used some pieces of it to support the kettles placed on the fires they had made on the sand, were surprised to see pieces formed of a translucent substance, or glass. This was a sufficient hint for the manufacture. Ingenuity (*astuta et ingeniose solertia*) was immediately at work, to improve the process thus happily suggested. Hence the magnetical stone came to be added, from an idea that it contained not only iron, but glass. They also used clear pebbles, shells, and fossil sand. Indian glass is said to be formed of native crystal, and is on that account superior to every other. Phœnician glass is prepared with light dry wood, to which copper and nitre are added, the last being principally brought from Ophir. It is occasionally tinged with different colors. Sometimes it is brought to the desired shape by being blown, sometimes by being ground on a lathe, and sometimes it is embossed like silver." Sidon, he adds, is famous for this manufacture. It was there that mirrors were first invented. In Pliny's time, glass was made in Italy of fine sand on the shore between Cumæ and the Lucrine Bay. If this be a correct description of the glass of India in the age of Pliny, it has since fallen off very much; Indian glass being now about the very worst that is made. At present, the Hindoos manufacture it of fragments of broken glass, quartz, and impure soda, an article found native in many parts of India, particularly in the south. The furnaces are so bad that they can not melt our common bottle glass.—Hamilton's *Mysore*, vol. iii., p. 370. The glass of China is much better than that of India, though still very inferior to that of Europe.

The general term *glass* is employed by chemists to denote all mineral substances which, on the application of heat, pass through a state of fusion into hard and brittle masses, and which, though not always transparent, exhibit a lustrous fracture when broken. The glass of commerce, however, to which our remarks are restricted, or the transparent and artificial substance which is usually distinguished by the generic name, is produced by the igneous fusion of siliceous earth with certain alkaline earths or salts, or with metallic oxyds. The etymology of the word has been much disputed. It is derived by some from the Latin *glacies*, ice, its resemblance to which is thought to have suggested the title. Others have remarked, that the common Latin designation of this substance is *vitrum*; and as the Romans applied this term in common with the word *glastum*, to the plant which we call woad, they have deduced it from the latter of these, either because the ashes of this plant were used in the manufacture of glass, or because it exhibited something of the bluish color which is procured from woad. *Glassum*, the name given to amber by the ancient Gauls and Britons, has also been assigned as the origin of the word. But none of these etymons appear very satisfactory. The most plausible theory is that which derives the term from the Saxon verb *glis-nian*, or the the German *gleissen*, *splendere*, which are probably contractions of the Anglo-Saxon *ge-lixan*, to shine, to be bright. This view is in a great degree confirmed by the sense in which the term glass and its derivatives are employed by our older writers, who frequently apply it to shining or glittering substances, without reference to color or transparency.

In the most remote ages the art of blowing glass into bottles, making it into vases, coloring it to imitate precious stones, melting it into enormous masses to make pillars, rolling and polishing it into mirrors, and tinting it into parts, were all perfectly well known. For its origin we must look to Egypt, the parent of so many collateral arts. The story of the Israelites having set fire to a forest, and the heat becoming so intense that it made the nitre and sand melt and flow along the mountain side, and that they afterward did artificially what had been the result of accident, may be set down as equally fabulous with the story of the pirates, who are said to have landed on the sea beach, and wishing to make their cauldron boil, piled up some vitreous stones and placed on them a quantity of seaweed and blocks of wood, causing so strong a heat that the stones were softened and ran down on the sand, which, melting and mixing with the alkali, became a diaphanous and glassy mass. The fictitious character of both these stories is proved by the simple fact that it requires the most intense furnace heat to insure the combination of the sand with the nitre.

Under these circumstances we are justified in believing that glass-making had its origin at the same time with the baking of bricks and pottery. The smelting of ores, too, required a furnace sufficiently intense to fuse the silicates analogous to glass, and hence it may be safely inferred, that in the age when melting and working metal was known, the art of making glass was also practiced. In the book of Job the most precious things are compared to wisdom, but still more precious are gold and glass. The Hebrews must have become acquainted with glass while in Egypt, and in consequence of their proximity to the Phœnicians; and it is now generally believed that these two nations had the merit of originating and establishing its manufacture. The Athenian embassadors, in order to give an idea of the magnificence displayed at the court of the great king of Persia, said, that they drank in cups of glass and gold. Some writers affirm that the Egyptians in some instances sealed up their dead in a coating of glass, and glass-houses are said not to have been uncommon in that wonderful country. Some authors ascribe, with very plausible reason, the discovery of glass-making to the priests of Vulcan at Thebes and Memphis, the greatest chemists in the ancient world. The Egyptians are also known to have made enamels of divers colors which they applied on pottery, magnificent specimens of which are still extant, and are called Egyptian porcelain. These are chiefly covered with beautiful blue or green, and groups of flowers or designs are traced in black. Glass beads and other ornaments made of that substance, skillfully manufactured and beautifully colored, have been found adorning mummies, which are known to be upward of 3000 years old. It is certain that Tyre, Sidon, and Alexandria, were long celebrated for their glass, and furnished the greater proportion of that used at Rome. Under the Roman empire the Egyptians still preserved their superiority in the art of glass-making, and it is said that Aurelian caused them to pay their tribute in that manufacture. Adrian mentions that he had received drinking-glasses of various colors from a priest of a famous temple in Egypt, and gives instructions that they are not to be used but on the greatest occasions, and on the most solemn feast days. To these places the art was exclusively confined for some centuries, and was an article of luxury, being chiefly in the form of urns or drinking-cups of the most elaborate workmanship, and exquisitely embellished with raised, chased, or ornamented figures. The Barberini or Portland vase, composed of deep blue glass, with figures of a delicate white opaque substance raised in relief, is a splendid specimen, and was found in the tomb of Alexander Severus, who died A. D. 285.

The art of glass-making seems to have been introduced into Italy by the Romans after their conquests in Asia in the time of Cicero, and the first glass-works there were said to have been near the Flaminian Circus. It is highly probable that these workmen were imported from Egypt. The use of glass seems rapidly to have increased, and to have become very common, for we find an emperor in the third century of the Christian era saying, that he was disgusted with so low and vulgar an object as glass, and that he would only drink from vessels of gold. By this time the manufacture of glass was so considerable that an impost was laid on it, and it was extensively employed in the decorations of buildings, while in glass mosaics were combined the most brilliant colors.

Glass was manufactured at Rome into various articles of convenience and ornament. Pliny mentions that Nero gave 6000 sesterces (£50,000 according to the ordinary method of reckoning), for two glass cups, each having two handles! These, however, must have been of an immense size and of exquisite workmanship; for glass was then in common use for drinking vessels, and was used even in the form of bottles in which to keep wine.—*Mart.*, *Epig.*, lib. ii., 22, 40, and lib. iv., 86.

From the circumstance of colored glass beads and amulets having been found among Druidical remains in this country, it has been argued by Pennant and others that the art of making glass was known in Britain before its invasion by the Romans. It can hardly, however, be believed that a people who had made very trifling advances in civilization, and who, it is known, were entirely unacquainted with any other art, should be found not only conversant with the manufacture of glass, a complicated and highly ingenious process, but should excel in it; for the beads and amulets spoken of are of exquisite workmanship, and beautifully colored in imitation of the rarest and most precious stones. There seems little doubt, therefore, that the ancient Britons procured these in the course of traffic with the Syrians, who visited the island as we do those in the South Seas, to drive a trade with their savage inhabitants in toys and trinkets, giving them these in exchange for skins or other natural productions. By whatever means, however, these ornaments came into Britain, it is certain that they were in extensive use, though principally for religious purposes, long prior to the Roman invasion, as they are found in barrows or tumuli of a much older date. One at Stonehenge, in particular, on being opened was found to be filled with them.

Glain Neidyr, or Druidical glass rings, generally about half as wide as our finger-rings, but much thicker, have frequently been found. The vulgar superstition regarding these was, that they were produced by snakes joining their heads together and hissing, when a kind of bubble like a ring was formed round the head of them, which the others, continuing to hiss, blew on till it came off at the tail, when it immediately hardened into a glass ring. Success was thought to attend any one who was fortunate enough to find one of those snake-stones. They were evidently beads of glass employed by the Druids, under the name of charms, to deceive the vulgar. They are usually of a green color, but some of them are blue, and others variegated with wavy streaks of blue, red, and white.

Glass utensils have been found in Herculaneum, which city was destroyed by an eruption of Mount Vesuvius in the reign of Titus (A. D. 79). A plate of glass also found there has occasioned much speculation as to its uses. Similar plates, to which Pliny gave the name of *vitreæ cameræ*, seem to have been employed, in a manner not very well understood by us, as paneling for their rooms. It is disputed whether or not glass was used in Herculaneum for windows.

Dion Cassius and Petronius Arbiter concur in their account of the discovery of malleable or ductile glass by a celebrated Roman architect, whose success in the restoration to its position of a portico which leaned to one side, had roused the envy and jealousy of Tiberius, and occasioned his banishment from Rome. Thinking that his discovery would disarm the emperor's wrath, the artist appeared before him bearing a glass vessel, which he dashed upon the ground. Notwithstanding the violence of the blow, it was merely dimpled, as if it had been brass. Taking a hammer from his breast, he then beat it out into its original shape; but instead of giving him the reward which he had expected, the emperor ordered the unfortunate artisan to be beheaded, remarking, that if his discovery were known, gold would soon be held of as little value as common clay. This is probably another version of the story told by Pliny, of an artificer who made the same discovery, and whose workshop was demolished by those who had an interest in preventing the introduction of an article which would lower the value of gold, silver, and brass. Although it might not be justifiable to give unqualified disbelief to these stories, yet the knowledge we at present possess would restrict the possibility of such a discovery within the narrowest limits. The union of the properties of malleability and vitrification seems to be incompatible. Some metallic substances, by the application of intense heat, are reduced to the state of glass, but at the same time lose their malleability; which fact would seem to imply that it is impossible to communicate the latter property to glass. The extraordinary stories above mentioned have, however, been rationally enough explained by modern chemists. It has been observed by Kunckel, that a composition having a glassy appearance, and sufficiently pliant to be wrought by the hammer, may be formed; and by Neumann, that, in the fusion of muriate of silver, a kind of glass is formed, which may be shaped or beaten into different figures, and may be pronounced in some degree ductile. Blancourt in his *L'Art de la Verrerie*, mentions an artist who presented a bust of ductile glass to the Cardinal Richelieu, minister of Louis XIII. But he does not seem to have been more fortunate than his predecessors; for he was doomed to imprisonment for life, for "the politic reasons," as Blancourt with much simplicity observes (we quote from the translation published in 1699), "which, it is believed, the cardinal entertained from the consideration of the consequences of that secret." which no doubt led him to fear lest the established interests of French glass manufacturers might be injured by the discovery. From expressions used by Blancourt in other parts of his work, we think, that by malleable glass, such as was produced by this artist, he understood some composition similar to those which Kunckel and Neumann discovered, and was not very exact in limiting the term to that vitreous substance which we now generally understand when we speak of glass.

The precise period at which the making of window glass came into practice is not now certainly known. The Roman windows were filled with a semi-transparent substance called *lapis specularis*, a fossil of the class of mica, which readily splits into thin smooth laminæ or plates. This substance is found in masses of 10 or 12 inches in breadth, and three in thickness; and, when sliced, very much resembles horn, instead of which it is to this day often employed by lantern-makers. The Romans were chiefly supplied with this article from the island of Cyprus, where it abounds. So good a substitute for glass it is said to have been, that, besides being employed for the admission of light into the Roman houses, it was also used in the construction of hot-houses, for raising and protecting delicate plants; so that, by using it, the Emperor Tiberius had cucumbers at his table throughout the whole year. It is still much employed in Russia instead of glass for windows.

There is no positive mention of the use of glass for windows before the time of Lactantius, at the close of the third century. But the passage in that writer which records the fact (*De Opif. Dei*, cap. 8), also shows that the *lapis specularis* still retained its place. Glass windows are distinctly mentioned by St. Jerome, as being used in his time (A. D. 422). After this period we meet with frequent mention of them. Joannes Philippinus (A. D. 630) states that glass was fastened into the windws with plaster.

The Venerable Bede asserts that glass windows were first introduced into England in the year 674, by the Abbot Benedict, who brought over artificers skilled in the art of making window glass, to glaze the church and monastery of Wearmouth. The use of window glass, however, was then, and for many centuries afterward, confined entirely to buildings appropriated to religious purposes; but in the 14th century it was so much in demand, though still confined to sacred edifices and ornamental purposes, that glazing had become a regular trade. This appears from a contract entered into by the church authorities of York Cathedral, in 1338, with a glazier, to glaze the west windows of that structure; a piece of work which he undertook to perform at the rate of sixpence per foot for white glass, and one shilling per foot for colored. Glass windows, however, did not become common in England till the close of the 12th century. Until this period they were rarely to be found in private houses, and were deemed a great luxury, and a token of great magnificence. The windows of the houses were till then filled with oiled paper, or wooden lattices. In cathedrals, these and sheets of linen supplied the place of glass till the 8th century; in meaner edifices lattices continued in use till the 18th.

The glass of the Venetians was superior to any made elsewhere, and for many years commanded the market of nearly all Europe. Their most extensive glassworks were established at Murano, a small village in the neighborhood of Venice; but the produce was always recognized by the name of Venetian glass. Baron von Lowhen, in his *Analysis of Nobility in its Origin*, states that, "so useful were the glass-makers at one period in Venice, and so great the revenue accruing to the republic from their manufacture, that, to encourage the men engaged in it to remain in Murano, the senate made them all burgesses of Venice, and allowed nobles to marry their daughters; whereas, if a nobleman married the daughter of any other tradesman, the issue were not reputed noble."

The skill of the Venetians in glass-making was especially remarkable in the excellence of their mirrors. Beckman, who has minutely investigated the subject, is of opinion that the manufacture of glass mirrors certainly was attempted, but not with complete success, in Sidon, at a very early period; but that they fell into disuse, and were almost forgotten until the 13th century. Previously to this period, plates of polished metal were used at the toilette; and in the rudeness of the first ideas which suggested the substitution of glass, the plates were made of a deep black color to imitate them. Black foil even, was laid behind them to increase their opacity. The metal mirrors, however, remained in use long after the introduction of their fragile rivals, but at length they wholly disappeared; a result effected chiefly by the skill of the Venetians, who improved their manufacture to such a degree that they speedily acquired a celebrity which secured an immense sale for them throughout all Europe.

Italy.—From Italy the art of glass-making found its way into France, where an attempt was made, in the year 1634, to rival the Venetians in the manufacture of mirrors. The first essay was unsuccessful; but another, made in 1665, under the patronage of the celebrated Colbert, in which French workmen who had acquired a knowledge of the art at Murano were employed, had better fortune. But a few years afterward, this establishment, which was situated in the village of Tourlaville, near Cherbourg in Lower Normandy, was also threatened with ruin by a discovery or rather improvement in the art of glass-making, effected by one Abraham Thevart. This improvement consisted in casting glass of much larger dimensions than it had hitherto been deemed possible to do. Thevart's first plates were cast at Paris, and astonished every artist by their magnitude. They were 84 inches long and 50 inches wide, whereas none previously made exceeded 45 or 50 inches in length. Thevart was bound by his patent to make all his plates at least 60 inches in length and 40 in breadth. In 1695 the two companies, Thevart's and that at Tourlaville, united their interest, but were so unsuccessful, that, in 1701, they were unable to pay their debts, and were, in consequence, compelled to discharge most of their workmen, and abandon several of their furnaces. Next year, however, a company was formed under the management of Antoine d'Agincourt, who re-engaged the discharged workmen; and the works realized considerable profits to the proprietors, a circumstance which is attributed wholly to the prudent management of D'Agincourt.

France.—Early in the 14th century, the French government made a concession in favor of glass-making, by decreeing that not only should no derogation from nobility follow the practice of the art, but that none save gentlemen, or the sons of noblemen should venture to engage in any of its branches, even as working artisans. This limitation was accompanied by a grant of a royal charter of incorporation, conveying important privileges, under which the occupation became eventually a source of great wealth to several families of distinction.

England.—It has been said that the manufacture of window glass was first introduced into England in the year 1557. But a contract, quoted by Horace Walpole in his *Anecdotes of Painting*, proves that this article was made in England upward of a century before that period. This curious document is dated in 1439, and bears to be a contract between the Countess of Warwick and John Prudde of Westminster, glazier, whom she employed with other tradesmen, to erect and embellish a magnificent tomb for the earl, her husband. John Prudde is thereby bound to use "no glass of England, but glass from beyond seas;" a stipulation which, besides showing that the art of making window glass was known and practiced in England in the 15th century, seems also to indicate that it was inferior to what could be obtained from abroad. The finer sort of window glass was made at Crutched Friars, London, in 1557. In the year 1635, Sir Robert Maxwell introduced the use of coal fuel instead of wood, and procured workmen from Venice; but many years elapsed before the English manufactories equaled the Venetian and French in the quality of these articles. The first flint glass made in England was manufactured at the Savoy House, in the Strand; and the first plate glass, for looking-glasses, coach-windows, and similar purposes, was made at Lambeth by Venetian workmen, brought over in 1670 by the Duke of Buckingham. From that period the English glass manufactories, aided by the liberal bounties granted them in cash upon glass sold for export, became powerful and successful rivals of the Venetian and French manufactories. The bounty on glass exported, which the government paid to the manufacturer, was not derived from any tax by impost, or excise, previously laid; for all such were returned to the manufacturer together with the bounty, thereby lessening the actual cost of the article from 25 to 50 per cent., and enabling the English exporter to compete successfully in foreign markets. This bounty provision was annulled during the premiership of Sir Robert Peel, together with all the excise duty on home consumption.

Scotland.—The art of glass-making was introduced into Scotland in the reign of James VI. An exclusive right to manufacture it within the kingdom, for the space of 31 years, was granted by that monarch to

Lord George Hay, in the year 1610. This right his lordship transferred in 1627, for a considerable sum, to Thomas Robinson, merchant-tailor in London, who again disposed of it for £250, to Sir Robert Mansell, vice-admiral of England. The first manufactory of glass in Scotland, an extremely rude one, was established at Wemyss in Fife. Regular works were afterwards commenced at Prestonpans, Leith, and Dumbarton. Crown glass is now manufactured at Warrington, St. Helens, Eccleston, Old Swan, and Newtown, Lancashire; at Birmingham, Hunslet near Leeds, and Bristol. It is also manufactured of excellent quality on the Tyne and Wear. Great improvements have recently been made in the manufacture of crown glass; and we believe this article, as made in England, is superior in quality to that of any other nation.—E. B.

Colored Glass.—It has already been stated that the Romans combined the most brilliant colors in their mosaics; and there can be little doubt that these mosaics gave the first idea of painted or stained glass for windows in the early Christian churches. In all the early specimens of Norman glass, similar coloring and design are to be traced. Starting from the fourth century, there is frequent mention of colored glass windows by Greek and Latin authors. St. John Chrysostom and St. Jerome talk of "windows of divers colors;" and Lactantius says, "that the soul perceives objects through our bodily eyes as through windows garnished with transparent glass." The early basilicas were all adorned with colored glass, and the early Christian poets sung in ecstacies of the effect produced by the windows at sunrise. In the sixth century, Prudentia, speaking of one of these structures, says:—"The magnificence of this temple is truly regal. The pious prince who consecrated it has caused the vaults to be painted at great expense, and has clothed it with golden walls, so that the light of day may repeat the fire of the morning. In the windows is placed glass of various colors, which shine like meadows decked in the flowers of spring." An inscription on Sta. Agnese states, that that basilica, rebuilt by the Emperor Honorius, was decorated with glass, which produced the most magnificent effect. In the sixth century, Santa Sophia, at Constantinople, also received painted windows, which Paul the Silent praises highly, Procopius says, that day seemed to be born under the vaults of the temple; and after such glowing descriptions it can not be doubted that the glass was stained, not colorless. The use of colored glass, however, was not confined to Greece and Italy. It rapidly appeared in Gaul. Gregory of Tours, in the sixth century, also tells us that the church of St. Julien de Brionde, in that town, had colored glass windows; and the Bishop of Poictiers, describing Nôtre Dame of Paris, admired the effect produced by the light falling upon the vaults and walls after passing through the painted glass, and compares it to the first tints of the morning sun. There are many good reasons for supposing that the art of coloring glass is coeval with the art of glass-making itself. It is certain that the art was known in Egypt at least 3000 years ago. We have already mentioned the beautiful imitations of precious stones, found adorning mummies which are known to have existed for that time. We meet with frequent mention of specimens of eastern workmanship of consummate beauty, upon which great value was placed. The works of Caylus and Winkelmann furnish some striking instances of ancient skill in the formation of pictures by means of delicate glass fibres of various hues, which, after being fitted together with the utmost nicety, were conglutinated by fusion into a solid mass. The art of combining the various colors so as to produce pictures, such as is now practiced, is comparatively of recent date. The earliest specimens of this kind of work discover a fictitious oining of different pieces of glass, differently tinged and arranged so as, by a species of mosaic work, to produce the figure or figures wanted. The various pieces are held together generally by a vein of lead, run upon the back of the picture, precisely at their junction. See article Glass, *En. Brit.*; Ure's *Dict.*

Painted Glass.—In England, St. Wilfred, who lived early in the 8th century, is said to have been the first to introduce painted glass windows, and for that purpose had workmen brought from France or Italy. The first painted glass executed in England was in the time of King John; previously to this, all stained or painted glass was imported from Italy. The next notice of it occurs in the reign of Henry III. The treasurer of that monarch orders that there be painted on three glass windows in the chapel of St. John, a little Virgin Mary holding the child, and the Trinity, and St. John the Apostle. Some time after, he issues another mandate for two painted windows in the hall. Even at this early period, however, England boasted of eminent native artists in glass painting, among the first of whom was John Thornton, glazier, of Coventry. This person was employed in the time of Henry IV., by the dean and chapter of York cathedral, to paint the eastern window of that splendid edifice; and for the beautiful and masterly workmanship which he exhibited in this specimen of his skill, he received four shillings per week of regular wages. He was bound to finish the work in less than three years, and to receive, over and above the weekly allowance, 100s. for each year; and if the work was done to the satisfaction of his employers, he was to receive, on its completion, a further sum of £10. From this period downward there have been many skillful native artists, although the Reformation greatly impeded the progress of the art, by banishing the ungodly ostentation of ornamented windows from churches; indeed, so serious was this interruption, that the art had nearly altogether disappeared in the time of Elizabeth. Among the most eminent glass painters who first appeared upon the revival of the art, were Isaac Oliver, born in 1616, and William Price, who lived about the close of the seventeenth century. This artist was succeeded by a person at Birmingham, who, in 1757, fitted up a window for Lord Lyttleton, in the church of Hagley. To him succeeded one Pecket of York, who attained considerable notoriety, but who was entirely ignorant of the true principles of the art.

During all this time, however, and indeed until a comparatively recent date, painted glass was regarded as too costly and too magnificent an article to be otherwise employed than in decorating religious edifices or the palaces of nobles; and even in the latter case it was but sparingly used. Modern improvement has placed this beautiful ornament within the reach of very ordinary circumstances; and the art of staining glass is now practiced with great success, and is extensively used in decorating our domestic as well as our palatial and ecclesiastical architecture. The colors of modern artists, we venture to allege, notwithstanding what is often urged to the contrary, equal in variety and richness those of the ancients, and, with the superior knowledge which we now possess of the principles of drawing, and of bringing several colors together on a single sheet, encouragement alone is wanting to attract artists of talent and inventive genius to the pursuit of the art, and to carry it to a greater height of excellence than it has ever reached in the hands of their predecessors.

United States.—The manufacture of glass was introduced into the American States in 1780 by Robert Hewes, a citizen of Boston, who erected a factory in the then forest of New Hampshire. The chief aim of Mr. Hewes was to supply window glass, but he did not succeed. Another attempt was made in 1800, when a factory was built in Boston for making crown window glass; but this was also unsuccessful, till a German named Lint, in 1803, took charge of the works, and the State of Massachusetts agreed to pay the proprietors a bounty on every table of window glass they made; after which the manufacture was carried on successfully, the glass steadily improving in quality, and becoming famed through all the States as Boston window glass. The same Company, in the year 1822, erected new and more extensive works at Boston. The mystery attached to the art of glass-making, followed it into America. The glass-blower was considered a magician, and myriads visited the newly-erected works, looking on the man who could transmute earthy and opaque matter into a transparent and brilliant substance, as an alchemist who could transmute base metal into gold.

Since the manufacture of flint glass was introduced into the eastern States, there have been above 40 companies formed from time to time, nearly 30 of which have proved failures. There are now 10 in operation, two of which are at East Cambridge, three at South Boston, one at Sandwich, three near New York city, and one at Philadelphia. 48,000 tons of coal, 6500 tons of silex, 2500 tons ash, nitre, etc., and 3800 tons of lead are annually consumed in the manufacture of flint glass. In the vicinity of Pittsburg, in the western States, are nine manufactories of flint glass and 10 of window glass, and in the river towns are 15 window glass factories. The following statement of the imports of glass is from official sources.

IMPORTATIONS OF GLASS AND MANUFACTURES OF GLASS INTO THE UNITED STATES FOR THE FISCAL YEAR ENDING 30TH JUNE, 1856.

Whence imported.	Silvered.	Paintings on glass, porcelain, and colored.	Polished plate.	Manufactures of, not specified.	Glass ware.		Watch crystals.		Bottles.		Demijohns.		Window glass. Broad, crown, and cylinder.	
					Cut.	Plain.								
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Gross.	Dollars.	Gross.	Dollars.	No.	Dollars.	Sq. feet.	Dollars.
Danish W. Indies	....	....	....	56	....	....	....	....	....	....	....	....	....	....
Hamburg	23,667	15,130	8	8,293	17,917	12,017	....	....	123	583	6,791	1,547	189,234	4,129
Bremen	260,940	3,520	40,515	30,110	9,347	9,007	225	720	4,237	11,294	45,910	10,382	61,819	2,350
Holland	....	200	....	333	178	773	....	....	305	1,692	....	....	....	....
Belgium	25,907	468	87,371	1,044	38,437	22,799	....	....	19	125	....	....	13,207,500	406,361
England	3,837	23,067	130,316	33,746	4,181	11,496	15,042	26,939	1,331	6,773	....	....	1,403,382	55,012
Scotland	....	....	....	321	68	40	....	....	551	2,442	....	....	....	....
Canada	....	....	....	499	60	....	....	...	15	120	1	1	....	....
British N. A. Poss	....	....	....	77	....	....	....	....	....	....	10	8	....	....
British W. Indies	15	....	....	....	....	....	....	....	7	24	....	....	....	....
British Honduras	....	....	....	....	....	....	....	....	7	20	....	....	....	....
France on Atlantic	16,292	1,193	214,995	29,183	10,735	18,739	827	2,350	11,682	69,393	32,927	6,831	643,126	20,074
France on Medit.	....	....	....	25	....	....	....	....	518	1,976	....	....	....	....
Philippine Isls.	....	....	....	56	....	....	....	....	....	....	....	....	....	....
Cuba	....	....	....	....	15	....	....	....	....	....	....	....	12,533	501
Porto Rico	....	....	....	132	....	....	....	....	....	....	....	....	....	....
Portugal	....	....	....	....	....	....	....	....	60	426	....	....	....	....
Tuscany	....	....	....	....	40	5	....	....	42	405	....	....	310	10
Austria	....	....	....	4,296	....	....	....	....	....	....	....	....	...	....
Turkey in Asia	....	....	....	135	....	....	....	....	....	....	....	....	....	....
Hayti	8	....	....	....	....	....	....	....	....	....	....	....	....	....
Mexico	....	....	....	....	....	....	....	....	3	12	....	....	....	....
New Granada	....	....	....	78	....	100	10	27	....	....	....	....	....	....
Venezuela	....	....	....	....	....	....	....	....	2	7	....	....	....	....
Chili	....	....	....	....	....	....	....	....	....	....	1,550	645	....	....
Ecuador	....	....	....	12	....	....	....	....	....	....	....	....	....	....
China	54	....	....	15	....	....	....	....	....	....	....	....	....	....
Total	330,720	43,578	473,205	108,416	80,978	74,976	16,104	30,036	18,902	95,292	87,189	19,414	15,467,904	488,437

Gloves (Ger. *Handschuhe*; Fr. *Gantz*; It. *Guanti*; Sp. *Guantes*; Rus. *Rukawizii*, *Pertschatki*, *Golizii*), well known articles of dress used for covering the hands, usually made of leather, but frequently also of cotton, wool, silk, etc. The leather used in the manufacture of gloves is not, properly speaking, tanned, but prepared by a peculiar process that renders it soft and pliable. Some sorts of leather gloves admit of being washed, and others not. It is, however, impossible to obtain any trustworthy accounts of the numbers produced. Gloves are sometimes sewed by machinery; but this is done only to improve the work by rendering the stitches more correctly equidistant, as it is not cheaper than manual labor. Limerick used to be famous for the manufacture of a sort of ladies' gloves, called chicken gloves. Large quantities of cotton gloves are made at Nottingham and Leicester.

The use of gloves is of high antiquity. There is reason to believe the ancient Persians wore them, since it is mentioned in the *Cyropædia* of Xenophon that on one occasion Cyrus went without his gloves; and we know they were used by the Greeks and Romans in certain kinds of manual labor. During the middle ages, gloves were worn by ecclesiastical dignitaries and others as a mark of distinction; but as civilization advanced they gradually became common to all classes of the community. The glove manufacture has long been an important branch of industry. The materials employed are very various, including the skin of the chamois, kid, lamb, beaver, doe, elk, and other animals, besides cotton, wool, silk, linen thread, etc. Glove-leather is prepared by curing the skins with alum, which renders them soft and pliable. The kid gloves of France continue to maintain their superiority over the kid gloves of British make, and are very largely imported into this country. This also holds true of the ordinary French leather, the durability of which, combined with superiority of style and fitting, has occasioned the French boots and shoes to be preferred to those of British manufacture. Machinery is sometimes employed in sewing and pointing leather gloves, though only on a very limited scale in this country, almost the whole being made by the hand, and for the most part by females; but in Paris it is much used, and is said to have had the effect of reducing the price of gloves 30 per cent. below their former wholesale prices.

Glue, inspissated animal jelly, much used as a cement, especially for wood. It is made from various animal substances, according to the uses for which it is designed. Common glue is prepared from the parings of hides, hoofs, and other offal, which are first digested in limewater to free them from grease and all extraneous matter, then washed in water, and afterward boiled. The viscid solution thus obtained is first strained through a wicker basket, and then gently evaporated to a proper consistence. The heat is generally so regulated as to keep the liquid near the boiling point, without entering into ebullition. The liquid glue is poured into flat molds; and when it has become firm, it is cut up into square pieces, and placed on a coarse net to dry. Glue improves by age, and that is considered as the best which, if steeped in cold water for 3 or 4 days, swells without melting, and resumes its former dimensions after being dried. The clear pale brown glue is the best, though the darker and less pure is often ignorantly preferred. A transparent and beautiful glue is made of the shreds and parings of vellum, fine white leather, or of isinglass. See also GELATINE.

A preparation of glue, convenient on account of the facility with which it is rendered fit for immediate use, is made by adding a small portion of any good spirit, or of wood naphtha, to melted glue. It is to be kept in a well-corked bottle, and when required for use may readily be liquefied by placing the bottle in hot water. It answers all the purposes of ordinary glue.

Indian Glue, as it is called, consists of common glue melted with a little sugar, and molded for convenience into small flat cakes. When used, the edge of the cake is moistened, and rubbed upon the surfaces to be united. It is a slight cement, used only for such purposes as mending prints, etc.

Jeffery's Marine Glue.—This powerful cement has been successfully used as a substitute for pitch in the seams of decks, as well as for strengthening large timbers for naval purposes. It is said to consist of caoutchouc dissolved in coal naphtha, to which shellac (previously dissolved in wood naphtha?) in proper proportions is afterward added. The joinings of built masts secured with this cement are said to have resisted separation by the wedge after ten years' service.

Liquid Glue.—Under this name is frequently sold a cement consisting of shellac dissolved in wood naphtha.—E. B.

Gluten, a viscid, elastic, grayish-colored substance which exists in greater or less quantity in most plants that afford farina, as well as in the leaves of many esculent vegetables (such as the cabbage for instance), but more particularly in wheat, which of all the cerealia appears to contain, in proportion to its bulk, the greatest amount of nutriment, a property derived from its abounding in this substance. Gluten may be readily obtained from wheaten flour by making it into a paste, and then working the mass with the hands below a stream of water, when the starch and other soluble matter are carried away, and the gluten remains in a pure state. In its properties, gluten bears a strong resemblance to animal substances; and, indeed, it is found by chemical analysis to contain a large portion of nitrogen. Hence it may be considered as the most animalized of vegetable products.

Glycerin. Oils and fats, whether of animal or vegetable origin, are compounds of certain acids, such as the stearic, margaric, and oleic, with a base named glycerin. (See OIL.) Fatty substances may, in fact, be represented as salts of glycerin, and as such are capable of being resolved into their proximate elements like other salts. Thus, in the process of soap-making, a fat or an oil is saponified by means of potash or soda; that is, the caustic alkali unites with the stearic, margaric, or oleic acid, and glycerin is set free. If for example, the stearate of glycerin be treated with caustic soda, the stearic acid unites with the soda, and forms stearate of soda, while the glycerin is liberated. A fatty body may also be decomposed by means of oxyd of lead, as in the process for making diachylon plaster (*Emplastrum plumbi*). By boiling a mixture of finely pulverized or newly precipitated oxyd of lead in water with any ordinary fat or oil, the lead unites with the fatty acids, and forms a solid compound, while the glycerin dissolves in the water. The solution contains a considerable portion of lead, which may be separated by passing sulphuretted hydrogen through it, and filtering; the solution is then evaporated to the consistence of syrup, and the evaporation is completed *in vacuo*, in the presence of sulphuric acid, until it ceases to lose weight.

The uncrystallizable inodorous syrup thus obtained has a sweet taste, and was hence termed by Scheele, who discovered it in 1789, the *sweet principle of oils*, or *glycerin*, from γλυκυς, sweet; but it was not until Chevreul undertook the investigation of fatty substances in general that the true chemical relations of this body were understood.—E. B.

Gobelin Tapestry. Tapestry, so called from a noted house in Paris, in the suburb of St. Marcel; formerly possessed by famous wool-dyers, whereof the chief, called Giles Gobelin, who lived in the reign of Francis I., is said to have found the secret of dyeing scarlet, which was from him called the scarlet of the Gobelins; the house and river that runs by it also took the same name. This house was purchased by Louis XIV., for a manufactory of all manner of curious works for adorning the royal palaces, under the direction of Monsieur Colbert, especially tapestry; designs for which were drawn by the celebrated Le Brun, by appointment of the king, A. D. 1666.—*Du Fresnoy.*

Gold (Ger. *Gold*; Du. *Goud*; Da. and Sw. *Guld*; Fr. *Or*; It. and Sp. *Oro*; Port. *Oiro*, *Ouro*; Rus. *Soloto*; Pol. *Zloto*; Lat. *Aurum*; Arab. *Tibr* and *Zeheb*; Sans. *Swarna*; Malay *Mās*), the most precious of all the metals, seems to have been known from the earliest antiquity. It is of an orange red, or reddish yellow color, and has no perceptible taste or smell. Its lustre is considerable, yielding only to that of platinum, steel, silver, and mercury. It is rather softer than silver. Its specific gravity is 19·3. No other substance is equal to it in ductility and malleability. It may be beaten out into leaves so thin that one grain of gold will cover 56¾ square inches. These leaves are only 1-282000 of an inch thick. But the gold leaf with which silver wire is covered has only 1-12th of that thickness. An ounce of gold upon silver is capable of being extended more than 1300 miles in length. Its tenacity is considerable, though in this respect it yields to iron, copper, platinum, and silver. From the experiments of Seckingen, it appears that a gold wire 0·078 inch in diameter is capable of supporting a weight of 150·07 lbs. avoirdupois without breaking. It melts at 32° of Wedgwood's pyrometer. When melted, it assumes a bright bluish green color. It expands in the act of fusion, and consequently contracts while becoming solid more than most metals; a circumstance which renders it less proper for casting in molds.—THOMSON'S *Chemistry*.

Gold is, next to iron, the most widely-diffused metal on the face of the earth. It occurs in granite, the oldest rock known to us, and in all the rocks derived from it; it is also found in the vein-stones which traverse other geological formations. From other metals it is readily distinguished by its reddish-yellow color, and from metallic compounds of a similar tint by its high specific gravity, which varies from 19·2 when it is fused, to 19·4 or 19.5 when it is hammered. Its chemical equivalent on the hydrogen scale is generally taken as 98·5, but some prefer to double this and make its atomic weight 197. Its symbol is *Au*, from the Latin *Aurum*. Unlike the great majority of the metals, it does not rust, *i. e.*, oxydize in the air, neither does it, if pure, tarnish by exposure. In this respect, it contrasts strikingly with silver, which, though indifferent to the rusting action of oxygen, is rapidly blackened by the sulphuretted hydrogen of the atmosphere. Exposed gilding tarnishes, but only because it is alloyed with silver and copper, on which this prejudicial gas can act.

Gold is readily crystallizable, and always assumes one or other of the symmetrical shapes, such as the cube, or regular octahedron, which characterizes the simplest crystallographic system. It is softer than silver, and nearly as soft as lead, so that in tenacity it is inferior to copper, silver, iron, and platinum, and a wire 1-10th of an inch in diameter will support, without breaking, only 191 lbs. On the other hand, it is the most ductile and malleable of the metals. One grain can be hammered into leaves sufficient to cover 56¾ square inches, and the thickness of the gold-leaf will not then exceed 1-282000 of an inch. When of this temper it is transparent, and transmits a faint but beautiful bluish-green light. Gold melts at a high white heat, and remains unchanged in the hottest furnaces. In the focus of a lens, however, it is vaporized by the sun's rays; and the oxyhydrogen blow-pipe or a large voltaic battery can also develop heat sufficient to volatilize it. It contracts in the act of solidifying from a state of fusion, and can not, in consequence, be made to receive sharp impressions by casting it in molds. Coins, accordingly, and plate are stamped or embossed, and afterward ebased and carved, if necessary, by cutting tools.

Gold does not dissolve in any of the ordinary acids, such as the nitric, sulphuric, hydrochloric, or acetic, but a rare acid, the selenic, can dissolve it. Its best solvent is a mixture of hydrochloric acid, with some oxydizing agent like nitric acid or oxyd of manganese, which causes the hydrochloric acid to part with its chlorine. If the gold be in leaf, chlorine at once unites with it, and the resulting chlorid is readily soluble in water. Bromine acts in the same way on the metal; and it may also be dissolved by boiling it with sulphur, potash, and water. The older chemists speculated on the possibility of Moses having dissolved the golden calf of the Israelites in this way. Gold is also soluble in mercury, and advantage is largely taken of this property of quicksilver to dissolve the precious metal from its ores. The gold-amalgam resulting from the union of the metals is also extensively employed in gilding. The most important chemical compounds of gold are the following, in referring to which the equivalent of gold is taken as 98·5.

The chlorids are two in number. The sesquichlorid, Au_2Cl_3, is prepared in the mode above mentioned. It forms orange-red crystals, but in aqueous solution appears yellow. It is very easily decomposed by heat, light, organic substances, and all deoxydizing or reducing agents. A solution of this salt in sulphuric ether is sometimes used for gilding steel. The aqueous solution is employed in photography, and from it nearly all the other useful preparations of gold are made. When this salt is heated cautiously to about 392° Fahr., it loses two thirds of its chlorine, and becomes the sub-chlorid Au_2Cl.

The oxyds correspond to the chlorids, and are obtained from them. The only important one is the sesquioxyd Au_2O_3, prepared by precipitating the corresponding chlorid by magnesia, and washing the precipitate with nitric acid and water. This oxyd is of a yellow or brown color, and by solution in potash, in cyanide of potassium, or sulphite of soda, forms a liquid which is used in gilding. A solution of the oxyd in hyposulphite of soda is employed to protect and make more visible daguerreotype portraits on silver. The sulphurets of gold are not important.

Gold is readily identified by chemical tests. When its color and specific gravity can not be appealed to as means of identification, its behavior with the stronger liquor re-agents is had recourse to. It resists the solvent action of the most powerful acids or alkalies taken singly, but at once dissolves in *aqua regia* (a mixture of nitric and hydrochloric acids), or in any similar liquid containing free chlorine. The resulting solution is tested—1. By adding to it a solution of protosulphate of iron. This causes the gold to separate in the condition of a very fine powder, which remains for hours suspended in the liquid, although it is more than nineteen times heavier than watar. The finely-divided metal appears brown by reflected, and bluish-green by transmitted light, and if dried and rubbed by any smooth solid, acquires the characteristic color and lustre of the metal in mass. 2. By neutralizing the solution with carbonate of potass or soda, and boiling with excess of oxalic acid, when the gold separates in highly characteristic splendent flakes. 3. By adding to the solution diluted, a few drops of solution of protochlorid of tin, when a rich purple precipitate falls. Very minute traces of gold may be discovered in this way. The precipitate, which has gone for centuries by the name of Purple of Cassius, appears to be a compound of oxyd of gold and oxyd of tin (Au_2O, Sn_3O_4). It is used to stain glass ruby-red, and to give to porcelain and enamel a rose-pink, crimson, and purple color.

Gold is found only in the metallic state, sometimes crystallized in the cube, and its derivative forms. It occurs also in threads of various sizes, twisted and interlaced into a chain of minute octahedral crystals; as also in spangles or roundish grains, which, when of a certain magnitude, are called *pepitas*. The small grains are not fragments broken from a greater mass; but they show, by their flattened ovoid shape and their rounded outlines, that this is their original state. The specific gravity of native gold varies from 13·3 to 17·7. Humboldt states that the largest *pepita* known was one found in Peru weighing about 12 kilogrammes (26½ lbs. avoirdupois); but masses have been quoted in the province of Quito which weighed nearly four times as much. Another ore of gold is the alloy with silver, or argental gold, the electrum of Pliny, so called from its amber shade. It seems to be a definite compound, containing in 100 parts, 64 of gold and 36 of silver. The mineral formations in which this metal occurs are the crystalline primitive rocks, the compact transition rocks, the trachytic and trap rocks, and alluvial grounds. It never predominates to such a degree as to constitute veins by itself. It is either disseminated, and as it were impasted in stony masses, or spread out in thin plates, or grains on the surface; or, lastly, planted in their cavities, under the shape of filaments or crystallized twigs. The minerals composing the veins are either quartz, calc. spar, or sulphate of baryta. The ores that accompany the gold in these veins are chiefly iron pyrites, copper pyrites, galena, blende, and mispickel (arsenical pyrites).

In the ores called auriferous pyrites, this metal occurs either in a visible or invisible form; and though invisible in the fresh pyrites, becomes visible by its decomposition; as the hydrated oxyd of iron allows the native gold particles to shine forth on their reddish-brown ground, even when the precious metal may constitute only the five millionth part of its weight, as at Rammelsberg, in the Hartz. In that state it has been extracted with profit; most frequently by amalgamation with mercury, proving that the gold was in the native state, and not in that of a sulphuret.

Gold exists among the primitive strata, disseminated in small grains, spangles, and crystals. Brazil affords a remarkable example of this species of gold mine. Beds of granular quartz, or micaceous specular iron, in the Sierra of Cocães, 12 leagues beyond Villa Rica, which form a portion of a mica-slate district, include a great quantity of native gold in spangles, which in this ferruginous rock replace mica. Gold has never been observed in any secondary formation, but pretty abundantly in its true and primary locality among the trap-rocks of igneous origin; implanted on the sides of the fissures, or disseminated in the veins.

The auriferous ores of Hungary and Transylvania, composed of tellurium, silver pyrites, or sulphuret of silver, and native gold, lie in masses or powerful veins in a rock of trachyte, or in a decomposed feldspar subordinate to it. Such is the locality of the gold ore of Königsberg, of Telkebanya, between Eperies and Tokay, in Hungary, and probably that of the gold ores of Kapnick, Felsobanya, etc., in Transylvania; an arrangement nearly the same with what occurs in equatorial America. The auriferous veins of Guanaxuato, of Real del Monte, and of Villalpando, are similar to those of Schemnitz, in Hungary, as to magnitude, relative position, the nature of the ores they include, and of the rocks they traverse. These districts have impressed all mineralogists with the evidence of the action of volcanic fire. Breislak and Hacquet have described the gold mines of Transylvania as situated in the crater of an ancient volcano. It is certain that the trachytes, which form the principal portions of the rocks including gold, are now almost universally regarded as of igneous or volcanic origin. It would seem, however, that the primary source of the gold is not in these rocks, but rather in the sienites and greenstone porphyries below them, which in Hungary and Transylvania are rich in great auriferous deposits; for gold has never been found in the trachyte of the Euganean Mountains, of the mountains of the Vicentin, of those of Auvergne; all of which are superposed upon granite rocks, barren in metal.

Finally; if it be true that the ancients worked mines of gold in the island of Ischia, it would be another example, and a very remarkable one, of the presence of this metal in trachytes of an origin evidently volcanic.

Gold is, however, much more common in the alluvial grounds than among the primitive and pyrogenous rocks just described. It is found disseminated under the form of spangles, in the silicious, argillaceous, and ferruginous sands of certain plains and rivers, especially in their re-entering angles, at the season of low water, and after storms and temporary floods. It has been supposed that the gold found in the beds of rivers had been torn out by the waters from the veins and primitives rocks, which they traverse. Some have even searched, but in vain, at the source of auriferous streams, for the native bed of this precious metal. The gold in them belongs, however, to the grounds washed by the waters as they glide along. This opinion, suggested at first by Delius, and supported by Deborn, Guettard, Robitant, Balbo, etc., is founded upon just observations. 1. The soil of these plains contains frequently, at a certain depth, and in several spots, spangles of gold separable by washing. 2. The beds of the auriferous rivers and streamlets contain more gold after storms of rain upon the plains than in any other circumstances. 3. It happens almost always that gold is found among the sands of rivers only in a very circumscribed space; on ascending these rivers, their sands cease to afford gold; though, did this metal come from the rocks above, it should be found more abundantly near the source of the rivers. Thus it is known that the Orco contains no gold, except from the Pont to its junction with the Po. The Ticino affords gold only below the Lago Maggiore, and, consequently, far from the primitive mountains, after traversing a lake, where its course is slackened, and into which whatsoever it carried down from these mountains must have been deposited. The Rhine gives more gold near Strasburg than near Basle, though the latter be much closer to the mountains. The sands of the Danube do not contain a grain of gold, while this river runs in a mountainous region; that is, from the frontiers of the bishopric of Passau to Efferding; but its sands become auriferous in the plains below. The same thing is true of the Ems; the sands of the upper portion of this river, as it flows among the mountains of Styria, include no gold; but from its entrance into the plain at Steyer till its embouchure in the Danube its sands become auriferous, and are even rich enough to be washed with profit.

The greater part of the auriferous sands in Europe, Asia, Africa, and America, are black or red, and consequently ferruginous; a remarkable circumstance in the geological position of alluvial gold. M. Napoine supposes that the gold of these ferruginous grounds is due to the decomposition of auriferous pyrites. The auriferous sand occurring in Hungary almost always in the neighborhood of the beds of *lignites*, and the petrified wood, covered with gold grains, found buried at a depth of 55 yards in clay, in the mine of Vorospatak, near Abrabanya, in Transylvania, might lead us to presume that the epoch of the formation of the auriferous alluvia is not remote from that of the lignites. The same association of gold ore and fossil wood occurs in South America, at Moco. Near the village of Lloro have been discovered, at the depth of 20 feet, large trunks of petrified trees, surrounded with fragments of trap-rocks, interspersed with spangles of gold and platinum. But the alluvial soil affords likewise all the characters of the basaltic rocks; thus, in France, the Cèze and the Gardon, auriferous rivers, where they afford most gold, flow over ground apparently derived from the destruction of the trap rocks, which occur *in situ* higher up the country. This fact had struck Reaumur; and this celebrated observer had remarked that the sand which more immediately accompanies the gold spangles in most rivers, and particularly in the Rhone and the Rhine, is composed, like that of Ceylon and Expailly, of black protoxyd of iron and small grains of rubies, corindon, hyacinth, etc. Titanium has been observed more recently. It has, lastly, been remarked that the gold of alluvial formations is purer than that extracted from rocks.

Principal Gold Mines.—Spain anciently possessed mines of gold in regular veins, especially in the province of Asturias; but the richness of the American mines had made them to be neglected. The Tagus, and some other streams of that country, were said to roll over golden sands. France contains no workable gold mines; but it presents in several of its rivers auriferous sands. There are some gold mines in Piedmont; particularly the veins of auriferous pyrites of Macugnagna, at the foot of Monte Rosa, lying in a mountain of gneiss; and although they do not contain 10 or 11 grains of gold in a cwt., they have long defrayed the expense of working them. On the southern slope of the Pennine Alps, from the Simplon and Monte Rosa to the Valley of Aoste, several auriferous districts and rivers occur. Such are the torrent Evenson, which has afforded much gold by washing; the Orco, in its passage from the Pont to the Po; the reddish grounds over which this little river runs for several miles, and the hills in the neighborhood of Chivasso, contain gold spangles in considerable quantity.

Ireland.—In the county of Wicklow, in Ireland, a quartzose and ferruginous sand was discovered not long ago, containing many particles of gold, with *pepitas* or solid pieces, one of which weighed 22 ounces. No less than 1000 ounces of gold were collected.

Switzerland.—There are auriferous sands in some rivers of Switzerland, as the Reuss and the Aar. In Germany no mine of gold is worked, except in the territory of Salzburg, amid the chain of mountains which separates the Tyrol and Carinthia.

Hungary.—The mines of Hungary and Transylvania are the only gold mines of any importance in Europe; they are remarkable for their position, the peculiar metals that accompany them, and the product, estimated at about 1,430 pounds avoirdupois annually. The principal ones are in Hungary. 1. Those of Königsberg. The native gold is disseminated in ores of sulphuret of silver, which occur in small masses and in veins in a decomposing feldspar rock, amid conglomerate of pumice, constituting a portion of the trachytic formation. 2. Those of Borson, Schmeitz. And, 3. Of Felsobany: ores also of auriferous sulphuret of silver, occur in veins of sienite and greenstone porphyry. 4. Those of Telkebanya, to the south of Kaschau, are in a deposit of auriferous pyrites amid trap rocks of the most recent formation. In Transylvania the gold mines occur in veins often of great magnitude, six, eight, and sometimes forty yards thick. These veins have no side plates or wall stones, but abut without intermediate gangues at the primitive rock. They consist of carious quartz, ferriferous limestone, heavy spar, fluor spar, and sulphuret of silver. The mine of Kapnik deserves notice, where the gold is associated with orpiment, and that of Vorospatak in granite rocks; those of Offenbanya, Zalatna, and Nagy-Ag, where it is associated with tellurium. The last is in a sienitic rock on the limits of the trachyte.

Northern Europe.—In Sweden, the mine of Edelfors in Smoland, may be mentioned, where the gold occurs native and in auriferous pyrites; the veins are a brown quartz, in a mountain of foliated hornstone. In Siberia, native gold occurs in a hornstone at Schlangenberg or Zmeof, and at Zemeino-garsk in the Altai Mountains, accompanied with many other ores.

Russia.—The gold mine of Berezof in the Oural Mountains has been long known, consisting of *partially decomposed auriferous pyrites*, disseminated in a vein of greasy quartz. About 1820, a very rich deposit of native gold was discovered on the eastern side of the Oural Mountains, disseminated at some yards' depth in an argillaceous loam, and accompanied with the *debris* of rocks which usually compose the auriferous alluvial soils, as greenstone, serpentine, protoxyd of iron, corundum, etc. The rivers of this district possess auriferous sands. The product of the gold mines of the Oural, in 1845, was 11,808 pounds avoirdupois, and in 1846, 11,327 pounds; that of Siberia, in 1845, 37,576 pounds, and in 1846, 48,863 pounds. In these accounts the pood has been reckoned at 36 lbs. It is believed that in 1847 and 1849 the yield was still larger, but it must since have materially fallen off, as it is stated in *Erman's Archives* that the yield in 1851 will not exceed 20,000 pounds troy.

In Asia, and especially in its southern districts, there are many mines, streams, rivers, and wastes, which contain this metal. The Pactolus, a small river of Lydia, rolled over such golden sands that it was supposed to contain the origin of the wealth of Crœsus. But these deposits are now poor and forgotten. Japan, Formosa, Ceylon, Java, Sumatra, Borneo, the Philippines, and some of the islands of the Indian Archipelago, are rich in gold mines. Those of Borneo are worked by the Chinese in an alluvial soil on the western coast, at the foot of a chain of volcanic mountains. Little or no gold comes into Europe from Asia, because its servile inhabitants place their fortune in treasure, and love to hoard up that precious metal. Numerous gold mines occur on the two slopes of the chain of the Cailas Mountains in the Oundès, a province of Little Thibet. The gold lies in quartz veins which traverse a very crumbling, reddish granite.

Africa was, with Spain, the source of the greater portion of gold possessed by the ancients. The gold which Africa still brings into the market is always in dust, showing that the metal is obtained by washing the alluvial soils. None of it is collected in the north of that continent; three or four districts only are remarkable for the quantity of gold they produce. The first mines are those of Kordofan, between Darfour and Abyssinia. The negroes transport the gold in quills of the ostrich or vulture. These mines seem to have been known to the ancients, who considered Ethiopia to abound in gold. Herodotus relates that the king of that country exhibited to the embassadors of Cambyses all their prisoners bound with golden chains. The second and chief exploitation of gold dust is to the south of the great desert of Sahara, in the western part of Africa, from the mouth of the Senegal to the Cape of Palms. The gold occurs in spangles, chiefly near the surface of the earth, in the bed of rivulets, and always in a ferruginous earth. In some places the negroes dig wells in the soil to a depth of about 40 feet, unsupported by any props. They do not follow any vein; nor do they construct a gallery. By repeated washings they separate the gold from the earthy matters. The same district furnishes also the greater part of what is carried to Morocco, Fez, and Algiers, by the caravans which go from Timbuctoo on the Niger, across the great desert of Sahara. The gold which arrives by Sennaar at Cairo and Alexandria comes from the same quarter. From Mungo Park's description, it appears that the gold spangles are found usually in a ferruginous small gravel, buried under rolled pebbles. The third spot in Africa where gold is collected is on the south-east coast, between the 25th and the 22d degree of south latitude, opposite to Madagascar, in the country of Sofala. Some persons think that this was the kingdom of Ophir whence Solomon obtained his gold.

There is little gold in the northern part of America. In 1810, a mass of alluvial gold, weighing 28 pounds, was found in the gravel pits of the creeks of Rockhole, district of Lebanon, in North Carolina.'

South America.—Previously to the important discoveries in California, Brazil, Choco, and Chili, were the regions which furnished most gold. The only contributor of Chilian objects to the great exhibition was one who forwarded a lump of gold ore weighing 3 cwt., which was brought up from a deep mine on the back of a miner, from a depth of 45 yards beneath the surface.

The gold of Mexico is in a great measure contained in the argentiferous veins, so numerous in that country, whose principal localities are mentioned under the article SILVER. The silver of the argentiferous ores of Guanaxuato contains one 360th of its weight of gold; the annual product of the mines being valued at from 2,640 to 3,300 lbs. avoirdupois.

Oaxaco contains the only auriferous veins exploited as gold mines in Mexico; they traverse the rocks of gneiss and mica slate.

All the rivers of the province of Caracas, to ten degrees north of the line, flow over golden sands.

Peru is not rich in gold ores. In the provinces of Huailas and Pataz, this metal is mined in veins of greasy quartz, variegated with red, ferruginous spots, which traverse primitive rocks. The mines called *pacos de oro*, consist of ores of iron and copper oxyds, containing a great quantity of gold.

All the gold furnished by New Grenada (New Columbia) is the product of washings established in alluvial grounds. The gold exists in spangles and in grains, disseminated among fragments of greenstone and porphyry. At Choco, along with the gold and platinum, hyacinths, zircons, and titanium occur. There has been found, as already stated, in the auriferous localities, large trunks of petrified trees. The gold of Antioquia is 20 carats fine, that of Choco, 21; and the largest lump or *pepita* of gold weighed about 27½ pounds avoirdupois. The gold of Chili also occurs in alluvial formations. Brazil does not contain any gold mine, properly so called; for the veins containing the metal are seldom worked. It is in the sands of the Mandi, a branch of the Rio Dolce, at Catapreta, that the auriferous ferruginous sands were first discovered in 1682. Since then they have been found almost everywhere at the foot of the immense chain of mountains, which runs nearly parallel with the coast, from the 5th degree south to the 30th. It is particularly near Villa Rica, in the environs of the village Cocães, that the numerous washings for gold are established. The *pepitas* occur in different forms, often adhering to micaceous specular iron. But in the province of Minas Gerães, the gold occurs also in veins, in beds, and in grains, disseminated among the alluvial loams. It has been estimated in annual product, by several authors, at about 2800 pounds avoirdupois of fine metal. We thus see that almost all the gold brought into the market comes from alluvial lands, and is extracted by washing. The gold coin of the ancients was made chiefly out of alluvial gold, for in those early times the metallurgic arts were not sufficiently advanced to enable them to purify it. The gold dust from Bambouk, in Africa, is of 22½ carats fine, and some from Morocco is even 23. The gold of Giron, in New Grenada, is of 23¾ carats—being the purest from America. "For those who traffic in gold," says Humboldt, it is sufficient to know the place where the metal has been collected, to know its title."

IMPORTATIONS OF MANUFACTURES OF GOLD AND SILVER INTO THE UNITED STATES, FOR THE YEAR ENDING JUNE 30TH, 1856.

WHENCE IMPORTED.	MANUFACTURES OF GOLD AND SILVER.			GEMS.		Manufactures of, not specified.
	Epaulets, lace, wings, tassels, etc.	Gold and silver leaf.	Jewelry, real or imitations of.	Set.	Otherwise.	
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Hamburg.......	1,208	232	1,579	....	56	277
Bremen........	13,075	10,597	39,140	144	50,433	4,260
Holland....	....	....	228	....	28	41
Belgium........	....	....	59	....	....	30
England........	22,186	624	231,348	2,938	119,982	47,968
Scotland........	....	....	70	....	....	25
Canada.........	....	....	602	....	....	20
France on Atlan.	18,820	4,945	198,490	2,151	193,211	21,620
France on Medit.	....	....	29	....	....	....
Sardinia........	....	....	169	....	5	204
Tuscany........	....	....	1,711	50	1,354	367
Austria.........	....	....	....	73	2,571	....
Hayti...........	....	....	....	....	....	14
New Granada...	....	4	1,756	1,907	438	729
China..........	....	....	504	....	877	2,188
Total.......	54,784	16,402	475,685	7,263	368,955	77,748

NEW GOLD—NINE YEARS 1849–1856. PRODUCTION IN CALIFORNIA, VICTORIA, AND NEW SOUTH WALES.

PRODUCTION OF GOLD IN VICTORIA.

Years.	Ounces Troy.	Ascertained Exports.	Marginal addition of 10 per cent.	Value of Total Produce.
1851	126,000	£440,000	£44,000	£484,000
1852	1,750,000	6,135,000	613,000	6,748,000
1853	2,475,000	8,664,000	866,000	9,530,000
1854	2,360,000	8,255,000	825,000	9,080,000
1855	3,230,000	11,308,000	1,130,000	12,433,000
1856	3,613,000	12,643,000	1,264,000	13,907,000
Total	13,554,000	47,440,000	4,742,000	52,182,000

PRODUCTION OF GOLD IN NEW SOUTH WALES.

Years.	Ounces Troy.	Ascertained Exports.	Marginal addition of 10 per cent.	Value of Total Produce.
1851	134,000	£468,000	£47,000	£515,000
1852	028,000	3,600,000	360,000	3,960,000
1853	1,509,000	1,781,000	178,000	1,959,000
1854	220,000	773,000	77,000	850,000
1855	59,000	210,000	21,000	231,000
1856	29,000	100,000	10,000	110,000
Total	1,979,000	£6,932,000	£693,000	£7,625,000

PRODUCTION OF GOLD IN CALIFORNIA.

Years.	Ounces Troy.	Ascertained Exports.	Marginal addition of 10 per cent.	Value of Total Produce.
1849	460,000	£1,612,000	£161,000	£1,773,000
1850	1,430,000	5,000,000	500,000	5,500,000
1851	2,357,000	8,250,000	825,000	9,075,000
1852	3,343,000	11,700,000	1,170,000	12,870,000
1853	3,571,000	12,500,000	1,250,000	13,750,000
1854	4,029,000	14,100,000	1,410,000	15,510,000
1855	3,830,000	13,400,000	1,340,000	14,740,000
1856	4,000,000	14,000,000	1,400,000	15,400,000
Total	23,020,000	£80,562,000	£8,056,000	£88,618,000

TOTALS—CALIFORNIA AND AUSTRALIA COMBINED.

Years.	Ounces Troy.	Ascertained Exports.	Marginal addition of 10 per cent.	Value of Total Produce.
1848–9	460,000	£1,612,000	£161,000	£1,773,000
1850	1,430,000	5,000,000	500,000	5,500,000
1851	2,617,000	9,158,000	916,000	10,074,000
1852	6,123,000	21,435,000	2,143,000	23,578,000
1853	6,555,000	22,945,000	2,294,000	25,239,000
1854	6,607,000	23,128,000	2,312,000	25,440,000
1855	7,119,000	24,913,000	2,491,000	27,404,000
1856	7,642,000	26,743,000	2,674,000	29,417,000
Total	38,553,000	£134,934,000	£13,491,000	£148,425,000

Of the general results arising from the large increase in the production of gold since 1849, Mr. Tooke, in his *History of Prices* (1857), says:

"(1.) That from first to last the whole of the manifold and powerful effects produced by the new gold in the countries of its production, resolve themselves into economical changes springing in rapid succession, and in an infinitude of forms, from the expenditure of trebled or quadrupled incomes obtained by the laborers. And (2.) That hitherto the whole of the complicated processes by which the new gold has become distributed—in the first instance, among the population of the gold regions, and in the second instance, over considerable portions of the commercial world—are to be explained by the application of one simple principle, viz.: That the distribution has taken place in the precise proportion in which the extended demand for commodities, originally proceeding from the earliest laborers who picked up the gold, has gradually set in motion increased numbers of laborers and increased amounts of capital, to supply the requirements, not merely of the population of the gold countries, but also more or less of the population of all the countries producing raw materials or manufactured goods upon which incomes are at present expended.

"Springing up around these two general results, there are a multitude of subsidiary, which, if we could thoroughly pursue them to the end of their course, we should discover to be tributaries and offshoots of the two greater principles.

"Foremost in this second category are the proofs and illustrations which meet us everywhere, that the changes flowing from the gold discoveries are principally indebted for the rapidity of their effects to the single circumstance, that of all known substances (silver in some respects excepted) gold is the only commodity which admits of being extracted from the soil in a perfectly marketable state; in large quantities, and by the rudest labor; and of being at once employed as a universal instrument of purchase of intrinsic value. A suddenly-increased supply of no other commodity would produce effects so decided and rapid, for the simple reason that (say) a tenfold quantity of no other commodity could find an instantaneous and impatient market. The Burra-Burra copper mine in South Australia, for example, might have become ten times as productive as it had been previously, without producing any effects more violent or rapid than, first, an increase of dividend to the shareholders; and, gradually, a fall in the price of the kinds of machinery and hardware in which copper is the principal metal.

"In the next place the rise of two or three hundred per cent., which occurred at once in the gold countries in the prices of all kinds of foreign commodities, was speedily corrected by the impulse imparted, almost in a single day, to the resources available for increased production in those foreign countries. And, after the first excitement had abated, the increased production has continued year by year, because the effective demand, in the form of new gold, has continued in the gold countries, year by year. But there has been this most important collateral effect, viz., that, year by year, the circle within which the demand for commodities goes on increasing, is a circle of rapidly-expanding area. Originally, but for a short time only, it included merely the gold countries; it then embraced those particular districts—Lancashire and Birmingham for example—best able to meet the most urgent demands for special articles; it then became extended to the districts which supplied the raw materials of those articles; and pursuing the same order of progression, the area of the increased demand for commodities, or what is a better term, the area within which increased incomes are expended, is necessarily wider in each succeeding month. The same general reasoning applies to the process by which the wages of labor have been reduced in the gold countries by means of immigration.

"The discovery of the new gold was, in its immediate region, the same thing, practically, as rendering labor four times as effective as it had been in the production of those commodities not merely possessing intrinsic value, but instantly exchangeable all over the world for all other commodities possessing intrinsic value. The immigrants drawn to the gold countries by the prospects of high wages and sudden fortune, transferred, in some specific proportion, the benefits of this increased efficacy of labor to the countries from whence they started; and in two modes, namely: in the first place, by establishing at once, as was seen in this country in 1852–1853, a prodigiously-increased price for emigrant vessels, and therefore for the services of all persons connected with ship-building; and, in the second place, by leaving behind them vacancies which could only be supplied by the absorption of labor previously a burden in some form to the community, as was also seen in 1852 and 1853 by the diminution in the number of destitute persons relieved under the Poor Law.

"We seem to arrive, then, at a further generalization, namely: (1.) That within the gold countries the effects of the discoveries have been to create, rapidly and largely, accumulations of real wealth and real resources. The adult population of those countries has been increased three or four fold within as many years. The erection of houses, the cultivation of the soil, the reclamations of waste lands, the construction of railways, the embellishment of towns, the provision of harbors and docks, the foundation of schools and universities, and, more conspicuous than all, the establishment almost at a single stride of an enormous foreign trade—in a few words, the vigorous prosecution of every enterprise, and the swift advancement of every art which can render a country opulent and powerful—are results which have been nearly all accomplished in the gold countries, by the exportation to other countries, year by year, of the supplies of new gold. (2.) That within those other countries to which the gold has been sent in exchange for commodities, the continuous effective demand for commodities has produced the same effects, but in a limited degree, which have taken place in Australia and California. In the United Kingdom, for example, the continuance, year by year, of an effective demand for commodities, has led to improvements and extensions in the means of production; has led to accumulations of capital as savings out of the larger incomes of capitalists and laborers; and has diminished within the country the pressure of unemployed and destitute persons.

"It is manifest, then, that the influx of the £174,000,000 of gold since 1848, has accomplished something very different from, and something very much beyond, the barren addition of a considerable percentage to the previously-existing amount of metallic circulation in this and other countries, and has also accomplished changes far more important than any barren increase (merely by reason of enlarged quantity) in the prices of commodities. It is, moreover, manifest, unless all the previous facts and reasonings are erroneous, that the real and vital changes which have taken place, are additions to the real wealth of the world, by means of greater production and more active enterprise; and that the elements of circulation and price have so far not been ultimate results, but inferior and intermediate agencies employed." See TOOKE'S *History of Prices* (London, 1857); see, also, COINS and PRECIOUS METALS, *post; Bankers' Mag.*, 1851–1857.

Gold-beating. The art of gold-beating is of great antiquity, being referred to by Homer; and Pliny states that one ounce of gold was extended to 750 leaves, each leaf being four fingers square, which is three times the thickness of the ordinary leaf gold of the present time. The ancient Peruvians made very thin sheets of gold, and nailed them together on the walls of their temples of worship; on the coffins of the Theban mummies, specimens of original leaf-gilding are met with where the gold is in so thin a state that it resembles modern gilding. The art seems to have been practiced in India, judging from the rude specimens of gilding at Tippo Saib's palace at Bangalore. In modern times it has been practiced in the capitals of the principal commercial countries of Europe. In England it was confined to London until within the present century. It has been introduced into Scotland and the United States of America within that period. It is now practiced in several towns in England, and to a small extent in Ireland, at Dublin only. The manufacture being attendant upon an advanced state of the arts, it is only found in old established countries, and is not yet practiced in any of the British colonies. From the existence here of some now obsolete tools, similar to those at present in use at Paris, it would appear to have traveled to England from that quarter. The art has nowhere been so perfected as in London; but of late years, from intercourse with English gold-beaters, efforts have been made on the continent, with the aid of English gold-beaters' skin, to rival the extreme fineness of the English product.

The ordinary size of a leaf of gold is 3⅜ inches, for the production of 2000 leaves of which from 18 to 19 dwts. of gold were allowed to the workmen fifty years since in London, but now, owing to the improvement in the quality of the skin, and superior skill on the part of the workmen, not more than an average of 16 dwts. are required, and with very skillful workmen it is sometimes accomplished with 14 dwts. This, however, is not to be taken as any test of the extreme malleability of gold; it is only the point to which it is desirable to attain for commercial purposes.

Experiments have been made to ascertain to what degree of thinness gold and silver could be reduced: it was found that one grain of gold was spread to the extent of 75 square inches, and the same weight of silver to the still more extraordinary dimensions of 98 square inches. Taking one cubic inch of gold at 4900 grains, it will be found that the gold was the 367,650th part of an inch in thickness, or about 1200 times thinner than ordinary printing paper. Thus, if this number of leaves of gold were placed on one another, they would constitute a pile an inch high; the same number of leaves of paper would form a pile half the height of the Monument of London. The silver, though spread over a much larger suface, was thickest, owing to the difference in its specific gravity; but, calculated by weight, silver is the most malleable metal with which we are acquainted, considerably exceeding that of gold. This experiment does not, however, determine the extent of the malleability of either metal, as the means employed to test it were found to fail before there was any appearance of the malleability of the metals being exhausted.

The gold used by the gold-beater is variously alloyed according to the variety of color required. Fine gold is commonly supposed to be incapable of being reduced to thin leaves. This is an error. It is objectionable for commercial purposes on account of its greater cost. It also adheres on one part of a leaf touching another, thus causing a waste of labor by the leaves being spoiled; but for work exposed to the weather it is much preferable, as it is more durable, and does not tarnish or change color. The specimens of gold leaf exhibited by Mr. E. S. Marshall, gold-beater of London, at the great exhibition of 1851, and for which the prize medal was awarded to him, were twelve in number, and embraced a regular gradation in color from red down to nearly white, viz., red, pale red, extra deep, deep, orange, lemon, deep pale, pale, pale-pale, deep party, party, and fine gold. The deeper colors were alloyed with from 12 to 16 grs. of copper per oz., but without any silver, as any alloy of silver with this quantity of copper would considerably impair the malleability. The middle colors contained from 12 to 20 grs. of silver, and from 6 to 8 grs. of copper to the ounce; the paler golds contained from 2 to 20 dwts. of silver to the ounce, but no copper, for the same reason that the silver was omitted in the red golds.

The process of gold-beating is thus conducted. The gold having been alloyed according to the color desired, it is melted in a crucible, at a higher temperature than is simply necessary to fuse it, as its malleability is improved by exposure to a greater heat; sudden cooling does not interfere with its malleable properties, differing in this property from some other metals. It is then cast into an ingot, and flattened into a ribbon of 1½ inch wide and 10 feet in length to the ounce. After being flattened it is annealed and cut into small pieces of about 6 grs. each, and placed between the leaves of a cutch, which is about half an inch thick and 3½ inches square, containing about 160 leaves of a tough paper manufactured in France. Formerly fine vellum was used for this purpose. The cutch is beaten on for about 20 minutes with a 17-pound hammer, which rebounds by the elasticity of the skin, and saves the labor of lifting, by which the gold is spread to the size of the cutch; each leaf is then taken out, and cut into four pieces, and put between the skins of a shoder 4½ inches square and ¾ths of an inch thick, containing about 700 skins, which have been worn out in the finishing process. The shoder requires about two hours' beating upon with a 9-pound hammer. As the gold will spread unequally, the shoder is beaten upon after the larger leaves have reached the edges. The effect of this is, that the larger leaves come out of the edges in a state of dust. This allows time for the smaller leaves to reach the full size of the shoder, thus producing a general evenness of size in the leaves.

Each leaf is again cut into four pieces, and placed between the leaves of a mold composed of about 900 of the finest skins, 5 inches square and ¾ths of an inch thick; this is the last and most difficult stage of the process; and on the fineness of the skin and judgment of the workman the perfection and thinness of the leaf of gold depend. During the first hour the hammer is allowed to fall principally upon the centre of the mold. This causes gaping cracks upon the edges of the leaves, the sides of which readily coalesce and unite without leaving any trace of the union after being beaten upon. At the second hour, when the gold is about the 150,000th of an inch in thickness, it for the first time permits the transmission of the rays of light. In pure gold, or gold but slightly alloyed, the green rays are transmitted; and in gold highly alloyed with silver, the pale violet rays pass. The mold requires in all about four hours' beating with a 7-lb. hammer, when the gold will have arrived at the ordinary thinness for the gold-leaf of commerce. It is then taken out of the mold, and the rough edges are cut off by slips of the rattan fixed in parallel grooves of an instrument called a wagon, the leaf being laid upon a leathern cushion for that purpose. The leaves thus prepared are placed into a book capable of holding 25 leaves each, which have been rubbed over with red ochre to prevent the gold clinging to the paper, and is used for gilding picture-frames, books, and for numerous other ornamental purposes.

The dryness of the cutch, shoder, and mold, is a matter of extreme delicacy. They require to be hot-pressed every time they are used, although they may be used daily, to remove the moisture which they acquire from the atmosphere, except in extremely frosty weather, when they acquire so little moisture that then a difficulty arises from their over-dryness; the brilliancy of the gold is diminished, and it spreads very slowly under the hammer. On the contrary, if the cutch or shoder be damp, the gold will become that which is technically termed hollow or sieve-like; that is, it is pierced with innumerable small microscopical holes; and in the molds in its more attenuated state it will become reduced to a pulverulent state. This condition is more easily produced in alloyed golds than in fine gold. It is necessary that each skin of the mold should be rubbed over with calcined gypsum (the fibrinated variety) each time the mold may be used, in order to prevent the adhesion of the gold to the surface of the skin in the process of beating.

Dentist Gold is gold leaf carried no further in the process than that of the cutch, and should be perfectly pure gold. By the above process silver is beaten, but not so thin, the inferior value of the metal not rendering it commercially desirable to bestow so much labor upon it. Copper, tin, zinc, palladium, lead, cadmium, platinum, and aluminium can be beaten into thin leaves, but not to the extent of gold or silver.

Shell Gold, used in painting and illuminating, is made by grinding gold leaves with honey, and afterward separating the honey from the powdered gold by means of water. When the honey is washed away, the gold may be put on paper or kept in shells. When used, it is commonly diluted with gum water. The German gold powder, prepared in this manner from the Dutch gold leaf, is generally used; and when it is well secured with varnish, it answers the end in japanners' gilding tolerably well.

Gold Size, for burnished gilding, is prepared of 1½ pounds of pipe clay, ½ an ounce of red chalk, ¼ of an ounce of black lead, 40 drops of sweet oil, and 3 drams of pure tallow. The clay, chalk, and black lead are to be ground very fine, separately, in water, then mixed together; the oil and tallow are next added, and the mixture is ground to a due consistence.

Gold Thread is formed of flattened gold wire wrapped closely over a thread of yellow silk, by means of a wheel and iron bobbins.

Gold Wire is made by taking a cylindrical ingot of silver which has been superficially coated with gold, and drawing it successively through a series of holes in a hardened steel plate, each of which is a degree smaller than the preceding hole, and proceeding thus until the requisite degree of fineness is attained. It may be observed that in this process, however fine be the wire, its gilded surface exhibits no flaw even when viewed by the microscope. *Flattened gold wire* is the same wire after it has been passed between rollers of polished steel.

Gold Coast, coast of Africa. The whole coast has been arbitrarily divided into five parts: 1. The Sierra Leone district, from Cape Verga to Cape Mesurado. 2. Malagueta, Pepper or Grain Coast, from Cape Mesurado to Cape Palmas. 3. The Ivory Coast, from Cape Palmas to Cape Three Points. 4. The Gold Coast, from Cape Three Points to the River Volta. 5. The Slave Coast, or Benin district, from the River Volta to the Cameroons.

Gold Coast, a country of Guinea, west Africa, extending along the Atlantic Ocean, from the River Volta on the east, to Cape Lahu on the west, and bounded north by Ashantee. It was discoverod by the Portuguese, who founded an establishment at Fort Elmina in 1482. The English first settled here in 1664. The country is fertile; deer are plenty in the interior, and fish along the coast. Legislature of the British settlements composed of a governor and a legislative council of four members. Salary of lieutenant-governor, £800. The principal European establishments are Cape Coast Castle, Accra, Axim, Dixcove, Elmina, and the establishments lately ceded by Denmark to Great Britain.

The following returns to Parliament (as published by the London *Shipping and Mercantile Gazette*), show the increase of exports to the West Coast of Africa, and of importations from the same coast:

Years.	Exports.	Imports.	Total.
1850	£639,429	£605,958	£1,245,387
1851	654,543	794,810	1,449,353
1852	533,725	707,024	1,240,749
1853	901,402	749,373	1,650,775
1854	958,809	905,634	1,864,443

This is independent of the British colonies of Sierra Leone, the trade of which amounted in 1854 to $1,421,865, and of the British possessions on the Gold Coast and the River Gambia, amounting to $1,547,285 more; and of those at the Cape of Good Hope and in south Africa, swelling the amount $8,383,090 more; making in all an aggregate of over $23,000,000 in 1854, for the western coast of Africa entire.

It has of late been urged that a line of steamers should be established between the United States and the western coast of Africa, to afford greater facilities for commercial intercourse; and the planting of settlements in the interior, as now proposed, remote from the malarious influence of the coast, furnish additional reasons for persevering in this laudable design.

Gold Discovery *in California.* In September, 1847, one Captain Suter or Sutter was a bold, prosperous, enterprising, intelligent settler in Upper California. He was a Swiss by birth; he had served Charles X. as one of the Swiss Guard at the Tuilleries; he emigrated to Missouri after the Bourbon revolution of 1830; he removed thence to the Oregon territory in 1836; he made a further advance, in 1839, to California, where he built a fort named New Helvetia on the River Sacramento; he gradually accumulated around him 4000 oxen, 1500 horses and mules, 2000 sheep, a vast acreage of land under grain crops, and two trading vessels in the river; he had his fort supplied with 12 pieces of artillery, and defended by a garrison of 70 men; and he was thus, in all probability, the wealthiest and most influential man beyond the Rocky Mountains. The month above named was an important one to this bold captain, and to the world at large. He contracted with a Mr. Marshall to construct a saw-mill near a pine forest. The supply of water to this mill was so situated as to wash down much mud and gravel from the higher course of the stream; and Mr. Marshall, watching the progress of his works one day, saw some glittering particles in this mud. He formed his own conclusions of the nature of these shining morsels; and having shown some of them to the captain, it was agreed to keep the matter a secret for a time. Such secrets, however, do not keep; they *will* not keep; it was soon noised abroad that GOLD had been discovered at the American fork of the Sacramento, and a gold fever thereupon sprang up. A few laborers collected some of the gold-dust, and took it for sale to San Francisco, at which town the Sacramento enters the Pacific; hundreds flocked up the river; Indians were hired, soldiers and sailors deserted, shop-keepers closed their shops, and San Francisco became almost abandoned.

Golden Fleece, in *Mythology*, the fleece of the ram upon which Phrixus and Helle crossed the sea to Colchis, and which, being sacrificed to Jupiter, was hung upon a tree in the grove of Mars, guarded by two brazen-hoofed bulls, and a monstrous dragon that never slept. The fleece was carried off by Jason and the Argonauts. Many authors have endeavored to show that this fable is an allegorical representation of some real history; while others explain it by the profit of the wool trade to Colchis, or the gold which was gathered in the rivers of that country by means of fleeces.

Gold-Lace. Gold-lace is a thin covering of gold applied to a surface of silver, which again has a foundation of silk. The silken threads for making this material are wound round with gold wire, so thickly as to conceal the silk; and the making of this gold wire is one of the most singular mechanical operations imaginable. In the first place, the refiner prepares a solid rod of silver, about an inch in thickness; he heats this rod, applies upon the surface a coating of gold-leaf, burnishes this down, applies another coating, burnishes this down, and so on, until the gold is about one hundredth part the thickness of the silver. Then the rod is subjected to a train of processes which brings it down to the state of a fine wire; it is passed through holes in a steel plate, lessening step by step in diameter. The gold never deserts the silver, but adheres closely to it, and shares all its mutations; it was one hundredth part the thickness of the silver at the beginning, and it maintains the same ratio to the end.

As to the thinness to which the gold-coated rod of silver can be brought, the limit depends on the delicacy of human skill; but the most wondrous example ever known was brought forward by the late Dr. Wollaston, a man of extraordinary tact in minute experiments. This was an example of a solid gold wire, without any silver. He procured a small rod of silver, bored a hole through it from end to end, and inserted in this hole the smallest gold wire he could procure; he subjected the silver to the usual wire-drawing process, until he had brought it to the finest attainable state; it was, in fact, a silver wire as fine as a hair, with a gold wire in its centre. How to isolate this gold wire was the next point: he subjected it to warm nitrous acid, by which the silver was dissolved, leaving a gold wire one thirty-thousandth of an inch in thickness—perhaps the thinnest round wire that the hand of man has yet produced. But this wire, though beyond all comparison finer than any employed in manufactures, does not approach in thinness the film of gold on the surface of the silver in gold-lace. It has been calculated that the gold on the very finest silver wire for gold-lace is not more than *one third of one millionth part of an inch* in thickness; that is, not above one tenth the thickness of ordinary leaf-gold!

Gold-Leaf is an extremely thin tissue of gold, prepared by beating the gold metal until the requisite degree of fineness has been obtained. It is found that a minute percentage of silver and copper is necessary to give the gold for gold-leaf a proper malleable quality—a percentage of perhaps one in 70 or 80. The refiner manages this alloy, and brings the costly product to a certain stage of completion; he melts the gold and the cheaper alloys in a black-lead crucible; he pours the molten metal into an ingot mold, six or eight inches long; he removes the solidified and cooled ingot from its mold, and passes it repeatedly between two steel rollers until it assumes the thickness of a ribbon; and this ribbon, about one eight hundredth of an inch in thickness, and presenting a surface of about 500 square inches to an ounce, passes next into the hands of the gold-beater.

The working-tools, the process, and the products of a gold-beater, are all remarkable. That puzzling material, "gold-beaters' skin," is an indispensable aid to him; it is a membrane of extreme thinness and delicacy, but yet tough and strong, procured from the intestines of the ox; 800 pieces of this skin, four inches square, constitute a packet with which the gold-beater labors; and thus he proceeds: 150 bits of ribbon-gold an inch square, are interleaved with as many vellum leaves four inches square; they are beaten for a long time with a ponderous hammer on a smooth marble slab, until the gold has thinned and expanded to the size of the vellum. How the workman manages so as to beat all the pieces equally, and yet beat none into holes, he alone can answer; it is one of the mysteries of his craft. The gold is liberated from its vellum prison, and each piece cut into four; the 150 have thus become 600, and these are interleaved with 600 pieces of gold-beaters' skin, which are then packed into a compact mass. Another beating then takes place —more careful, more delicate, more precise than the former—until the gold, expanded like the silk-worm, as far as its envelop will admit, requires to be again released. The leaves are again divided into four, by which the 600 become 2400; these are divided into three parcels of 800 each, and each parcel is subjected to a third beating. Heavy as the hammers are, there are yet degrees of heaviness: first, a sixteen-pounder gives its weighty thumps, then a twelve-pounder, and in this last operation a hammer of ten pounds is employed. See GOLD BEATING.

Gold-weighing Machine. Mr. Cotton's machine seems, by general consent, to be deemed the most delicate ever yet constructed for weighing gold coin. Its precision is indeed most exquisite. In the transactions between the Bank of England and the public, the weighing of gold coin has been a most anxious and tedious process. As between the bank and the mint, the labor is not so minute; for 200 sovereigns being first accurately weighed, all the rest are weighed in groups of 200. The mint officers are allowed a deviation of 12 grains in about 50 sovereigns; but they generally work to within half of this amount of error; and if the groups of sovereigns are correct within the prescribed limits no closer weighing is adopted. In the transactions between the bank and the public, however, matters must be treated in more detail. Each customer demands that his sovereign should be of proper weight. Hence arises an important part of the daily routine at the bank. Sovereigns which were issued from one counter at the bank as being of full weight, were refused at another counter as being light. The scales may not have been equally delicate, or the liability to error on the part of the weighers may not have been exactly equal. An expert weigher could weigh about 700 sovereigns in an hour by the old balance; but the agitation of the air by the sudden opening of a door, the breathing of persons near the apparatus, the fatigued state of the hand and eye of the weigher—all led to minute errors.

The machine is a pretty, delicate, light affair. There is, in the first place, a small vertical tube, in which a pile of 20 or 30 sovereigns is placed, in single column. The lowermost sovereign rests upon a movable plate; when a handle is turned by the attendant, the plate moves sideways, and the sovereign is brought upon an exquisitely sensitive balance; if the weight is correct, a little lever, arm, or pusher, gives the edge of the sovereign a smart impulse and drives it off into a box; but if the weight be deficient even in the most minute degree, another pusher attacks the sovereign on a different side, and drives it into another box. As the handle is continued in motion, 2 or 3 sovereigns may be in different stages of the weighing process at one time.

As the Bank of England does not take cognizance of gold coins which are too heavy, this machine merely separates sovereigns into two groups, the full and the light; and it does not indicate by how much the light sovereign is deficient. It is therefore only by actual trial that the delicacy of the machine has been tested; if a difference of even a hundredth of a grain existed between 2 sovereigns it is said that this machine would detect it. On a rough average, 30,000 sovereigns pass over the bank counter every day; each machine can weigh 10,000 sovereigns in 6 hours; and there are 6 machines; so that the bank can weigh all its issues of gold by these means, and have reserve power to spare. One of the machines is adjusted for half sovereigns. Between 1844 and 1848 there were 48,000,000 gold coins weighed by these machines at the bank; and bankers and private persons place undoubting reliance on the correctness of the process. Each machine requires an hour's cleaning once a week; the machines cost about £200 each, and are said to be peculiarly free from liability to disarrangement. Besides satisfying the bank, the bankers, and the public, these machines save £1000 a year to the bank in weighers' wages.

Gomuti, or **Ejoo**, a species of palm (*Borassus Gomutus*), growing in the Indian islands. A valuable product is obtained from this palm, resembling *black horse hair;* it is found between the trunk and branches, at the insertion of the latter, in a matted form, interspersed with long, hard, woody twigs of the same color. When freed from the latter, it is manufactured by the natives into cordage. Its fibres are stronger and more durable, but less pliant, than those of the cocoa nut, or coir (see COIR); and is, therefore, fitter for cables and standing rigging, but less fit for running rigging. The native shipping of the eastern islands of all kinds are chiefly equipped with cordage of the gomuti; and the largest European shipping in the Indies use cables of it. It undergoes no preparation but that of spinning and twisting; no material similar to our tar and pitch, indispensable to the preservation of hempen cordage, being necessary with a substance that, in a remarkable degree, possesses the quality of resisting alternations of heat and moisture. The gomuti of Amboyna, and the other Spice islands, is the best. That of Java has a coarse ligneous fibre. Gomuti is generally sold in twisted shreds or yarns, often as low as 1 dollar a picul, and seldom more than 2. Were European ingenuity applied to the improvement of this material, there seems little doubt that it might be rendered more extensively useful.—CRAWFORD'S *East. Archip.*, vol. iii., p. 425.

Gondola, a kind of barge used chiefly on the canals of Venice, where gondolas supply the place of carriages. The gondola is flat-bottomed, very long and narrow (averaging about 30 feet by 4), and its two sharply-pointed extremities are curved upward to the full height of a man. It is also provided with a small chamber placed near its centre, and elevated to a convenient height above the line of the gunwale. It is propelled by oars or a pole, by the gondolier, who stands at the stern. The word gondola is derived by Du Cange from the modern Greek *κουντελας*, a *bark* or *little ship;* Lancelot again deduces it from *γονδυ*, a term in Athenæus for a sort of vase. The gondoliers of Venice were formerly an interesting part of the population, and were noted for the practice of whiling away time by singing alternately stanzas of poems, particularly of Tasso's *Jerusalem Delivered*, though with great changes from the original; but this custom has become almost entirely obsolete.

Gong, a Chinese musical instrument of percussion, formed entirely of metal, which yields a very loud and peculiarly harsh sound when struck with force. It is made of an alloy of tin and copper, and in form it nearly resembles the common tambourine. Gongs are much used in China for making loud sonorous signals, particularly on the canals, as well as for adding to the clangor of martial instruments.

Good Hope, Cape of. Strictly speaking, a small promontory, nearly the most southern point of Africa, but it gives its name to the large tract of country which forms the most southern part of that continent, and is now a colony of Great Britain. It lies for the most part between S. lat. 29° and 34½′, and E. long. 18° and 28′. It is bounded on the north by the Orange and the Gariep Rivers, on the east by the River Keiskamma and Kafraria, on the south by the Southern Ocean, and on the west by the Atlantic. Its extreme breadth is from north to south about 450 miles, and its length from east to west about 600 miles, its area containing about 250,000 square miles. The country rises from the sea by a series of terraces, of which the supporting walls are nearly parallel chains of rugged and barren mountains intersected by deep ravines, the beds of streams, feeble or dry in the summer, but rushing down in torrents in the winter. The first of these mountain ranges of which Drackenstein, Hottentots' Holland, and Lange Kloof form a part, runs from the north-west round the colony toward the east, where it terminates in the promontory of Cape St. Francis. Between it and the sea, on the west coast, the country is sandy and sterile, but on the south and east coast it possesses some good soil, and is clothed with vegetation. The second great chain, containing the Karree Berg, Oliphant's River, Cold Bokkeveld, and Zuurbergen

Mountains, runs parallel to the first and terminates near the mouth of the Great Fish River. Its average height is about 4000 feet, and its greatest about 6500. Between this chain and the first the surface is varied, some parts consisting of arid plains and hills, others of good arable soil with a large portion of excellent grazing land. The third great range also runs nearly parallel to the others, and includes the Kammies Bergen, Roggeveld Bergen, Nieuwveld, and Sneeuw-Bergen Mountains. This is the highest part of the colony, and from it the land gradually descends to the Orange River. Between this range and the second is the vast desolate plain called the Great Karroo, nearly 300 miles in length east and west, and about 90 in breadth north and south. Its soil is a sand mixed with clay, and particles of iron: all soil of a similar character in other parts of the colony is called karroo ground. These mountain chains are mostly composed of sandstone resting upon a base of granite, which are the prevailing rocks, the next in abundance being clay slate, grauwacke, quartz rock, and dolerite. In some parts the ironstone is traversed by veins of red iron ore. Deposits of coal are said to have been discovered in Kafirland and Victoria division, and copper ore has been found in some abundance in Namaqualand.

The Rivers, with exception of the Orange River, are small; they all more or less partake of the character of mountain streams, having numerous falls, and being low and feeble in the dry season, but swollen and rapid in the rainy weather. They are of course not navigable, and their mouths are mostly barred with sand. The Knysna, the Cowe, and the Briede are however accessible, for a short distance from their entrance, to small vessels. The chief rivers are, on the west coast, the Orange, the Elephant, and Great Berg Rivers; on the south coast, the Briede Knysna, Sunday, Cantoos, Great Fish, and Keiskamma. The only one of them deserving special notice is the Orange River, which rises in Kathlamba or Drackenberg Mountains, flows for nearly 1200 miles generally in a westerly direction, and discharges itself into the Atlantic, forming the northern boundary of the colony. It is on the whole a noble stream, and in some parts its banks are shaded by huge willows.

The Soil.—It is considered that about two fifths of the colony consist of arid mountain ridges and sandy plains, unfit either for agriculture or pasture. The remainder is not generally fit for agricultural purposes, although it contains some very fertile spots; a large portion of it, however, especially in the eastern part, affords excellent pasturage for cattle and sheep.

The coast is indented by various bays and inlets; few of them, however, afford convenient harbors. Saldanha Bay, on the west coast, is one of the most extensive and secure havens in this part of the world, but it is rendered comparatively useless by the want of a sufficient quantity of fresh water near it for the supply of shipping. Simon's Bay, near the bottom of False Bay, is a good harbor, and is used as a station for the royal navy. Table Bay, though somewhat protected by Robben Island, is little better than an open roadstead. It affords shelter, however, to ships during the summer months, but in the winter, from May to September, it is very unsafe. Algoa Bay is an open roadstead, but it is the chief port of the eastern province, and is much frequented by ships, which in certain winds can lie in it safely. Mossel Bay and the Cowie are also resorted to by small vessels, but they are little better than open roadsteads.

The climate is generally milder and drier than that of England. December, January, and February are the summer months; June, July, and August the winter. In the western part the summer is dry and clear, but in the east it is wet and stormy. In the vicinity of Cape Town, the highest temperature is about 84°, the lowest about 40°, and the mean of the year about 65°. In the mountainous districts and elevated plains, the heat of summer and the cold of winter are greater.

The vegetation of the colony is remarkably rich and varied. Some of the finest botanical specimens that now adorn the gardens of Europe have been derived from this region. In no other place do bulbous plants and heaths exhibit so many beautiful varieties. Besides a number of other ornamental tribes, there are some plants which might be used in medicine and dyeing. The aloe, however, is the only one which has been made an article of export. The most remarkable trees are, the silver-tree, which only grows in the vicinity of Table Mountain; the Protea; and in the eastern province, the Euphorbia. There is on the whole a scarcity of indigenous timber, though there are in some parts extensive forests. Some of the native woods furnish materials for furniture and the wood-work of houses. The oak, fir, and other European forest trees, have, however, been long since introduced, and thriven very well; some of them have attained a great size, and their wood is extensively used. There are few indigenous fruits, but most of the fruits both in the north and south of Europe, such as grapes, figs, oranges, mulberries, apples, pears, peaches, nectarines, and others, are grown in abundance; but strawberries rarely come to perfection, and the gooseberry can not be raised.

In regard to the zoology of the Cape, there is little to distinguish it from the rest of Africa, under the head of which will be found sufficient information on this subject; we may, however, notice the domestic animals of the colony. Sheep, cattle, and dogs, of an inferior breed, were all possessed by the natives on the discovery of the country. Horses, asses, mules, goats, and inferior breeds of cattle and sheep, have been introduced, and thrive well. The Merino sheep, in particular, has proved a valuable acquisition to the colony. Among the game birds are the bustard, called by the Dutch the pouw, and a smaller kind called the coran, wild duck, teal, snipe, and partridge.

History.—This Cape was discovered by Bartholomew Diaz, the Portuguese navigator, in 1493, who first landed at Algoa Bay, having, after exploring the west coast, been driven out to sea by a storm, and thus accidentally doubling the Cape which he saw on his way back, giving it the name of the Cape of Storms (Cabo Tormentoso). The King of Portugal, however, gave it the more auspicious name it still bears, as its discovery afforded a hope of a new and easier way of reaching India, the great object of all the maritime expeditions of that age.

The great navigator Vasco de Gama doubled the Cape in 1497, and carried the Portuguese flag into the Indian seas. His countrymen, however, attracted by the riches of the East, made no permanent settlement at the Cape, although they frequently touched there on the voyage to India. But the Dutch, who, on the decline of the Portuguese power, established themselves in the East, early saw the importance of the place as a station where their vessels might take in water and provisions. They did not, however, colonize it till 1650, when the Dutch East India Company directed Jan Van Riebeeck, with a small party of colonists, to form a settlement there. The country was at that time inhabited by a people called Quaiquæ, but to whom the Dutch seem to have given the name of Hottentots. The Riebeeck settlers had at first great difficulties and hardships to endure, and their territory did not extend beyond a few miles round the site of the present Cape Town, where they first fixed their abode. They gradually, however, extended their limits, by driving the natives back or reducing them to serfdom. These colonists, although under Dutch authority, were not wholly of that nation, but consisted partly of persons of various nations, especially Germans and Flemings, with a few Poles and Portuguese. They were for the most part people of low station or indifferent character; there was, however, a small number of a higher class, from whom was selected a council to assist the governor. About the year 1686 the European population was increased by a number of the French refugees who left their country on the revocation of the edict of Nantes. Our limits forbid our attempting to trace the history of the Cape Colony during the lengthened period it remained under the Dutch government. We may, however, mention some of its prominent incidents, the effects of which are visible in the colony to this hour.

1st. The Dutch, partly by so-called contracts, partly by force, gradually deprived the Hottentots of their country. 2d. They reduced to slavery a large part of that unfortunate people whom they did not destroy. 3d. They introduced a number of Malays and negroes as slaves. 4th. They established that narrow and tyrannical system of policy which they have adopted in other colonies, prescribing to the farmers the nature of the crops they were to grow, demanding from them a large part of their produce, and harassing them with other exactions tending to discourage industry and enterprise. We are of opinion that to this mischievous policy is due the origin of those unsettled habits, that dislike to orderly government, and that desire to escape from its control, which characterize a considerable part of the so-called Dutch boers of the present day, qualities so utterly at variance with the character of the Dutch in their native country, but which were strongly manifested at the Cape long before they came under British rule, and under those influences to which some exclusively attribute the insubordination of those men. The attempts of the boers to escape from the Dutch power, and so form an independent government beyond the borders of the colony, especially in the district since called Graaff-Reinet, are strikingly similar to their proceedings at a later date under the British government. 5th. The Gamtoos River formed the boundary between the Hottentot and Kafir races, and was early adopted by the Dutch as their eastern limit; but about the year 1740 they began to pass this river, and came into collision with the Kafirs, and in 1780 extended their frontier to the Great Fish River.

In 1795 the colonists, having imbibed the revolutionary principles then prevailing in Europe, attempted to throw off the yoke of the Dutch, upon which the British sent a fleet to support the authority of the Prince of Orange, and took possession of the country in his name. As, however, it was evident that Holland would not be able to hold it, and that at a general peace it would be made over to England, it was ruled by British governors till the year 1802, when, at the peace of Amiens, it was again restored to Holland. In 1806, on renewal of the war, it was again taken by the British under Sir David Baird, and has since remained in their possession, having been finally ceded by the King of the Netherlands at the peace of 1815.

Population.—The total population of the colony is stated in the returns as 217,921, of which 118,088 are persons of color. The latter consist of Hottentots (so called) Malays, Negroes, and Kafirs. The white population is chiefly composed of colonial Dutch and British.

The aborigines of the country had originally the generic name of Quæquæ, and received the name of Hottentots from the Dutch. Owing to intermarriages with Malays, negroes, and others, and illicit intercourse with whites, the race has lost much of its distinctive character. Indeed, a pure Hottentot is scarcely to be found in the colony, although the people, in whom the blood of that race preponderates, are still known by that name. There is no return of their number, but we do not think it can exceed 25,000. The Malays were introduced by the Dutch as slaves; their descendants still retain the Mohammedan religion, and most of the distinctive habits and customs of their race. We have no means of ascertaining their number, but it can not be large. They reside for the most part in the Cape division. The negroes are mostly from the eastern coasts of Africa. The Kafirs residing within the colony are chiefly composed of the section of them called Fingoes, who originally came from Natal and its vicinity, whence they were driven by Chaka, king of the Zulus, and took refuge with Kafirs on the frontier of the Cape colony, by whom they were reduced to serfdom, from which they were liberated by Sir Benjamin D'Urban, and have, up to this time, remained faithful allies of the British. Their number may be about 25,000.

The exact proportion which the white population of Dutch descent bears to the British is not known; but there is no doubt that it still greatly preponderates. We have called the people Dutch for sake of convenience, as they speak that language, but many of them are descended from Europeans of other countries—a considerable number from the French refugees. The latter have lost the language, but still retain the names of their forefathers, such as Du Plessis, De Villiers, Marais, and others. The British and their descendants require no special remark.

Trade.—The following table, giving the amount of imports and exports in several years, taken at intervals, exhibits the progress of the commerce of the colony:

Years.	Imports.	Exports.	Shipping.
			Tons.
1836	£541,038	£362,280	134,875
1840	732,494	775,060	184,442
1849	944,535	594,920	204,049
1850	1,277,101	637,252	224,126
1853	1,651,597	1,064,884	323,884
1854	985,266	691,352	

These exports do not entirely consist of colonial produce, but partly of goods re-exported. The value of colonial produce alone exported during 1853 was £732,245, of which £297,346 was from Cape Town, and £435,899 from Port Elizabeth. The amount of tonnage, however, of vessels entering Table Bay is much greater than that entering Port Elizabeth, on account of the larger number of Indiamen and other vessels calling at the former for provisions; but the actual trade of the latter is much greater, as shown by the exports.

The following is a table of the chief articles of colonial produce and manufactures exported during 1853, from Cape Town and Port Elizabeth respectively:

	P. Elizabeth.	Cape Town.		Port Elizabeth.	Cape Town.
Aloes	£1,250	£1,546	Hides	£29,136	£27,304
Argol	....	1,161	Horns	1,022	1,383
Beef and pork.	2,309	3,709	Horses	....	8,414
Butter	1,360	642	Ivory	12,143	75
Copper ore	....	3,463	Mules	....	894
Corn and meal			Oil	....	566
Barley	....	1,061	Goat skins	8,426	12,626
Beans & peas	79	1,577	Seal skins	....	69
Bran	....	2,865	Sheep skins	2,327	11,959
Flour	....	29,788	Spirits, brandy	....	3,352
Oats	5	18,709	Tallow	1,387	494
Wheat	....	250	Wine, Constantia	....	66
Feathers	1,519	3,309	Ordinary	....	26,799
Fish (cured)	398	9,876	Wool	390,687	110,498
Fruits (dried)	....	20,274			

The most important export is wool, and the following table shows the progress of the export of this article:

	Port Elizabeth.	Cape Town.
1833	89,738 lbs.	73,924 lbs.
1843	1,220,380	584,477
1853	6,160,916	1,703,692

There were imported into London from the Cape territories 22,706 bales of wool in 1853; 22,602 in 1854; and 28,087 in 1855.

By the summary of an official table in the *Cape Government Gazette*, the custom-house returns of goods imported for the first six months of 1854 and 1855 give the following results: For the first six months of 1854, goods imported, £879,788; for the same months of 1855, £622,218, making for those 12 months, £1,502,006. Goods entered for consumption for the first six months of 1854, £827,702; for the same months of 1855, £643,485—for those 12 months, £1,471,187. The exports of articles the produce of the colony for the first six months of 1854 were valued at £315,579; for the same months of 1855, at £440,816—for those 12 months, £756,395. The excess of imports for consumption over the estimated value of colonial produce exported during the 12 months referred to is thus shown to be £714,792.

In these returns we have the amount of customs duties collected only for the first six months of 1855. They amounted to £31,770 for the first quarter; and to £35,106 for the second; total for six months, £66,876. The two chief articles of export are wool and wine. On both, the increase has been very great. The wool exported during the first six months of 1854 was valued at £221,865. In the same months in 1855, at £297,885. The wine for the same months respectively was valued at £13,425 and £33,169. Wine was once the staple export, amounting in seven years to between £80,000 and £100,000. The quantity produced is supposed to be as great as ever it was, but it has found a more profitable market within the colony. The wool of the eastern and middle districts is indirectly exchanged for the wines, dried fruits, and flour of the western division.

Copper ore is a new article of export. For the first six months of 1854 this export was valued at £4,720; in 1855, at £14,179.

The revenue of the colony is derived chiefly from the customs duties, stamp and auction duties, and a direct tax called transfer dues, at the rate of 4 per cent. on the purchase money of all landed property sold, whether by auction or privately. The expenditure is for payment of salaries of the officials and other disbursements incidental to the support of the civil government. The military expenditure is at present borne by the imperial treasury. The subjoined table shows the progress of the revenue and expenditure:

	Revenue.	Expenditure.
1832	£130,808	£126,889
1842	226,261	226,025
1852	289,482	252,495
1853	308,472	268,111

The construction of good roads of late years, by the judicious employment of the convicts, the establishment of road boards, and other measures for the same object by the late able Colonial Secretary, Mr. Montagu, have tended greatly to develop the resources of the colony, and to increase its commerce and revenue. —E. B.

COMMERCE OF THE UNITED STATES WITH THE CAPE OF GOOD HOPE AND BRITISH SOUTH AMERICAN POSSESSIONS, FROM OCTOBER 1, 1820, TO JULY 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821	....	....	....	....	....	....	....	....
1822	$6,150	....	$6,150	$63,875	....	$3,500	138	....
1823	....	....	....	....	....	....	300	....
1824	....	....	....	....	....	....	....	....
1825	....	....	....	....	....	....	....	....
1826	21,154	$6,433	27,587	46.559	....	....	432	....
1827	....	....	....	5,186	....	....	425	....
1828	....	....	....	....	....	....	....	....
1829	....	....	....	....	....	....	....	....
1830	....	....	....	....	....	....	....	....
Total	$27,304	$6,433	$33,737	$115,620	....	$3,500	1,295	....
Sept. 30, 1831	....	....	....	....	....	....	....	....
1832	....	....	....	....	....	....	....	....
1833	$7,562	....	$7,562	$13,700	....	....	207	....
1834	....	$2,521	2,521	....	....	....	1,500	....
1835	60.565	....	60,565	41,750	....	....	716	....
1836	86,218	4,517	90,735	28,735	....	....	1,550	139
1837	28,898	....	28,898	93,799	....	....	455	....
1838	22,718	....	22,718	12,034	....	....	1,064	....
1839	88,379	5,020	93,399	43,059	$5,020	....	2,278	....
1840	35,816	197	36,013	32,324	....	$756	650	160
Total	$330,156	$12,255	$342,411	$265,401	$5,020	$756	8,420	299
Sept. 30, 1841	$51,324	....	$51,324	$17,155	....	....	958	152
1842	....	....	....	23,815	....	$919	....	....
9 mos. 1843	30,055	....	30,055	31,192	....	....	406	....
June 30, 1844	82,938	....	82.938	29,166	....	....	1,689	....
1845	33,743	....	33.743	26,439	$4,000	....	498	....
1846	23,713	....	23,713	81,686	....	....	2,296	....
1847	106,172	....	106,172	36,041	....	....	2,287	....
1848	100,338	$19,939	120,277	60,431	15,589	....	1,670	....
1849	94,422	....	94,422	71,298	....	....	2,728	....
1850	143,219	....	143,219	72,206	....	....	1,912	....
Total	$665,924	$19,939	$685,863	$449,429	$19,589	$919	14,444	152
June 30, 1851	$161,891	....	$161,891	$123,223	....	$1,300	2,501	827
1852	224.236	$1.718	225,954	190,790	....	....	4,343	612
1853	367,231	3,141	370,372	302,303	....	87,109	4,705	983
1854	292,628	7,330	299,958	448,903	....	....	3,869	381
1855	443,475	8,837	452,312	418,588	....	....	5,656	664
1856	396,780	21,471	418,251	483,594	....	11.531	7,078	202

The commercial relations of the United States with the Cape of Good Hope colony are now dependent on the regulations of a legislative council and a house of assembly. Those bodies assembled, for the first time, during the past year (1854), under the name of the Colonial Parliament of the Cape of Good Hope. Exports from this colony consist principally of aloes, argol, hides, horns, whale oil, goat and sheep skins, wine, and wool. Chief imports from the United States are spirits, soap, stationery and books, sugar, timber, wine, tobacco, hardware and ironmongery, sundries.

Number of American vessels entered the ports of the Cape of Good Hope in 1853: Vessels, 45; tonnage, 16,278. Number of American vessels cleared from the same ports in 1853: Vessels, 22; tonnage, 2,186.

Port Regulations, Duties, etc.—Entrance or clearance of a vessel, $1 44; landing or shipping cargo of a vessel, $3 60; clearance of a coaster, $0 36; manifest of export cargo, $0 36; permit to land or ship merchandise under value of $36, $0 18; above $36, $0 36. A wharfage duty is also charged on all goods, wares, or merchandise landed.

An export duty is charged on all staples shipped from any of the ports of the Cape; but the exporter of any quantity of good Cape wine shall be entitled to enter, duty free, one gallon imperial measure of spirits of the strength of Skye's hydrometer, in respect of every ten gallons imperial measure of wine so exported. For the accommodation of shipping, tank-boats are always in readiness with force-pumps and hose, carrying from 20 to 40 tons of water. A protective duty in favor of British produce and manufactures exists at the Cape ports; and the *ad valorem* of 12 per cent. on all goods to which no specific duty is assigned, is reduced to 5 per cent. in favor of Great Britain.—*Com. Digest U. S.* See CAPE OF GOOD HOPE.

Goodwin Sands, a range of sand-banks lying about four or five miles off the east coast of Kent, between the North and South Forelands. They are about ten miles in length from north to south, and vary in breadth from one and a half to three miles. They are divided into two portions by a narrow channel, navigable by small boats. They are in many places dry at low water, and from their shifting and loose nature are very dangerous for shipping. Beteen them and the mainland is the roadstead termed the Downs. These sands are said to have at one time formed part of the Kentish land, and to have been submerged about the end of the reign of William Rufus, or the beginning of that of Henry I. Several light-vessels are fixed here as beacons; and during foggy weather gongs are sounded every ten minutes.

Gonaives, a sea-port of Hayti. There entered this port in 1849 and 1850, 182 vessels, measuring in the aggregate 29,801 tons; and there cleared 187, with an aggregate of 30,196 tons. The former prosperity of this port resulted from the immense quantities of ebinisterre (cabinet-maker's wood) and dye-woods, which accumulated at the mouth of the Artibonite from every point of its course, prior to the independence of Dominica; but such is the change that has taken place, that, to-day, it exhibits scarcely the shadow of its former commerce. Its exports, with their average quantities and values, are classified as follows:

Exports.	Quantities. Kilos.	Value. Francs.
Coffee	5,400,000	640,000
Cotton	150,000	270,000
Acajou	4,500,000	900,000
Campeche, Guyac (lignum-vitæ)	2,500,000	250,000

Formerly large quantities of wax, pitre, and cocoa, were exported from Gonaives; but this trade has of late years greatly declined. The exports at present consist of cereals and coffee, not only from the neighboring *communes*, but from the whole *arrondissement* of St. Marc, which is a closed port. The coffee of this port is of the very best quality, and commands the highest price. Hence it is, that vessels which can not make up their cargoes of coffee at Port-au-Prince, touch at this port for such quantities as they can obtain. The imports in 1850 reached a value of about 3,000,000 francs. Of this, the United States supplied provisions, lumber, and cotton goods to a value of nearly 1,500,000 francs ($279,000), or one half of the whole. England, France, and the German States figure chiefly in the other half—the trade of the two latter seeming rather on the decline. There are at Gonaives 24 foreign merchants; and of the commercial houses, nine are French and four English, while but one is American. The following summary of the trade between the United States and the port of Gonaives during the first six months of 1855 is made up from official returns: Number of vessels (American) entered and cleared, 66, with an aggregate of 4,317 tons. Value of cargoes inward, not given in official returns; value of cargoes outward, $2,033,429 95, Haytien currency—about 16 Haytien dollars being equal to 1 American. Cargoes inward consisted of provisions and lumber. Several vessels touched at the port, laden in part, to complete cargoes. Outward cargoes consisted of coffee, mahogany, and logwood.

Gordonia. (*Gordonia Lazianthus*). A tree known in France as *Gordonia à feuilles glabres*, in Germany as *Langstielige Gordonie*, and in the United States as *Loblolly Bay.* The Gordonia Lasianthus, in its native country, is a beautiful sub-evergreen tree, growing to the height of 50 or 60 feet, with a diameter of 18 or 20 inches. This tree appears to be confined to the maritime parts of the United States, from Virginia to lower Louisiana. According to Michaux, tracts of 50 or 100 acres are met with in the pine-barrens, which, being lower than the adjacent ground, are kept constantly moist by the waters collected in them after great rains. These spots are entirely covered with this species, and are called *bay-swamps.*

The wood of the Gordonia Lasianthus is extremely light, a cubic foot of which, when dry, does not weigh more than 20 pounds. In trunks of these trees which exceed more than 15 inches in diameter, four fifths of the wood is heart; it is of a rosy, or mahogany hue, and of a fine silky texture, which render it very proper for the inside of furniture, though the cypress is generally preferred. When seasoned it is exceedingly brittle, and rapidly decays when exposed to the alternations of moisture and dryness. The bark may be taken off this tree during three months of the year, which shows that the sap is in vigorous motion a much longer period than it is in most other trees. The value of the bark in tanning, compensates, in some measure, for the uselessness of the wood, for which purpose it has been employed in times past, throughout the maritime ports of the southern States and Florida. Although this branch of industry was never so extensively practiced in the southern as in the northern parts of the United States—the regions where this tree abounds do not afford a sufficient quantity of bark proper for tanning, to supply the wants of the inhabitants. Hence, nearly all the leather and articles manufactured therefrom, consumed in the southern States, are carried from the north. A bark suitable for the purpose of tanning, is more valuable in the United States than at first sight might be supposed. Although there are a great variety of oaks, and many of the species profusely multiplied, yet there are but a very few of them that are sufficiently rich in tannin to be worth using.—*Browne's Trees of America.*

Gosport, a fortified sea-port and market town of England, county of Hants, on the western side of Portsmouth harbor, near its mouth, directly opposite and about a mile from Portsmouth, with which it is connected by a floating bridge moved by a steam-engine working on two fixed chains. It forms no part of the borough of Portsmouth, but is governed by trustees under an old act of Parliament. It is fortified on the land side by a line of bastions extending from Weovil to Alverstoke, and having the appearance of being a segment of the fortifications of Portsmouth. Within the fortifications is the Royal St. Clarence Victualing-yard, with brewery, cooperage, powder-magazines, biscuit-baking establishment, and store-houses for various kinds of provisions for the royal navy. To the south is the magnificent Haslar Naval Hospital, capable of containing 2000 patients. Gosport has also an extensive establishment for the manufacture of anchors and chain cables. It communicates with London by the South-western Railway. The coasting-trade is considerable. Population (1851) 7,414.

Gossamer, a fine, filmy substance, like a cobweb, observed floating in the air, especially in autumn. It is often seen in stubble-fields, and upon furze and other low bushes, and is probably produced by a species of spider.

Gotha Canal. The following information relative to the Gotha Canal is extracted from MACGREGOR'S *Commercial Tariffs and Regulations of Norway and Sweden*:—"The inlets, lakes, and rivers of Sweden have always afforded great facilities for the transportation of the produce of her forests and mines. A canal, to avoid the long and tortuous navigation of the Sound and Sound dues, was projected at an early period by Sweden. The Maeler, a deep inlet, enters Sweden at Stockholm from the Baltic, and branches north to Upsala, and west 70 miles among a multitude of islands, to within a few miles of the Lake Hielmar. The Arboga Canal, opened during the latter end of the last century, is navigable between the Maeler and that lake; and it was then considered that it might be continued from the Hielmar to the Wettern Lake, but the project was found impracticable; the distance between the Maeler and Sodree Barker, near the confines of Dalecarlia and the mining districts, was opened at the same period by means of the Stroemsholm Canal and the Lake Fredra, and rivers. The Gotha River, which runs from Lake Wenern (the largest in Europe except the Ladoga) into the sea of Gothenburg, though in many parts deep and navigable, was interrupted by falls and islands. These were finally surmounted, after extraordinary difficulties (the whole of the gigantic works having been once swept off by the impetuosity of the water), by the execution of the Trollhaetta Canal in 1800. It is three miles long, and has eight sluices to ascend and descend 112 feet. At one place it was cut 70 feet deep through the rocks. The whole expense was about £80,000. The Lake Wenern was afterward joined by a canal to the Lake Wettern, and finally the canalization of the whole distance to Soderkoping and the Baltic was completed in 1832."

Regulations for Ships passing through the Gotha Canal.—Sec. 1. Ships and cargoes from all countries, and coming from or going to whatever place or places, are permitted, without obstruction, to pass through the canal, unless the nation or nations to which the ships or cargoes belong are known to be in open hostility with Sweden; and the canal transit dues, both on vessels and cargoes, shall be equal for all nations. 2. The canal dues on all shipping are to be paid according to their tonnage, making no difference whatever whether laden or empty. 3. The canal dues on vessels are to be paid at the rate of 12 skillings Swedish banco per last, equivalent to 10 skillings Swedish banco per commercial last of 2 English tons. In this charge is not included pilotage on the lakes, nor payment for the trailing by oxen or horses on the Gotha Canal, which charges are specially fixed by the directors.

4. In calculating the tonnage of vessels passing through the canal, and also the quantity of merchandise, it is to be observed, with regard to the first named, that such vessels as are provided with Swedish measure-bills will pay the dues according to the burden stated in said bills; but such as are without, will be charged pursuant to a table reduced, conformably to usual practice, from the foreign lasts, tons, etc., to Swedish lasts; and, further, as relates to goods, that the weights and measures stated in the tariff of pounds, ship-pounds, barrels, etc., are meant Swedish pounds, and ship-pounds commercial or victuals' weight (excepting iron, and other metals, by which are meant Swedish staple weights), and Swedish barrels containing 32 kapps solid measure; and further, that such foreign pounds, ship-pounds, barrels, lasts, etc., as may be inserted into its bills of lading and ship's papers, are to be reduced to Swedish weights and measures, in conformity to a fixed table to be made out for that purpose.

5. With respect to tare, or the weight of the case or outer covering, no charge will be made. The canal dues are to be paid, according to the tariff, only on the quantity in weight or measure as inserted in the bill of lading or ship's papers, whether specified in gross or net. A barrel of grain, salt, etc., shipped in bulk, or barrels or bags, are charged alike; pipe-clay, coals, etc., in bulk or packed in casks, the same; as also wines and other liquids, whether in larger or smaller casks; and only in such cases where the last-named are in bottles, then the additional duty must be paid for the bottles, according to the tariff, the same as if they were shipped empty, for themselves.

6. If any vessel, entered at the inward customhouses at Gothenburg or Soderkoping, only to pass through the canal from sea to sea, should discharge any part of her cargo without the most pressing necessity, either in the River Gotha-Elf, or any of the lakes, or on the canal, such vessel to be forfeited, and the master subjected to the penalty of the law for the unlawful importation of goods; and further, to be fined, according to the circumstances, in the sum of 100 rixdalers to 500 rixdalers banco. The same law will be put into execution against all vessels receiving other cargoes or more goods on board, during the passage to and from one or other of the ports of Gothenburg and Soderkoping. Ships' husbands, or owners of goods, convicted of knowing, abetting, and aiding in the illegal loading or unloading of goods, as aforesaid, will be subjected to the same penalties. The value of the confiscated vessel, which shall be determined by sale by public auction, will be responsible for the full payment of all dues which the vessel and cargo would have been subjected to, according to the tariff, for the whole passage from sea to sea; and the surplus of the proceeds then remaining to be divided, two fifths in equal shares to the informer and those who prove the illegal fact, and three fifths to the canal pension fund and the board of customs, also in equal shares.

There are other regulations, exemptions, and privileges applicable to vessels passing through the Gotha Canal, between the Baltic and the North Sea, which, as they are given in full in the "*Digest of the Existing Commercial Regulations of Foreign Countries*," transmitted to Congress from the Treasury Department in 1833, and have been modified but slightly, if at all, since, are not inserted in this volume. They may be found in that work, under the caption "Sweden."

The whole length of this canal is thus estimated:

	Swedish miles.	
From Gottenburg to the Lake of Wenern, through the River Gotha-Elf and the Canal of Trollhaetta	8¼	½
Across the Lake of Wenern	11	
Through the Gotha Canal		8½
Through the Lakes of Wikan, Bottensjon, and Wettern	5½	½
From the Lake of Wettern to the Baltic, and through the Lakes of Boren, Boxen, and Asplangen	4½	5
Total river and lakes	29¼	
Total canal line		9½
Together	38¾	

Gottenburg, or, more properly, **Gothaborg**, on the south-west coast of Sweden, at the head of a fiord near the Cattegat, which receives the River Götha, lat. 57° 42′ 4″ N., long. 11° 57′ 45″ E. Population 29,000, and increasing. Vessels do not come close to the city, but lie in the river or harbor, at a short distance from the shore, goods being conveyed from and to them by lighters that navigate the canals by which the lower part of the town is intersected. The depth of water in the port is 17 feet, and there is no tide, bar, or shallow. A vessel entering the Götha must take a pilot on board, whose duty it is to meet her half a league west of Wingo beacon. After Stockholm, Gottenburg has the most extensive commerce of any town in Sweden. Iron and steel, the former excellent, but the latter inferior to that made in England, form the principal articles of export. They are brought from the rich mines of Wermeland, distant about 200 miles; being conveyed partly by the Lake Wenern partly by the Trollhaetta Canal (see CANALS), and partly by the River Gotha. The exports of iron in 1847 amounted in all to 27,447 tons. The original cost of iron is supposed to be increased about five per cent. by the expense of its conveyance to Gottenburg; and the shipping charges, inclusive of the export duty, are about 10 per cent. additional. The next great article of export is timber, particularly deals, which are also furnished by Wermland. Of these, the exports in 1847 were 227,000 dozen, but this is above the average. The other articles of export are, linen, sail-cloth, tar, copper, alum, glass, cobalt, manganese, linseed, oak bark, bones, juniper-berries, cranberries, rock-moss for dyeing, etc. Grain is sometimes imported, and sometimes exported. The principal articles of import are sugar, coffee, tobacco, cotton yarn and twist, salt, indigo, and dye-woods, South Sea oil, rice, herrings, wine, spices, etc. There belonged to the port in 1847, exclusive of river craft, 126 vessels of the aggregate burden of 13,254 Swedish lasts, or about 30,000 English tons; and ship-building has since been going on briskly. The opening of the Gotha Canal, by which Gottenburg communicates with a large portion of the interior of Sweden, has exercised a powerful and beneficial influence over her commerce. She carries on an extensive trade with England, and English is generally understood. Steamers run once a week between Gottenburg and Hull for eight months of the year; but in winter the intercourse with England is kept up by the tedious route of Lubec and Hamburg. The opening of the Gotha Canal has greatly benefited its commerce, by bringing it into communication with a large portion of the interior of Sweden. In 1849, 718 vessels entered, and 1462 cleared in the coasting trade; and 1018 vessels entered and 1011 left for foreign ports, exclusive of steamers, of which the number that entered and cleared out at the port were 88. See GOTHA CANAL.

Herring Fishery.—Gottenburg used, at no distant period, to be one of the principal seats of the herring fishery; but at present this branch of industry is quite extinct, and it has always been very capricious. From 1556 to 1588 great quantities of herrings were taken; from 1588 to 1660, they left the coast; during the next 15 years they were again abundant; but from 1675 to 1747 they entirely disappeared. From 1747 to 1770 they were abundant, 186,614 barrels being taken in 1763, and 151,483 in 1768. From 1786 to 1799 the fishery was very good, from 110,000 to 190,000 barrels being annually exported. In 1804 the export was 79,512 barrels. In 1808 and 1809 fish were very scarce; and in 1812 they entirely disappeared, and have not hitherto returned; so that Gottenburg, instead of exporting, at present imports considerable supplies of herrings.

Both iron and timber pay duties on exportation, but they are not heavy.

Custom-house Regulations and Port Charges.—On arriving in port, no person is allowed to board or to leave a vessel till she be in custody of the officers; who, having inspected the manifest and papers, send them to the custom-house. An officer is appointed to superintend the unloading, and also the loading. The public charges of all sorts on a Swedish ship and on a foreign ship not privileged, each of 300 tons' burden, unloading and loading mixed cargoes at Gottenburg, would be, on the former, £24 5s. 7d.; on the latter, £49 5s. 7d. On a privileged foreign ship the charges are the same as on a Swedish ship.

Warehousing System.—Goods may be bonded for any length of time, on paying one half per cent. ad valorem for the first two years, and one half per cent. annually thereafter.

Commission, Credit, etc.—The usual rate of commission is 2 per cent. Goods are commonly sold on credit. Raw sugar at 9 months' with 3 months' interest to the seller. Other goods at 3, 4, and 6 months.

Banking, etc.—There are no public or private banking establishments at Gottenburg for the issue of notes; but the national bank has two offices here which advance limited sums of money, at five per cent., on security of goods, and in discount of bills. Some of the English insurance companies have agents here, who do a good deal of business.

Sea Stores, Water, etc.—These may be had here of excellent quality, and cheap. Beef, 1½d. per lb., best rye bread, 2½d. per lb., and butter, 6d per lb.

Money, Weights, Measures, etc., same as at Stockholm, which see.

In compiling this article, we have made use of Consular Returns, COXE's *Travels in the North of Europe*, vol. iv., pp. 267–275, and some valuable private communications.

Grace, Days of, in commercial law are certain days allowed by the custom of merchants to be added to the time requisite for presentment of a bill. Thus, if an instrument drawn in this country be payable "a certain time after date," three days of grace are added: a bill drawn on the 27th of August, payable "two months after date," is therefore due on the 30th of October. So if a foreign bill be drawn at one, two, or more "usances," the days of grace are added to the usance. The usance between London and Paris is one calendar month. A bill drawn in London on Paris "at one usance," on the 2d January, is consequently due on the 5th February. The number of days of grace varies in different countries. In France none are allowed. See DAYS OF GRACE.

Grain, the name of the smallest weight in common use It is the 24th part of a pennyweight troy, and the 20th part of the scruple in apothecaries' weight

Grain Markets. There were received at Baltimore during the past year (1856) 3,440,000 bushels of wheat, 4,081,000 bushels of corn, 847,300 bushels of oats, 228,200 bushels of rye. 925,000 barrels of flour were received.

At Buffalo, N. Y., the receipts of flour were 1,143,085 barrels; of wheat, 8,843,117 bushels, and of corn, 9,845,790 bushels.

At Oswego, N. Y., 114,143 barrels of flour, 8,437,927 bushels wheat, 3,543,521 bushels of corn.

At Chicago the receipts of grain of all kinds were 24,000,000 bushels, and the shipments about 20,000,000 bushels.

We give below a table showing the comparative importance of the principal dépôts of the world; from which it will be seen that Chicago and Buffalo rank nearly equal, allowing for the increase of one year in the former place. Enough is shown to make evident the greater importance of some of our new prairie cities over the old established grain dépôts of Europe. Chicago, in 1823, was described by Major Long, in his "Expedition to St. Peters," as a "village presenting no cheering prospect," and one not promising much in commercial importance.

	Wheat.	Indian Corn.	Oats, rye, and barley.	Total.
	Bushels.	Bushels.	Bushels.	Bushels.
1854.				
Odessa.........	5,000,000	....	1,440,000	7,040,000
Galacz & Braila	2,400,000	5,600,000	320,000	8,320,000
Dantzic........	3,080,000	....	1,328,000	4,408,000
St. Petersburg.	....	....	....	7,200,000
Archangel.....	....	....	....	9,528,000
Riga...........	....	....	....	4,000,000
Chicago	3,644,860	6,837,899	3,419,551	12,902,310
Chicago ...1855	7,115,250	7,517,625	2,000,938	16,633,813
Baltimore..1856	3,440,000	4,081,000	1,075,500	8,596,500
Buffalo.... "	8,843,117	9,845,790	....	18,688,907
Oswego.... "	8,438,000	3,543,520	....	11,981,520

Grains of Paradise, hot, acrid, aromatic seeds, produced on the coast of Guinea, and supposed to be derived from two distinct species of plants, viz., the *Amomum Grana-paradisi* of Linnæus, and the *A. Meleguetta* of Roscoe; perhaps, also, from others. They are of a glossy dark-brown color, are longer and rounder than the seeds of the true cardamom, and have a slight flavor of camphor. These seeds are much esteemed as a spice among the Africans, but are chiefly employed to give a fictitious strength to beer and spirits. ARCHER'S *Economic Botany*.

Granada, a town of Central America, State of Nicaragua, on the north-west bank of the Lake of Nicaragua. By means of the Lake and the River San Juan, it communicates with the Caribbean Sea, and thus carries on a considerable trade. Population about 12,000.

Granary, a building to store corn in. Granaries are generally built of brick, with quarters of timber wrought in the inside, to which the boards, with which the inside of the granary must be lined, or nailed so close to the bricks that there may be no space left for vermin to harbor in. There is an advantage in having many stories, because the shallower the corn lies the better and more easily it is turned.

The two great requisites in the erecting of granaries are—to make them sufficiently strong, and to give them an exposure to the most drying winds. In many parts of England, particularly in Kent, corn is treated in the following manner: To separate it from dust and other impurities after it is threshed, it is tossed with shovels from one end to the other of a long and large room; the lighter substances fall down in the middle of the room, and the corn only is carried from side to side, or from end to end of it. After this, the corn is screened; and being then brought into the granary, it is spread about half a foot thick, and turned from time to time, about twice a week; the screening of it is also repeated once a week. This sort of management is continued about two months, after which it is laid a foot thick for two months more; and during this time it is turned once a week, or twice if the season be damp, and now and then screened. After about five or six months, it is raised to two feet thickness in the heaps, and then turned once or twice in a month, and screened from time time. After a year, it is laid two and a half or three feet deep, and turned once in three weeks or a month, and screened proportionally. When it has lain two years or more, it is turned once in two months, and screened once a quarter; and however long it be kept, the oftener the turning and screening are repeated the better will the grain be preserved. It is proper to leave an area of a yard wide on every side of the heap of corn, and other empty spaces into which the corn may be turned and tossed as often as required. In Kent, two square holes are made at each end of the floor, and a round one in the middle, by means of which the corn is thrown out of the upper into the lower rooms, and so up again, that it may be the better turned and aired. The screens are made with two partitions, to separate the dust from the corn, which falls into a bag; and when sufficiently full, this is thrown away, while the pure and good corn remains behind. Corn has by these means been kept 30 years; and it has been observed, that the longer it is kept the more flour it yields, in proportion to the corn, and the purer and whiter the bread is, the superfluous humidity alone evaporating in the keeping. At Zurich, in Switzerland, corn has been kept 80 years, or longer, by methods of similar description.

The public granaries at Dantzic are seven, eight, or nine stories in height, and have a funnel in the midst of each floor, to let down the corn from one to another. They are built so securely, that though every way surrounded by water, the corn contracts no damp, and the vessels have the convenience of coming up to the walls to be loaded. The Russians and others preserve their corn in subterranean granaries of the figure of a sugar-loaf, wide below and narrow at top, the sides being well plastered, and the top covered with stones. They are careful to have the corn well dried before it is laid into these store-houses, and often dry it by means of ovens, especially where the summer dry weather is too short to effect this sufficiently. This method of storing grain has been practiced in many countries from remote antiquity; and in Sicily, in particular, at the present day, many of the granaries are simply excavations in the calcareous rock.

Some recommend that the roofs of granaries should be composed of tiles, because in the worst seasons, when the regular apertures can not be opened with safety, there will always be a considerable inlet for fresh air at their joinings, and also an issue for the exhalations given out by the grain; while others prefer a very close roof, as of lead or zinc, for the perfect exclusion of insects and vermin. If there happen to be any windows to the south, care must be taken to shut them in moist weather, and in the time of the hot southern winds. There must be no cellar or other damp place under a granary, nor should it ever be built over stables; for in either of these cases the corn will certainly suffer by the exhalations—be rendered damp in the one, and ill-tasted in the other.

M. Duhamel and Dr. Hailes have recommended various contrivances for ventilating or blowing fresh air through corn laid up in granaries or ships, in order to preserve it sweet and dry, and to prevent its being attacked by weevils or other insects. This may be done by nailing wooden bars or laths on the floor of the granary, about an inch distant from each other, when they are covered with hair-cloth only; or at the distance of two or three inches, when coarse wire-work, or basket-work of osiers, is laid under the hair-cloth, or when an iron plate full of holes is laid upon them. These laths may be laid across other laths, nailed at the distance of 15 inches, and two or more inches deep, that there may be a free passage for the air under them. The under laths must come about six inches short of the wall of the granary at one end, on which a board is to be set edgewise, sloping against the wall; for by this disposition a large air-pipe is formed, which having an open communication with all the interstices between and under the bars, will admit the passage of air below forcibly through a hole at the extremity, and consequently carry off the moist exhalations of the corn. The ventilators for supplying fresh air may be fixed against the wall, on the inside or outside of the granary, or under the floor, or in the ceiling; but wherever they are fixed, the handle of the lever that works them must be out of the granary, otherwise the person who works them would be in danger of suffocation when the corn is fumigated with burning brimstone, as is sometimes done for destroying weevils. Small movable ventilators will answer the purpose for ventilating corn in large bins in granaries, and may easily be moved from one bin to another. If the granary or corn-ship be very long, the main air-pipe may pass lengthwise along the middle of it, and convey air on both sides under the corn. In large granaries, double ventilators, laid upon each other, may be fixed at the middle, and near the top of the granary, that they may be worked by a windmill fixed on the roof of the building, or by a water-mill. The air is conveyed from the ventilators through a large trunk or trunks, reaching down through the several doors to the bottom of the granary, with branching trunks to each floor, by means of which it may be made to pass into a large trunk along the adjoining cross-walls; and from these trunks several lesser trunks, about four inches wide, branch off at the distance of three or four feet from one another, and reach through the whole length of the granary, their further ends being closed. Seams of one tenth or one twelfth of an inch should also be left open at the four joinings of the boards, where they are nailed together, that the air may pass through them into the corn. In some of these lesser trunks there may be sliding shutters, to stop the passage of the air through those trunks which are not covered with iron, or to ventilate one part of the granary more briskly than others, as there may be occasion. There should also be wooden shutters, hung on hinges at their upper part, so as to shut close of themselves; and these should be fixed to openings in the walls of the granary on their outside; by which means they will readily open to give a free passage for the ventilating air, which ascends through the corn, but will instantly shut when the ventilation ceases, and thereby prevent the admission of damp from the external air. The ventilation should be made only in the middle of dry days, unless the corn, when first put in, be cold and damp.

Granite, a compound rock, constituting the lowest of the geological formations, according to older geologists; but it has lately been found resting even on secondary formations in the Alps. It (essentially) consists of quartz, feldspar, and mica. Its great durability as a material for building is attested by many of the ancient Egyptian monuments, in which the stone exhibits no appearance of decay even after a lapse of 3000 years. There are some granites, however, which shake and crumble down in a very few years, particularly those in which feldspar predominates. This rock becomes refractory to work after it has been some time quarried; and it is usual to keep it for some time under water before it is wrought into ornamental objects.

Granulation of metals, an operation simply performed by slowly pouring the melted mass through an iron cullender into water, which is kept in agitation by means of a bundle of twigs. By this method metals may be reduced to minute grains.

Granville, the ancient *Grannonum*, a fortified seaport town of France, department of La Manche, at the foot of a steep, rocky promontory projecting into the English Channel, 30 miles south-west of St. Lô. It is surrounded by strong walls, and the streets are narrow and steep. The only remarkable building is the parish church, a venerable Gothic edifice. The harbor is spacious and secure, but dry at low water. Works, however, are now in progress for the improvement of the harbor generally, and for the construction of wet docks. The inhabitants are chiefly engaged in the coasting trade, or in the cod and oyster fisheries. Shipbuilding is also carried on. It has a tribunal of commerce, a hospital, public baths, and a naval school. Granville was bombarded and burned by the English in 1695, and partly destroyed by the Vendean troops in 1793. Population, 8347.

Grape-shot, in *Artillery*, consists of a quantity of shot piled round an iron spike which is placed in a strong canvas bag, the whole being firmly corded together so as to form a cylinder adapted to the calibre of the cannon. It differs from canister or case-shot in that the latter kind is composed of balls packed into a tin canister with a wooden bottom.

Grapes (Ger. *Trauben;* Fr. *Raisins;* It. *Grappoli, Grappi;* Sp. *Ubas, Racimos;* Lat. *Uvæ*), a well-known fruit produced from the vine. France, Spain, Portugal, and Italy, as well as some parts of Germany and Hungary, produce grapes which yield wines of various qualities and flavor, many of them excellent. We import green grapes from Lisbon, and other parts of Portugal, Malaga, etc. They are brought packed in jars, and secured from damage by means of sawdust, plentifully strewed between the layers of fruit. The grapes grown in Great Britain in the open air are much smaller, and by no means so luscious, as those of foreign countries; but those raised in hot-houses are quite equal, if not superior, to the latter. Grapes are imported not only in their natural state, but dried and preserved, in which latter state they are denominated raisins. [See Raisins.] The most valuable grapes grown in the United States are from the Catawba and Isabella vines, which are natives of America. These grapes are of a purple color, and have as luscious a taste as the best grapes of Europe. A smaller grape also abounds, called the fox grape, which, although not as pleasant to the taste, is very much used in a dried state, and is also preserved in large quantities. See Wine.

Graphite (γράφω, I write), otherwise called *plumbago*, and often improperly *black lead*, is a mineral carbon with a slight admixture of iron. It may be made artificially by exposing iron with excess of carbon to a violent heat for a considerable length of time, when a real carburet of iron will be formed; whereas in the native specimens the iron and charcoal are only mechanically combined. The finest graphite occurs at Borrodale in Cumberland, and is appropriated exclusively to the manufacture of pencils. The coarser varieties are used for making crucibles and portable furnaces, for which purposes this substance is peculiarly fitted from its infusibility; and it is also much used for giving a gloss to the surface of cast-iron goods, as well as to diminish friction between rubbing surfaces of metal or wood in machinery.

Grapnel, or **Grapling**, a kind of small anchor with four or five flukes or claws, chiefly used to secure small boats.

Grass Cloth. The following extract from the Report of Mr. Nathaniel Wilson, curater of the Botanical Gardens at Bath, in Jamaica, describes the successful introduction into that island of the China grass-cloth plant (*the Rhee of Assam*), and the propriety of turning to profitable account their numerous indigenous fibrous-yielding plants, which are at present quite neglected: "I have now the happiness of recording my entire success in the cultivation of the China grass-cloth plant (*Boehmeria nivea*), introduced in 1854, and a more valuable introduction could not have been made. I find the plant thrives here with a luxuriance equal to any of our native plants, and probably with more vigor than it does in its native clime. This plant (as is now well known), produces the best fibre for textile purposes with which we are acquainted, and, according to undoubted authority, is worth in the London market from £80 to £120 per ton; which is surely sufficient to render the plant worthy of all the attention we can bestow on it, if new staples for general and profitable cultivation be desirable. I have no hesitation in saying, that, by its spontaneous and luxuriant growth, a more desirable and appropriate plant for tropical culture has never before been submitted to the notice of the public. I have 36 of these plants ready for distribution, and could, by a small expenditure, increase the number to any reasonable extent.

Gravesend, a municipal borough, river-port, town, and parish of England, county of Kent, on the right bank of the Thames, 20 miles E.S.E. of London. Area of borough, including Milton parish, 1541 acres. Population of Gravesend and Milton, 16,633. The older part of the town, near the river, has narrow streets, the upper town is more open, and has many tasteful rows of houses and detached villas; the summit of hill, on which it is built, is crowned by prospect-towers, commanding views of the Thames, and is a favorite holiday resort. Former trade consisted in supplying ships with stores, vessels from London being obliged, until lately, to clear out here. Its more recent, and still rapidly increasing prosperity dates from the establishment of steamboats, which run to London in two hours, and during summer, especially on Sundays, bring immense crowds of visitors. Many also of the wealthier class of tradespeople reside here. A railroad, to unite with the London and Greenwich line, is in course of formation, and will unite with one which passes through a tunnel, upward of two miles in length, and connects the town with Rochester, distant about seven miles. There is a ferry across the Thames to Tilbury Fort. Market, Wednesday and Saturday. The borough is a polling-place for West Kent. The town was burnt by the French in the time of Richard II. On its west side are the garden and suburb of Rosherville.

Great Britain, the most considerable of all the European islands, is situated between 50 and 58½ degrees of north latitude. It is bounded on the north by the North Sea, on the east by the German Ocean, on the south by the English Channel, and on the west by St. George's Channel and the Atlantic Ocean. From north to south it extends about 580 miles in length; its greatest breadth, from the North Foreland in Kent, to the Land's End in Cornwall, is about 370 miles; and its superficial area is computed at 87,500 square miles. The figure of this island is irregular, somewhat resembling that of a wedge, to which indeed it was compared by the ancients, from its gradually narrowing toward its northern extremity; and its whole line of coast is deeply indented by bays, creeks, and estuaries, which, notwithstanding its boldness and ruggedness in many parts, afford safe and commodious harbors. From its geographical position, therefore, no less than from its natural advantages, this island seems to have been destined by nature to become the seat of a great and powerful nation.

Its eastern coast forms a waving, continuous, and rarely-broken line, but the western coast is extremely irregular, and deeply indented with many bays and arms of the sea, interspersed with numerous islands. The south-east part of Britain is a level, alluvial surface; the centre, undulating and hilly; the western and north-western, mountainous and irregular. In the north and west, primary strata and granite rocks prevail; in the middle districts, coal, lime, salt, and ironstone are abundant; and these are succeeded in England, on its east and south-east valleys, by oolite chalk and the newer geological formations. A mountain range, more or less elevated, extends from south to north of the island, running through Cornwall, Devonshire, Somersetshire, and thence through Wales, varying in elevation from 1500 to 3500 feet. Another branch extends from the Cotswold hills, Gloucestershire, and runs through Derbyshire, Staffordshire, Yorkshire, Cumberland, Westmoreland, and Northumberland, with elevations from 2000 to 3000 feet. Succeeding these are the Cheviots, the Lammermoors, and the great Grampian range, which intersect Scotland, and whose extreme altitude is measured by Ben Nevis on the west, and Ben Macdhui on the north-east, both attaining an elevation of upward of 4300 feet. The most considerable rivers are the Severn, Medway, Dee, Mersey, Clyde, on the west coast, and the Thames, Trent, Humber, Tyne, Forth, Tay, and Spey, on the east coast. The principal lakes are those of Cumberland and Westmoreland in England, and Lochs Lomond, Tay, Maree, etc., in Scotland. The principal bays and estuaries are the Bristol Channel, Cardigan Bay, Lancaster Bay, the Solway Firth, Firth of Clyde on the west, and the Thames' mouth, the Wash, the Humber, the Firths of Forth, Tay, Murray, and Cromarty on the east, while on the south there are Falmouth, Plymouth, Portsmouth, and other important bays and harbors.

The British Islands include Ireland, the Isles of Wight, Anglesea, Man, the Scilly Islands, Bute, Arran, the Hebrides, Orkney, and Shetland Islands. The climate of Britain is greatly modified by its insular situation, the extremes both of summer and winter temperature being much less than that of corresponding latitudes on a continental surface. The mean annual temperature is about 49° Fahrenheit. The extreme summer heat seldom exceeds 80° Fahr., and the winter cold, with rare exceptions, does not extend beyond 25° to 32°. The annual fall of rain averages about 32 inches. Most rain falls on the west side of the island (from 36 to 40 inches), the east coast being comparatively dry (25 inches), but a cold north-east and east wind prevails more on the east coast, while a warm west and south-west blows on the west; from this reason, joined to the nature of the soil and elevation of the surface, the eastern half of the island is more an agricultural, while the west is more a grazing country. Though variable, the climate of Britain is found, from tables of longevity, to be one of the most salubrious in the world, while the very general cultivation and drainage of the soil have removed those maladies that originate in marsh effluvia. Within the last century the average longevity of the population has been greatly increased. In 1800 the average mortality in England was 1 in 32, in 1847 1 in 45. The area of Britain is 90,038 square miles; including Ireland, the total area is 122,550 square miles, or 78,432,648 acres. In 1710 the population of England and Scotland amounted to 6,116,337; in 1801 to 10,942,646; in 1821 the population of the United Kingdom, including Ireland, was 21,202,966; in 1831, 24,410,429; in 1841, 27,019,558; and in 1851, 27,675,324.

The following table shows the population of Great Britain and Ireland, the area in statute acres and square miles, also the number of acres to a person, and the number of persons to each square mile:

	Males.	Females.	Total.	Area.		Acres to a person.	Persons to a sq. mile.
				In statute ac.	In sq. m.		
England	8,281,734	8,640,154	16,921,888	32,590,429	50,922	1·9	332
Scotland	1,375,479	1,513,263	2,888,742	20.047,462	31,324	6·9	92
Wales	499.491	506,230	1.005,721	4,734,486	7,398	4·7	135
Islands in the British Seas	66,854	76,272	143.126	252,000	394	1·8	363
Army, navy, and merchant seamen	162,490	....	162,490				
Total	10,386,048	10,735,919	21,121,967	57,624,377	90,038	2·7	233
Ireland	3,176,727	3,339,067	6,553,357	20,208,271	32,512	3·2	21
Total Great Britain and Ireland	13,562,775	13,974,986	27,675,324	78,432,648	122,550		

The British population is spread over a great multitude of islands which rise between the Atlantic Ocean and the North Sea, the large Island of Great Britain being the chief of the group. This Island is surrounded by the Isle of Man, Anglesea, the Scilly Islands, the Isle of Wight, the outlaying Channel Islands, the Shetland Islands, the Orkneys, and the Hebrides. 500 islands have been numbered, but inhabitants were only found on *one hundred and seventy-five* islands on the day of the census in 1851. The British Isles extend over 11 degrees of latitude and 10 degrees of longitude; consequently, in the most northerly of the Shetlands, the night in the summer solstice is three hours shorter than in Jersey; and the sun rises and sets on the east coast of England 47 minutes before it rises and sets on the west coast of Ireland.

In the earliest period of our written history, these islands were peopled by Celts; Britain was their holy island, and the seat of their schools and most sacred groves. The isles of Anglesea and Man, both known under the name of Mona to the Romans, were the seats of the Druidic hierarchy and worship. Iona, or Icolmkill, a small island in the Hebrides, now containing 604 inhabitants, is celebrated as an early seat of Christianity. It was the station of St. Columba, who founded an order of missionaries there, and thus contributed to the diffusion of Christianity over Britain. The celebrated ruins on the island consist of a cathedral, a nunnery, and St. Oran's chapel, together with many ancient tombs and crosses. This island is often visited by tourists to the western Highlands, and is only 10 miles from the far-famed Staffa.

The population of the Island of Great Britain in 1851, was 20,536,357; Ireland contained 6,553,357 inhabitants; Anglesea, the next most populous in the group, had 57,318 inhabitants; Jersey, 57,020; the

Isle of Man, 52,344; the Isle of Wight, 50,324; Guernsey, 29,757; Lewis, 22,918; Skye, 21,528; Shetland, 20,936; Orkney, 16,668; Islay, 12.334; Bute, 9351; Mull, 7485; and Arran, 5857; 17 islands contained a population ranging from 4006 to 1061; 52 had a population ranging from 947 to 105; and the remaining 92 inhabited islands ranged from a population of 92 downward, until at last we come to an island inhabited by one solitary man.

Divisions.—The shire is an important sub-division of the kingdom; each has a lord-lieutenant, who is also keeper of the archives; a sheriff, an under-sheriff, and justices of the peace, all appointed by the crown; each shire has also a county treasurer and a clerk of the peace, each appointed by the lord-lieutenant; and a county coroner, elected by the freeholders. The revenue of the shires is chiefly derived from rates struck by the justices of the peace in counties at quarter sessions, and is for the most part appropriated in maintaining bridges, lunatic asylums, jails, prisoners, and police. The terms "hundreds" and "tythings" had their origin in a system of numeration, but whether they represented persons, families, or holdings, is difficult to determine. In process of time, what was once a *number* became a *name*, and for a long period the terms have ceased to measure either area or population, as is evidenced by the fact that the hundreds in the survey after the Conquest, and the hundreds still remaining, differ widely in both elements, and, moreover, the present hundred is different in extent in the various counties; for instance, in Gloucestershire, the hundred contains on an average 29,000 acres; in Herefordshire, 49,000; and in Shropshire, 63,000. The hide was the lot or share of the first settler.

The sessional divisions existing in all the counties of England and Wales, for the purposes of special and petty sessions, are in general based on the *hundreds* and other ancient county sub-divisions. The justices have power to alter these divisions for the convenience of holding sessions, but they have no authority to alter the ancient hundreds. There are 609 sessional divisions in England and Wales, and for the purpose of assize and jail delivery, eight circuits, beside the jurisdiction of the central criminal court. A Saxon *burgh*, or borough, was a *hundred*, or an assemblage of hundreds, surrounded by a moat or wall. As ancient boroughs fell into decay, new ones sprung up, and many towns not formerly boroughs, have been created boroughs for purposes not very intelligible. The affairs of municipal boroughs are administered by a mayor, aldermen, and other functionaries.

The 196 reformed boroughs in England and Wales contain a total population of 4,345,269 inhabitants; the population of 64 range under 5000; 43 from 5000 to 10,000; 68 from 10,000 to 50,000; 14 from 50,000 to 100,000, 4 from 100,000 to 200,000; and 3 above 200,000. The *city* of London is still unreformed, and therefore not included in these. Scotland contains 83 royal and municipal burghs, having a total population of 752,777 inhabitants; 55 have a population under 5000; 16 from 5000 to 10,000; 11 from 10,000 to 70,000; and 1, 148,000.

The minor sub-divisions of townships, parishes, and manors, were re-distributed by William the Conqueror, after the battle of Hastings, and apportioned among the chieftains in his army. The ecclesiastical districts and dioceses were designed exclusively for spiritual purposes; their boundaries are quite ignored by the general public, and rarely known by any secular officers, while, in many cases, even the clergy themselves, unprovided with maps or plans, are uncertain as to the limits of their respective cures. The division of the country, ecclesiastically, in *Dioceses, Archdeaconries*, and *Deaneries*, took place at a very early period. Most of the present bishoprics were founded in Saxon times. The dioceses, on their first formation, had their limits co-extensive with the boundaries of the kingdom of the sovereigns who formed them; but sub-divisions were soon discovered to be necessary, and various princes subsequently made repeated alterations, until at length the whole arrangement settled into its existing shape.

The indigenous vegetation of Britain partakes of the character of that of the contiguous parts of Europe. All the grains and grasses, and the common European fruits, grow in almost all districts and situations, not too elevated, and both agriculture and horticulture have been brought to a great degree of perfection. The breeds of horses, cattle, sheep, and other useful animals, are also of the best description. Of wild animals, the fox, badger, wild cat, stoat, martin, otter, squirrel, hedgehog, dormouse, mole, mouse, hare, and rabbit, are the principal. The wolf, bear, beaver, and wild ox have become extinct for several centuries. The stag and fallow deer are still abundant in several localities. The great bustard and capercailzie are the only birds known to have become extinct in Britain. The bittern, eagle, and other birds of prey are becoming daily more rare. Great Britain is the most favored country in the world for the development of mineral industry. Fuel, the indispensable agent in the treatment of metalliferous ores, and the most powerful element in the production of motive force, is distributed unequally throughout England, Scotland, and Ireland. The coal formation in these three divisions of the British empire, occupies rich and widely-spread basins, several of which, especially those of Newcastle-on-Tyne, Scotland and Wales, being near the sea, are enabled to export the coal to those places where the metalliferous ores exist in abundance, but where, as in Cornwall, the absence of fuel renders their being worked both costly and difficult. The ores of iron, abundantly distributed in several of the coal basins, add greatly to the value of these. Each one so circumstanced has become the centre of a metalliferous district, where numerous works produce iron at a price so moderate as almost to defy competition. The insular position of Great Britain, which facilitates the shipment of coal to the places where it is required, is equally important in transporting the iron by sea to any of the sea-ports of the world. These highly-favorable causes have given great development to the operations of coal-mining and the manufacture of iron, and especially since the application of cast iron for the purposes of constructing railroads. The quantity of cast iron produced in 1850 was 2,250,000 tons. The quantity of coal raised was estimated at 34,750,000 tons. These sources of wealth in coal and iron, which are alone sufficient to place a country at the head of mineral industry, are not the only ones possessed by Britain. Nature has given it mines of copper, tin, and of lead, of great richness. The annual production of copper is 12,000 tons; of tin ore, 11,000 tons; and of lead, 58,701 tons. The coal-beds of England, contained in the carboniferous system, are found in Northumberland and Durham, South Yorkshire, Nottingham and Derby, South Lancashire, Staffordshire, Warwickshire, Anglesea, Flint, Salop, Worcestershire, Gloucestershire, and the northern part of Somerset, South Wales, and near Whitehaven in Cumberland. Iron is found in inexhaustible quantities in all the formations. Lead is found chiefly in the mountain limestone; copper in the granite and older primary stratified rocks; tin in Cornwall and Devon. Salt springs, yielding large quantities of salt, are found in Cheshire and Worcestershire. As to mineral treasures, the eastern counties of England, to the south of Yorkshire, are remarkble for containing no mines, either of coal or metal. These valuable deposits are found in the more uneven districts of the north and west.

The following table presents at one view territory belonging to Great Britain, its area in square miles, and the last census in every portion attainable:

Territory belonging to Great Britain.

States, provinces, or colonies.	Area in Eng. sq. m.	Date of census.	Pop. by the last census.
I.—*European Possessions.*			
England	50,922	1851	16,921,888
Wales	7,398	1851	1,005,721
Scotland	31,324	1851	2,888,742
Islands in British seas	394	1851	143,126
The army, navy, and British seamen	....	1851	162,490
Ireland	32,445	1851	6,536,357
Heligoland	5	....	2,230
Gibraltar	1¾	1834	15,008
Malta	952	1847	108,140
Gozo	27	....	15,130
Total European possessions	122,611¾	....	27,798,822
II.—*African Possessions.*			
Sierra Leone	875	....	45,472
Gold Coast settlement	6,000	....	275,000
Fernando Po	400	....	....
Settlements on the Gambia	12	....	4,857
St. Helena	76	....	7,000
Ascension	44	....	6,957
Cape of Good Hope	110,256	....	261,430
Natal	15,000	....	250,000
Mauritius	708	1849	179,881
The Seychelles	80	....	5,800
Total African possessions	133,451	....	1,036,391
III.—*Asiatic Possessions.*			
Ceylon	24,448	....	1,421,631
Hong-Kong (treaty in 1842)	30	....	23,872
India.			
Bengal and Agra presidencies	306,000	....	71,758,869
Berar, ceded to Bengal, 1853	76,432	....	4,650,000
Madras presidency	144,889	....	16,339,426
Bombay presidency	120,065	....	10,485,017
Punjab	78,447	....	4,100,983
Settlements in Farther India, Singapore, etc	1,575	....	202,540
States dependent on Bengal	477,954	....	39,685,476
" " Madras	50,637	....	4,691,230
" " Bombay	56,320	....	4,613,029
Labuan	25	....	....
Aden	3	....	40,000
Total Asiatic possessions and dependencies	1,356,810	....	159,012,073
IV.—*American Possessions.*			
Hudson's Bay Territory	2,480,000	....	180,000
Canada East	291,989	1852	890,261
Canada West	147,332	1852	952,004
New Brunswick	27,700	1851	193,800
N. Scotia, includ. Cape Breton	18,746	1851	276,117
Prince Edward's Island	2,134	1848	62,678
Newfoundland	35,913	1851	101,606
Labrador (attached to Newfoundland)	5,000	....	100,000
Vancouver's Island	8,000	....	2,000
West Indian Possessions.			
Honduras	62,700	1848	11,066
Bermudas	47	1851	11,092
Jamaica	6,400	1849	379,690
The Bahamas	5,500	1851	25,392
Barbadoes	166	1851	135,930
Grenada	109	1844	28,927
St. Vincent	131	1851	27,248
St. Lucia	225	1850	24.538
Tobago	140	1844	13,027
Antigua	108	1850	36,190
Montserrat	47	1850	7,800
Barbuda	10	....	1,600
Dominica	275	1848	23,200
St. Christopher	70	1850	23,133
Nevis	20	1851	10,200
The Virgin Islands	90	1844	56,689
Turk's Islands	434	1851	6,122
Trinidad	2,020	1848	59,814
Bay Islands	200	....	400
British Guiana	96,500	....	127,695
Falkland Islands	600	....	2,000
Total American possessions	2,993,056	....	3,483,877
V.—*Australian Possessions.*			
New South Wales	34,500	1851	197,168
Victoria	....	1852	200,000
Western Australia	100,000	1850	7,000
Southern Australia	300,000	1850	34,833
Van Diemen Land	25,000	1850	70,164
New Zealand	86,000	1850	22,400
Auckland Islands	....	....	....
Norfolk "	....	....	....
Total Australian possessions	545,500	....	530,705
Grand Total	4,131,333	....	194,997,280

An Account of the Declared Value of the Exports to each Colony and Dependency of the British Crown in each of the Three Years ended 5th January, 1850, 1851, and 1852.

British colonies and dependencies.	Declared Value of Exports.		
	1850.	1851.	1852.
	£	£	£
Heligoland	357	250	238
Channel Islands	634,193	506,415	613,724
Gibraltar	533,481	388,141	481,286
Malta and Gozo	387,744	314,386	301,443
Ionian Islands	165,805	135,912	223,096
Europe	1,721,580	1,345,104	1,619,787
Possessions on R. Gambia	35,770	43,700	47,197
Sierra Leone	60,290	70,230	94,456
Gold Coast	134,591	87,871	107,653
Fernando Po	3,197	3,668	31,505
Possessions in South Africa	530,961	796,600	752,393
Ascension	4,997	3,368	7,307
St. Helena	18,315	26,695	23,248
Mauritius	234,022	368,726	232,955
Africa	1,012,143	1,400,858	1,296,834
Aden	14,564	13,711	17,184
Territories in the E. Indies	6,149,842	7,242,194	7,022,296
Singapore	494,080	562,139	608,886
Ceylon	159.352	218,332	175,414
Hong-Kong	651,969	598,191	632,399
Asia	7,469,807	8,634,567	8,456,179
West Australia	12,518	36,981	34,726
South Australia	315,648	417,809	375,035
New South Wales	1,330,847	1,005,452	1,201,261
Victoria	....	589,279	604,403
Van Diemen Land	315,021	440,566	420,922
New Zealand	106,434	112,166	171,009
Australia	2,080,468	2,602,258	2,807,356
Sett. of Hudson's Bay Co.	61,795	102,225	72,827
Newfoundland	297,350	343,120	334,730
Canada	1,324,931	1,993,511	2,451,534
New Brunswick	279,280	411,151	442,198
Prince Edward's Island	41,421	56,867	57,109
Nova Scotia	276,106	328,177	455,309
Antigua	70,194	65,737	99.703
Barbadoes	319,658	331,594	419,479
Dominica	22,484	26,474	33,595
Grenada	28,348	36,796	45,163
Jamaica	626,035	791,574	700,290
Montserrat	402	63	173
Nevis	1,093	1,641	2,208
St. Christopher	45,448	43,667	58,664
St. Lucia	16,672	15,000	22.974
St. Vincent	58,268	57,370	73,201
Tobago	14,887	18,641	16,820
Tortola	46	221	....
Trinidad	248,213	241,930	275,185
Bahamas	24,709	33,008	32,088
Bermudas	47,138	39,527	32,435
Demerara	279,002	302,974	364,718
Berbice	17,819	21,012	24,336
Honduras, British	206,244	183,352	232,633
Falkland Islands	6,173	1,145	2,841
America	4,313,716	5,449,777	6,250,213
Aggregate value of Brit. and Irish produce and manufactures exported to the British colonies and dependencies	16,597,714	19,432,559	20,430,369

The Public Funded Debt of Great Britain and Ireland on the 5th January, 1854, in Pounds sterling and United States' currency.

	Pounds ster.	Dollars.
Great Britain.		
New annuities.......2½ per cent.	1,815,123	9,075,515
Old sea annuities.....3 " "	2,746,677	13,783,385
Debt due B'k of Eng.3 " "	11,015,100	55,075,500
Consolidated annuits..3 " "	367,860,652	1,839,333,260
Reduced annuities...3 " "	114,535,558	572,677,790
Total Great Britain	714,360,854	3,571,804,270
Ireland.		
New annuities.......2½ per cent.	8,230	40,150
Consolidated annuits.3 " "	6,049,366	30,247,130
Reduced annuities...3 " "	118,758	588,790
Annuities............3¼ " "	31,723,424	158.617.120
Debt due B'k of Irel.3½ " "	2,630,769	11,958,845
New annuities.......5 " "	2,000	10,000
Total Ireland	40,582,547	202,662,735
Total United Kingdom, 1854	754,893,400	3,774,465,000

The national debt at the Revolution in 1688 amounted to £664,263; at the commencement of the American war in 1775, it amounted to £128,000,000. In 1817 it amounted to £840,000,000.

NETT PUBLIC INCOME AND EXPENDITURE OF THE UNITED KINGDOM FOR THE YEAR ENDED 5TH JANUARY, 1853.

INCOME.	
Customs	£22,137,120
Excise	15,791,735
Stamps	6,921,298
Taxes	3,559,627
Property tax	5,652,770
Post office	2,442,327
Crown Lands	358,265
Small branches of hereditary revenue	14,851
Surplus fees of regulated offices	110,097
Money received from the East India Company, and impress moneys, etc	153,776
Other sources	613,704
Total	£57,755,570
EXPENDITURE.	
Public debt	£27,934,533
Civil list	398,588
Diplomatic service	151,656
Courts of justice	1,089,878
Navy	6,625,944
Army	7,018,165
Ordnance	2,491,798
Annuities and pensions	853,709
Salaries and pensions	279,408
Civil services	3,797,813
Miscellaneous	281,014
Kaffir War	370,000
Charges of Collections	4,436,860
Total	£55,229,366
Excess of income	2,526,204
Total	£57,755,570

The revenue for the year ending 1854 amounted to £51,784,118.

Great Britain is less fertile in grain than France, but affords better pasturage, possesses an extensive line of sea-cost, with numerous harbors, a natural and well-defined frontier, which no invading army can pass on foot, a good commercial position, and the largest fields of coal in Europe; but all these advantages have contributed less to her aggrandizement than the excellence of her laws and political constitution. The progress of Britain within the last hundred years, and especially within the last half century, has been wonderfully great. The British isles contain about 76,000,000 of acres, of which about two thirds are in cultivation, and more than one third waste or uncultivated. About half of the waste land is in Scotland, where the cultivated soil forms little more than a fourth part of the total area of the country, while in England it forms about 67 per cent., and in Ireland 70 per cent. of the surface. So great, however, has been the progress of agricultural improvement, that, though the population has doubled itself within the last fifty years, the production of food has fully kept pace with it. The progress of Britain in manufacturing industry has been still more rapid and more remarkable than even in agriculture; and in this respect her natural advantages are more exclusive. She has a good supply within herself of the raw material of her staple manufactures of woolen cloths, iron, and linen; and her means of procuring silk and cotton are equal at least to those of her neighbors. In enterprise and commercial activity, her merchants take the lead among the nations of Europe; and the removal of all restrictions, and the full introduction of the principles of free trade have given such a stimulus to their exertions as transcends all former example. The number of ships employed in her foreign and colonial trade in 1853 was 35,303, with a burden of 7,797,530 tons; and the number of registered British seamen was 253,896.

ACCOUNT OF THE EXTENT OF LAND IN THE UNITED KINGDOM UNDER THE PRINCIPAL DESCRIPTIONS OF CROPS IN 1852–53; THE AVERAGE RATE OF PRODUCE PER ACRE; THE TOTAL PRODUCE; THE AMOUNT OF SEED; THE PRODUCE UNDER DEDUCTION OF SEED; AND THE TOTAL VALUE OF SUCH PRODUCE.

Crops.	Acres in crop.	Produce per acre.	Total produce.	Seed 1-7th of produce.	Produce under deduction of seed.	Price per quarter.	Total value.		
		Quarters.	Quarters.	Quarters.			£	s.	d.
ENGLAND.									
Wheat	3,000,000	3¾	11,250,000	1,607,143	9,642,857	45s.	20,696,428	5	0
Barley	1,000,000	4½	5,400,000	771,428	4,628,572	27s.	6,248,572	4	0
Oats and rye	2,000,000	4½	9,000,000	1,285,714	7,714,286	20s.	7,714,286	0	0
Beans and peas	500,000	3¾	1,875,000	267,857	1,607,143	28s.	2,250,000	4	0
			27,525,000		23,592,858				
Potatoes, turnips, and rape	2,500,000	£7 per acre.	....	....	....	....	26,000,000	0	0
Clover	1,300,000								
Fallow	800,000	....	....	....	....	....	....		
Hops	50,000	£15 per acre.	....	....	....	....	780,000	0	0
Gardens	250,000	£15 per acre	....	....	....	....	3,750,000	0	0
	11,400,000						67,439,286	13	0
SCOTLAND.		Quarters.		Seed 1-6th.					
Wheat	350,000	3¾	1,137,500	189,583	947,917	43s.	2,038,021	11	0
Barley	450,000	4	1,800,000	300,000	1,500,000	26s.	1,950,000	0	0
Oats	1,200,000	5	6,000,000	1,000,000	5,000,000	20s.	5,000,000	0	0
Beans and peas	50,000	3	150,000	25,000	125,000	28s.	175,000	0	0
			9,087,500		7,572,917				
Fallow	100,000	....	....	....	....	....	....		
Potatoes	200,000	£7 per acre.	....	....	....	....	7,700,000	0	0
Turnips	450,000								
Clover	450,000								
Flax	5,000	£15 per acre	....	....	....	....	75,000	0	0
Gardens	35,000	£15 per acre	....	....	....	....	525,000	0	0
	3,290,000						17,463,021	11	0
IRELAND.		Quarters.		Seed 1-6th.					
Wheat	400,000	3	1,200,000	200,000	1,000,000	40s.	2,000,000	0	0
Barley	320,000	3½	1,120,000	186,666	933,334	24s.	1,119,999	12	0
Oats	2,200,000	5	11,000,000	1,833,333	9,166,667	20s.	9,166,667	0	0
			13,320,000		11,100,001				
Potatoes	1,400,000	£8 per acre.	....	....	....	....	11,200,000	0	0
Fallow	300,000	....	....	....	....	....	....		
Flax	140,000	£15 per acre.	....	....	....	....	2,100,000	0	0
Gardens	25,000	£12 per acre.	....	....	....	....	300,000	0	0
	4,785,000	....	....	....	....	....	25,886,666	12	0
Total	19,475,000	....	49,932,500	7,666,724	42,265,776	....	110,788,974	16	0

Manufactures.—In the order of their importance, we begin with cotton. The history of this manufacture, which now employs more hands than any other within Britain, and furnishes above one third in value of the whole exports, is remarkable. The raw material is of vegetable origin, and is obtained from the internal coating of the pod or seed of the *gossypium*, of which there are several varieties—some growing as a tree or shrub, and others as an annual herbaceous plant. It is from the latter that the far greater part of the supply is obtained; and for this supply Britain is entirely dependent on other countries. Cotton grows in India, and would undoubtedly thrive well in many of the colonies; but the present supply is derived from the United States of America. In so far, therefore, as regards the raw material, Britain has no advantage in the market over other competitors; but her superiority heretofore has been in the admirable perfection of the machinery employed. The inventions of Arkwright, Hargreaves, Compton, and Cartwright, have given advantages to a country possessing, like Britain, exhaustless fields of coal, vast accumulations of capital, and a dense and industrious population. For extended information in regard to these inventions see Cotton and Wool.

Account of the real or declared Value of the various Articles of the Manufacture and Produce of the United Kingdom exported to Foreign Countries during each of the six Years ending with 1852, specifying the Countries to which they were exported, and the Value of those annually shipped for each, and showing also the average Amount of Exports during the said six Years to each Country, and to each of the five great Divisions of the Globe.

Countries.	1847.	1848.	1849.	1850.	1851.	1852.	Average annual amount of Exports. 1847–1852.
Europe.	£	£	£	£	£	£	£
Russia	1,844,543	1,925,226	1,566,175	1,454,771	1,289,704	1,099,917	1,530,056
Sweden	179,367	162,819	185,027	151,030	189,319	184.734	175,383
Norway	169,149	150,117	182,336	211.917	257,814	254,276	204,268
Denmark	253,701	296,466	353,599	454,304	445,500	452,436	376,001
Prussia	553,968	404,144	428,748	424,480	503,531	581,884	482,793
Germany	6,286,217	4,859,775	5,649,964	7,033,116	7,190,766	7,308,722	6,388,092
Holland	3,017,423	2,823,258	3,499,937	3,542,632	3,542,673	4,109,976	3,422,650
Belgium	1,059,456	823,968	1,457,584	1,136,237	984,501	1,076,499	1,089,708
France	2,554.283	1,024,521	1,951,269	2,401,956	2,028,463	2,731,286	2,115,296
Portugal proper	889,916	1,175,748	979,597	1,029,204	1,048,356	1,104,213	1,037,839
Azores	42,980	55,360	58,406	47,607	59,635	63.479	54,578
Madeira	33.853	40,822	35,009	41,578	41,941	41,825	39,171
Spain and the Balearic Islands	770,729	616,878	623,136	864,997	1,015,493	1,253,957	857,532
Canary Islands	30,680	45,822	58,378	61,754	49,827	39,641	47,684
Gibraltar	466,845	750,257	533,481	388,141	481,286	510.889	521,817
Italy and the Italian Islands	2,348,707	2,706,882	3,494,849	3,400,691	3,921,025	3,392,286	3,210,740
Malta	195,836	379,467	387,744	314,386	301,443	256,867	305,957
Ionian Islands	143,426	178,831	165,805	135,912	223,096	138,642	164,285
Turkey, Greece and Greek Islands	2,810,902	3,143,013	2,881,093	3,012,653	2,441,951	2,501,973	2,798,597
Isles of Guernsey, Jersey, Alderney, and Man	542,191	599,583	634,125	506,415	613,724	564,453	576,748
Total	24,194,172	22,162,957	25,126,262	26,613,781	26,630,048	27,667,955	25,399,195
Asia.							
Syria and Palestine	415,292	258,186	338,366	303,254	359,871	511,096	364,344
Arabia and Persia	12.417	19,656	17,182	13,711	17,184	20,686	16,798
E. India Company's Territ. & Ceylon	5,470,105	5,077,247	6,803,274	8,024,411	7,807,039	7,352,907	6,755,831
China	1,503,969	1,445,959	1,537,109	1,574,145	2,161,268	2,503,599	1,787,675
Sumatra and Java	358,177	337,585	383,112	507,499	759.698	619,185	494,209
Philippine Isles	104,486	143,897	80,997	193,269	202,900	115.620	140,195
Total	7,864,446	7,282,530	9,159,990	10,616,289	11,307,960	11,123,093	9,559,052
Africa.							
Egypt	538,308	509,876	638,411	648,801	968,729	955,701	709,971
Tripoli, Barbary, and Morocco	30,809	31,130	80,880	51,996	55,249	120,209	61,712
Western Coast of Africa	518,420	571,022	620,371	641,975	658,934	536,358	591,180
Cape of Good Hope	688.208	645,718	520.896	796,600	752,393	1,064,283	744,683
Eastern Coast of Africa	13,751	....	5,489	....	224	5,542	4,168
African ports on the Red Sea	505	590	1,290	1,728	788	1.138	1,007
Cape de Verd Islands	4,145	3,324	1,774	3,242	11,094	9.561	5,528
St. Helena and Ascension	31,378	31,728	23,312	30,063	30,555	31,760	29,799
Mauritius	223.563	169,308	234,022	368,726	232,955	229,693	243,045
Total	2,049,087	1,962,696	2,126,445	2,543,131	2,710,921	2,954,245	2,391,088
America.							
British North American Colonies	3,233,014	1,990,592	2,280,386	3,235,051	3,813,707	3.065.364	2.936.352
British West Indies	2,273,524	1,546,829	2,027,390	2,213,581	2,433,665	2,031,358	2,087,725
Hayti	192,089	88.067	109,306	274,918	239,146	251,409	192,489
Cuba and other foreign West Indies	1,317,687	910,518	1,443,002	1,522,896	1,852,340	1,637,178	1,447,270
United States of America	10,974,161	9,564.909	11,971,028	14,891,961	14,362,976	16,567,737	13.055.462
Mexico	100,688	945,937	779,059	451,820	577,902	366,020	536,904
Guatemala	86,983	75,146	117,933	251,073	319,814	260,699	185,275
Columbia	327,885	310,076	519,799	665,193	723,689	779,029	554,278
Brazil	2,568,804	2,067,302	2,444,715	2,544,837	3,518,684	3,464,394	2.768,123
States of La Plata and Uruguay	490,504	605,953	1,399,575	909,280	676,407	1,452,966	922,448
Chili	866,325	967,303	1,089,914	1,156,266	1,201,937	1,167,494	1,074,873
Peru	623,189	853,129	878,251	845.639	1,208,253	1,024,007	905,412
Falkland Islands	2,088	717	6,173	1,145	2,841	7,792	3,459
North West Coast of America	8,193	3,452	7,119	10,628	281	125	4,966
Total Pounds Sterling	23,065,134	19,929,930	25,073,650	28,974,288	30,931,642	32,075,572	26,675,036
Australia.							
N. S. Wales, Van Diemen Land, Swan River, and New Zealand	1,644,170	1,463,931	2,080,364	2,602,253	2,807,356	4,222,205	2,470.046
South Sea Islands	25,368	47,401	29,314	18,143	60,795	33,784	35,801
Total	1,669,538	1,511,332	2,109,678	2,620,396	2,868,151	4,255,989	2,505,847
Recapitulation.							
Europe	24.194,172	22,162,957	25,126,262	26,613,781	26,630,048	27.667.955	25,399,195
Asia	7.864,446	7,282,530	9,159,990	10,616,289	11.307.960	11,123,093	9.559,052
Africa	2,049,087	1.962,696	2,126,445	2,543,131	2.710,921	2,954,245	2,391,088
America	23.065,134	19,929,930	25,073,650	28,974,288	30,931,642	32,075,572	26,675,036
Australia	1,669,538	1,511,332	2,109,678	2,620,396	2,868,151	4,255,989	2,505,847
Grand Total Pounds Sterling.	58,842,877	52,849,445	63,596,025	71,367,885	74,448,722	78,076,834	66,580,218

Woolens.—This is the most ancient, and was for centuries the great staple manufacture. The flocks of Britain furnished wool of peculiar excellence, and in abundance for home demand, and a large surplus for exportation. Though the manufacture can not boast of an extension like that of cotton, it holds the next place to it; and besides working up the greater part of the wool grown in Britain, draws largely on other countries for additional supplies. In the finer broadcloths, Britain has formidable competitors in the Belgians, from whose forefathers the Britons may be said to have learned this branch, and also in the Saxons; but in other branches of the woolen manufacture the British superiority is decided. The chief seats of the woolen manufacture in England are Yorkshire, Lancashire, Gloucestershire, and Wiltshire, the latter being the most distinguished for broadcloths; Norfolk for worsted stuffs; Leicestershire and Nottinghamshire for woolen hosiery; blankets and flannels have numerous localities; but for the finer qualities the west of England and several of the Welsh counties are most celebrated. Carpets of every quality and pattern are extensively made at Kidderminster, Cirencester, Worcester, etc., but those of Wilton and Axminster are so superior as to suffer little by comparison with the celebrated fabrics of Turkey and Persia, and the matchless Gobelin Tapestry of France. A particular species of woolen manufacture, in which the resources of modern ingenuity are signally displayed, is that of *shoddy*. Its raw material is woolen rags, which, after various purifying processes, are reduced to their original wool, then re-spun, re-dyed and re-manufactured. Formerly the article produced was so coarse as to be fit only for padding and similar purposes; but now, either alone or with a partial mixture of raw wool, shoddy is made into flushings, drugget, pilot and other great coats, carpets and table covers—some of the last of great beauty. The principal seat of the shoddy trade is Dewsbury, about eight miles from Leeds. The woolen manufacture of Ireland is on a very limited scale, being confined to a few broadcloth factories near Dublin and Cork, and a few blankets and flannels, the former in Kilkenny and the latter at Wicklow. Scotland has made much more progress. The chief seats of the Scotch woolens are, Aberdeen for cloths, chiefly coarse, and the spinning of worsted; Kilmarnock for carpets, bonnets, and shawls; Stirling and its neighborhood for carpets and tartans; Galashiels, Jedburg, and also a number of small towns along the foot of the Ochils, for narrow cloths of several varieties, tartans, shawls, plaids, etc.; Inverness for Tartans; and Hawick for hosiery.

Linen.—In England the spinning of flax is carried on to a great extent, but its manufacture into cloth is comparatively limited. A considerable quantity of damask and diaper is made at Barnsley. Linen is the great staple of Ireland, and was long, in regard to textile fabrics, the staple also of Scotland. In the former, extraordinary means were employed to foster it. It early fixed its seat in the north, particularly near Belfast, and there the great changes which have taken place in the mode of manufacture, by the substitution of spinning-mills and factories for the domestic wheel and loom, appear only to have fixed it more permanently. Almost the only form into which flax is manufactured in Ireland is plain linen, chiefly shirtings. In Scotland the manufacture assumes greater variety. Besides plain linen, it has manufactures of Osnaburghs, sheetings, sail-cloth, sacking, etc., principally at Dundee; and of diaper and damask at Dumfermline. The staples of both towns are by far the most important of their kind in Britain.

Silk.—Here the raw material is, like cotton, entirely of foreign production. This is a great branch of manufacture, in which, at least in finer fabrics, Britain must yield the palm of superiority to the French and Belgians. The number of silk-mills is considerable, and confined chiefly to England. Paisley is almost the only town in Scotland where it is carried on to a great extent, and even there the shawls of unrivaled excellence are generally a mixed fabric of silk and wool. The chief seats of the silk trade in England are, the district of Spitalsfield in London, Manchester, and Coventry.

Besides the manufactures already mentioned, there is a great number which, though separately of less importance, absorb immense sums of capital, exhibit many of the most wonderful specimens of human ingenuity, and give subsistence to millions of the population. We can do little more than name the most prominent. Of iron, the first process is converting ores into metals; and thence the additional step of converting it from its first smelted state into malleable iron, whence, by undergoing a new process, steel is produced. Vast processes remain behind, and constitute numerous branches of manufacture under the general name of hardware. Several of the articles produced are of great bulk and magnitude, and many of them are so small as to be almost microscopic. To the former class belong iron bridges—no longer suspension only, but tubular—one of the structures of this kind now spans the Menai Strait; immense steam engines, and machinery of every kind, adapted to all the improvements of the age. Of the minor articles of hardware, the artisans of Sheffield and Birmingham produce a great variety; and of the precious metals, plate, jewelry, and watches are made extensively, but nowhere more perfect than in London. Porcelain, classic in shapes, gorgeous in colors, and exquisite in designs; and the potteries of Stafford are far-famed. The manufactures of glass, too, wrought into numerous forms of beauty and utility in the establishments at Newcastle and South Shields, excite the admiration. Another manufacture is that of paper, of vast extent, and its processes exhibit some of the highest triumphs which human ingenuity has yet attained. In connection with it are various manufactures of which it may be considered as directly or indirectly the source—type-founding, printing books, etc. The manufacture of leather, including its various subdivisions of tanning, currying, shoe, glove, and harness-making, with numerous minor branches in which leather is employed.

The value of the produce and manufactures of the United Kingdom exported from Great Britain and Ireland to foreign parts, according to the real or declared value, amounted in 1832 to		£38,251,502
In 1851 they had risen to		74,448,732
Of which were sent to the U. States	£14,362,976	
To the various British dependencies	19,513,960	
To Brazil and South American States	8,229,628	
		£42,106,564

"From which it appears that the United States of America consume nearly one fifth of our exported produce and manufactures, and that the countries colonized by Great Britain, and those dependent on her, are her customers for nearly half of all the produce and manufactures which she sells to the world. There is every reason to expect that, under the wise and liberal constitution granted to the British colonies, increasingly populous and prosperous nations will extend over the present unexplored wildernesses; and as the United States of America are rapidly enlarging their boundaries to the west and the south, and as their increasing population has been uniformly attended with a proportionate increase of trade, it is obvious that the prosperity of Britain is especially bound up with the prosperity of her colonies and with that of the United States. Britain is not less interested in the increasing wealth and prosperity of the other countries of the world; for the richer and more prosperous they are, the better customers will they be for our goods, and the more will they be able to contribute to our comfort and enjoyment by the produce which they will be able to export to our shores."—*Ency. Brit.*

Value of Imports into Great Britain and Ireland from Foreign Parts, calculated at the Official Rates of Valuation, for the Years ending 5th January, 1853–1854.

Species of Imports.	Great Britain.		Ireland.		United Kingdom.	
	1853.	1854.	1853.	1854.	1853.	1854.
Almonds of all sorts	£69,216	£65,305	£689	£476	£69,905	£65,781
Animals living: viz.:						
Oxen, bulls, cows, and calves	138,830	192,508	....	....	138.830	192,508
Sheep and lambs	50,833	57,621	....	2	50,833	57,623
Annatto	40,101	51,421	....	....	40,101	51,421
Ashes, pearl and pot	199,082	201,181	....	....	199,082	201,181
Bacon	166,408	428,567	....	....	166,408	428,567
Barilla and alkali	2,664	1,621	40,662	39,428	43,326	41,049
Bark, for tanning and dyeing	82,461	79,770	8,715	9,494	91,176	89,264
" Peruvian	254,896	192,784	....	39	254,896	192,823
Beef, salted or fresh	114,710	167,626	3	398	114,713	168,024
Bones of animals and fish	231,907	179,304	290	185	232,197	179,489
Books, bound or unbound	41,787	44,710	11	90	41,798	44,800
Boots, shoes and galoches	90,568	135,610	10	82	90,578	135,692
Borax	171,091	287,761	....	....	171,091	287,761
Brimstone	378,047	462,712	11,137	9,425	389,184	472,137
Bristles	36,628	60,695	....	....	36,628	60,695
Butter	410,177	590,930	1	....	410,178	590,930
Caoutchouc	54,900	48,485	....	....	54,900	48,485
Cassia lignea	37,270	16,632	....	....	37,270	16,632
Cheese	442,182	603,387	15	4	442,197	603,391
Cinnamon	108,371	144,356	....	....	108,371	144,356
Clocks	89,263	126,690	93	628	89,356	127,318
Cloves	78,634	120,939	1	....	78.635	120,939
Cochineal, granilla. and dust	1,977,319	910,936	2,274	....	1,979,593	910,936
Cocoa and chocolate	151.086	191,406	4,419	4,433	155,505	195,839
Coffee	3,427,019	3,469,737	148	1,735	3,427,167	3,471,472
Copper ore and regulus	107,609	125,983	....	....	107,609	125,983
Copper, unwrought and part wrought	534,281	533,021	....	....	534,281	533,021
Cork	57.139	67.409	10,618	14,195	67,757	81,604
Corn, meal, and flour	6,928,565	10,559,120	4,343,477	4,276,234	11,272,042	14,835,354
Cotton manufactures of India and China	461,172	588,097	....	....	461,172	588,097
" " of Europe, etc	355,135	478,454	26	25	355,161	478,479
Cream of Tartar	95,200	131,295	724	53	95,924	131,348
Currants	363,623	279,869	1,292	1,469	364,915	281,338
Dye and hardwoods: Barwood	59,777	10,089	....	....	59,777	10,089
" " Brazil wood	8,350	146,193	....	....	8,350	146,193
" " Fustic	48,045	49,293	....	....	48,045	49,293
" " Logwood	224,156	236,701	6,662	3,364	230,818	240,065
" " Mahogany	403,438	241,109	2,586	1,146	406,024	242,255
" " Rosewood	82,475	113,000	....	....	82,475	113,000
Embroidery	74,317	103,678	2	5	74,319	103,683
Figs	24,772	31,392	56	55	24,828	31,447
Flax and tow	2,813,469	3,889,587	141,114	144,774	2,954,583	4,034,361
Ginger	25,372	27,673	....	....	25,372	27,673
Glass, except bottles	166,837	246,531	7	23	166,844	246,554
Guano	1,296,200	1,231.655	2,695	....	1,298,895	1,231,655
Gum, Animi and Copal	70.335	90,646	....	....	70,335	90,646
" Arabic	104,034	132,637	....	290	104,034	132,927
" Lac Dye	74,052	75,811	....	....	74,052	75,811
" Shellac	68,695	119,712	....	....	68,695	119,712
" Senegal	9,844	15,008	....	....	9,844	15,008
Hair, manufacture of	237,559	245,245	....	....	237,559	245,245
Hair, horse	62,274	86,113	....	....	62,274	86,113
Hams	16,810	34,906	70	200	16,880	35,106
Hemp	920,098	1,153,706	20,288	18,968	940,386	1,172,674
Hides, raw or tanned	1,701,856	2,461,209	9,256	13,343	1,711,112	2,474,552
Indigo	1,236,169	972,752	....	....	1,236,169	972,752
Iron in bars, unwrought	324.158	466,006	2,091	....	326,249	466,006
Isinglass	24,678	20,761	....	....	24,678	20,761
Lace	65,758	91,930	2	....	65,760	91,930
Lard	92.985	177,621	....	....	92,985	177,621
Lead, pig and sheet	198,767	260,825	58	1,686	198,825	262,511
Leather gloves	66,393	86,910	....	....	66.393	86,910
Linens	50.559	66,320	294	333	50,853	66,653
Liquorice juice and paste	45,986	53,217	877	392	46,863	53,609
Mace	38,561	51,889	1	....	38,562	51,889
Madder and garancine	1,919,757	2,342,674	160	851	1,919,917	2,343,525
Nutmegs	71,784	60,323	1	....	71,785	60,323
Oil, castor	341,910	253,082	....	....	341,910	253,082
" cocoa nut	304,317	490.536	....	....	304,317	490,536
" olive	298,259	333,930	2,535	12,424	300.794	346,354
" palm	523,812	636,581	....	87	523.812	636,668
" rape seed	128,745	185,482	....	8,912	128,745	189,394
" blubber	373,801	383,071	349	80	374,150	383,151
Oil seed cakes	260,707	350,692	40	61	260,747	350,758
Oranges and lemons	87,077	99,712	3,169	2,542	90,246	102,254
Pepper	110,523	91,605	16	37	110,539	91,642
Pimento	64,155	38,379	....	....	64,155	38,379
Pork, salted or fresh	90,475	144,557	73	....	90,548	144,557
Potatoes	386,104	565,077	7	150	386,111	565,227
Quicksilver	422,637	373,624	....	....	422,637	373,624
Rags, etc., for paper	38,601	52,345	664	1,005	39,265	53,350
Raisins	238,749	304,979	4,761	5,628	243,510	310,607
Rhubarb	53,857	88,778	....	....	53,857	88,773
Rice	770,677	1,151,635	5	2,351	770,682	1,153,986
Rosin	113,310	186,987	1,596	522	114.906	186,509
Safflower	134,529	72,397	....	1	134.529	72,398
Sago	144.881	191,507	....	2,039	144,881	193,546
Saltpetre and nitre	367,050	422,458	....	5	367,050	422,463
Seeds, clover	81,351	128,928	951	1,706	82,302	130,634
" flax and linseed	729,949	966,421	106,393	171,487	836,342	1,137,908
" Rape	151,104	88,257	....	2,074	151,104	90,331

Continued p 853

VALUE OF IMPORTS INTO GREAT BRITAIN AND IRELAND FROM FOREIGN PARTS, CALCULATED AT THE OFFICIAL RATES OF VALUATION, FOR THE YEARS ENDING 5TH JANUARY.—*Continued.*

Species of Imports.	GREAT BRITAIN.		IRELAND.		UNITED KINGDOM.	
	1853.	1854.	1853.	1854.	1853.	1854.
Continued						
Senna	24,971	14,650	....	....	24,971	14,650
Shumac	62,665	69,624	1,447	1,534	64,112	71,158
Silk, raw and waste	2,729,343	3,208,717	....	5,444	2.729,343	3,214,161
" thrown	550,817	1,054,830	....	....	550,817	1.054,830
" manufacture of India and China	329,866	825,122	308	....	330,174	325,122
" " of Europe, etc	1,398,489	1,902,941	32	14	1,398,521	1,902,955
Skins and furs	348,886	360,099	....	80	348,886	360,179
Spelter	925,268	1,170,923	....	....	925,268	1,170,923
Spirits, brandy	534,005	666,251	5,142	5,741	539,147	671,992
" Geneva	13,914	24,619	75	264	13,989	24,883
" rum	470,241	355,903	547	755	470,788	356,658
Sugar, raw and refined	9,739,227	10,322,372	722,991	720,469	10,462,218	11,042,841
" molasses	368,372	618,419	44	2	368,416	618,421
Tallow	1,070,668	1,236,216	45,564	14.133	1,116,232	1,250,349
Tar	129,404	144,216	3,246	4,392	132,650	148,608
Tea	6,560,183	7,113,482	75,870	32	6,636,053	7,113,514
Teeth, elephants'	54,896	59,709	....	....	54,896	59.709
Terra Japonica and cutch	115,069	90,327	....	1,837	115,069	92.164
Tin	237,215	248,702	....	....	237,215	248,702
Tobacco and snuff	450,039	638,816	9	196	450,048	639,012
Turpentine	240,738	196,324	....	160	240,738	196,484
Valonia	66,646	98,122	19,292	13,787	85,938	111.909
Watches	146,970	199.729	....	169	146,970	199,898
Wax, bees'	63,694	55.561	....	....	63.694	55.561
Whale-fins	64,205	72,507	....	....	64.205	72,507
Wines	702,502	1,178,589	46,864	67,314	749,366	1,245,903
Wood and timber, viz.:						
Deals, etc., sawn	246,512	305,703	40,862	47,520	287,374	353,223
Timber, not sawn	900,115	1,142,296	146,385	155,185	1,046,500	1,297,481
Teak staves	65,334	94,920	1,974	1,702	67,308	96.622
Wool, cotton	30,311,094	28,881,813	14.478	1,004	30,325.572	28,882,817
" sheep's	2,459,142	3,111,708	3,896	2,859	2.463,038	3.114,567
Woolen manufactures	719,726	1,210,673	51	85	719,777	1,210,758
Yarn, woolen or silk	61,423	128,336	....	....	61.423	128,336
All other articles	4,654,187	6,340,466	76,553	110,457	4,730,740	6,450,923
Total official value of imports from foreign parts	£103,408,395	£117,231,764	£5,937,014	£5,905,071	£109,345.409	£123.136,835

AN ACCOUNT OF THE VALUE OF THE IMPORTS INTO, AND OF THE EXPORTS FROM, GREAT BRITAIN AND IRELAND, DURING EACH OF THE THREE YEARS ENDING THE 5TH OF JANUARY, 1853.

Years.	GREAT BRITAIN.				IRELAND.				UNITED KINGDOM.			
	Value of Imports into Great Britain.	VALUE OF EXPORTS FROM GREAT BRITAIN.			Value of Imports into Ireland.	VALUE OF EXPORTS FROM IRELAND.			Value of Imports into the United Kingdom.	VALUE OF EXPORTS FROM THE UNITED KINGDOM.		
		Produce and manufactures of the United Kingdom.	Foreign and colonial merchandise.	Total exports		Produce and manufactures of the United Kingdom.	Foreign and colonial merchandise.	Total exports.		Produce and manufactures of the United Kingdom.	Foreign and colonial merchandise.	Total exports
	£	£	£	£	£	£	£	£	£	£	£	£
1851	95,252,084	175,147,095	21,882,977	197,030,072	5,208,349	290,003	10,190	300,193	100,460,433	175,437,098	21,893,167	197,330,265
1852	103,579,582	190,407,476	23,726,372	214,133,848	7,099,543	250,838	6,331	257,169	110,679,125	190,658,314	23,732,703	214,391,017
1853	103,408,395	195,865,636	23,320,954	219,186,590	5,937,014	350,974	8,135	359,109	109,345,409	196,216,610	23,329,089	219,545,699

Exports, Imports, etc.—In 1800 the annual exports of the British and Irish produce amounted to £35,903,000; the exports of foreign and colonial produce to £7,271,000, being a total of £43,174,000. The imports for the same year amounted to £24,066,000. In 1852, the British and Irish exports to foreign countries were £72,049,367; to the colonies, £20,430,369; total, £92,479,736. The imports for the same year amounted to £109,345,409. The total number of vessels, their tonnage, and number of persons navigating the same, were, in 1852, 34,402 vessels, 1,225 of which were propelled by steam; tonnage, 4,424,392; navigated by 243,512 men and boys. The total length of railroads authorized by Parliament up to the 31st December, 1851, amounted to 11,962 miles; capital, £368,428,000. The total length of railroads completed in Great Britain and Ireland at the end of the year 1853 was 7774 miles; cost of construction, up to July, 1853, £263,636,320, equal to $1,315,000,000. An almost instantaneous communication by electric telegraph has also been established throughout great Britain and Ireland. Of other associated industrial companies, the investments are, in mining companies, £9,978,747; gas companies, £6,415,295; insurance companies, £6,000,000. The gross revenue of the post office for the year ending January 5th, 1852, was £2,422,168; the cost of management was £1,304,163; the net revenue, £1,118,004. The total number of letters in 1851 was 360,647,187, of which 36,512,649 were in Scotland, and 35,982,782 in Ireland. The payment made to the various railroad companies for the conveyance of mails for work done within the year, was £155,575, and £87,272 for work done in previous years. The total number of money orders issued in the year 1851 was 4,661,025; the amount, £8,880,420. In 1851, the persons employed were, in England and Wales, 13,912; in Ireland, 1927; in Scotland, 2190, and in the colonies, 939. The total amount paid to these persons was £727,120.

British Exports in 1855.—A return has just been issued by the Board of Trade of the declared values of British and Irish produce and manufactures exported from the United Kingdom in the year 1855, specifying the amount to each country and colony. From this document the following list has been compiled, showing the order in which the various communities of the world rank as her customers. The total is £95,688,085, against £97,298,900 in 1854, and £98,933,781 in 1853. Owing to the revulsion from over-speculation in the Australian and Canadian trades, the proportion taken by her own possessions, amounting in the two preceding years to about a third of the whole, presents a falling off of £7,000,000, although India, which, from the prosperity consequent on the demand for substitutes for Russian produce and the outlay for railways, exhibited in 1854 an increase of £1,800,000, figures again for an increase of £900,000. With regard to foreign countries, the effects of the chronic pressure which has continued to prevail in the New York money market have again been shown in a diminution of the

VALUE OF THE PRODUCE AND MANUFACTURES OF THE UNITED KINGDOM, EXPORTED FROM GREAT BRITAIN AND IRELAND TO FOREIGN PARTS, ACCORDING TO THE REAL OR DECLARED VALUE THEREOF, FOR THE YEARS ENDING 5TH JANUARY.

Species of Exports.	GREAT BRITAIN.		IRELAND.		UNITED KINGDOM.	
	1853.	1854.	1853.	1854.	1853.	1854.
Agricultural implements	£59,225	£77,309	£16	£70	£59,241	£77,379
Alkali of all sorts	399,236	478,532	....	....	399,236	478,532
Alum	27,543	25,039	....	....	27,543	25,039
Apothecary wares	380,308	538,537	....	79	380,308	538,616
Apparel and slops	1,246,160	2,765,094	517	1,602	1,246,677	2,766,696
Arms and ammunition	398,458	548,927	389	1,547	398,847	550,474
Bacon and hams	47,305	137,021	2,207	1,470	49,512	138,491
Bags, empty	149.771	187,118	523	218	150,294	187,336
Beef and pork, salted	33,578	60,237	4,351	1,638	37,929	61,875
Beer and ale	748,596	1,285,623	6,031	5,734	754,627	1,291,357
Bichromate of potash	25,624	23,867	....	....	25,624	23,867
Bleaching materials	107,609	94,230	284	681	107,893	94,911
Books, printed	289,388	451,711	45	351	289,433	452,062
Brass and copper manufactures	1,704,054	1,853,641	29	690	1,704,083	1,854,331
Bread and biscuit	20.110	41,961	....	....	20,110	41,961
Bricks	45,894	67,350	719	463	46,613	67,813
Butter and cheese	294,845	445.344	98,474	75,312	393,319	520,656
Cabinet and upholstery	131,719	349,560	775	435	132,494	349,995
Caoutchouc and gutta, manufactures of	46,014	72,687	....	....	46,014	72,687
Carriages of all sorts	70,133	159,625	732	165	70.865	159,790
Cement	49,833	64,212	29	5	49.862	64,217
Coals and culm	1,369.625	1,602,762	2,489	1,829	1,372,114	1,604,591
Confectionery	46,476	97.424	2	65	46,478	97,489
Cordage	144,588	221,626	1,336	4,776	145,924	226,402
Corn, meal, and flour	143,407	375,740	12,038	15,925	155,445	391,665
Cotton manufactures	23.221.035	25,807,986	2,347	9,263	23,223,432	25,817,249
" yarn	6,654,655	6,895,653	....	....	6,654,655	6,895,653
Earthenware of all sorts	1,151,790	1,337,911	107	459	1,151,897	1,338,370
Fish of all sorts	349,456	456,008	940	10	350,396	456.018
Fishing tackle	46.566	50,015	....	....	46,566	50,015
Fuel, manufactured	39,741	48,664	146	....	39,887	48,664
Glass of all sorts	378,418	517,842	409	698	378,827	518,540
Haberdashery and millinery	2,074,117	4,156,139	63	355	2,074,180	4,156,494
Hardwares and cutlery	2,691,242	3,663,746	455	1.305	2,691,697	3,665,051
Hats, beaver and felt	48,055	87,388	....	161	48,055	87,549
" of all other sorts	92,460	174,783	....	....	92,460	174,783
Hemp, dressed	31,872	17,351	....	....	31,872	17,351
Hops	29.726	39,591	....	....	29,726	39.591
Horses	98,495	85,887	372	80	98,867	85,967
Iron and steel, wrought and unwrought	6,656,148	10,802,690	28,128	42,732	6,684,276	10,845,422
Lard	6,253	6,582	2,465	1,171	8,718	7,753
Lead and shot	353,165	372,940	15	....	353,180	372,940
" red and white	65,079	66,703	....	....	65,079	66,703
Leather and saddlery	843,322	1,576,253	1,437	2,342	844,759	1,578,595
Linen manufactures	4,230,126	4,756,839	1,660	1,593	4,231,786	4,758,432
" yarn	1,140,155	1,154,939	410	38	1,140,565	1,154,977
Machinery and mill-work	1,248,360	1,985,317	3,000	219	1,251,360	1,985,536
Mathematical instruments	44,222	59,441	1	....	44,523	59,441
Molasses	52,409	48,033	....	....	52,409	48,033
Musical instruments	122,918	175,370	40	25	122,958	175,395
Oil, hemp, linseed, and rape	434.899	516,311	60	17	434,959	516,328
" train and spermaceti	49,715	60.505	....	....	49,715	60,505
Painters' colors and materials	249,099	324,169	31	676	249,130	324.845
Perfumery	44,029	69,627	26	279	44,055	69,906
Pickles and sauces	146,330	332.448	50	14	146,380	332,462
Plate ware, jewelry, etc	425,705	727.351	....	35	425,705	727,386
Platting for hats of straw, etc	67,970	54,877	....	....	67,970	54,877
Potatoes	6,349	1,312	415	572	6,764	1,884
Provisions, not described	56,488	139,999	40	1	56,528	140,000
Salt	221,101	271,129	2,875	1,044	223,976	272.173
Saltpetre, refined in United Kingdom	51,395	48,965	....	....	51,395	48,965
Seeds of all sorts	19,893	23,745	777	....	20,670	23,745
Silk manufactures	1,551,846	2,044.289	20	72	1,551,866	2,044,361
Soap and candles	315,649	412,265	8,795	7,614	324,444	419.879
Spelter, wrought and unwrought	33,365	97,328	....	....	33,365	97,328
Spirits	63,618	204,141	2,930	4,300	66,548	208,441
Stationery of all sorts	411.590	618.498	128	384	411,718	618,882
Sugar, refined	300,134	301,627	....	....	300,134	301,627
Tin, unwrought	83,604	140,859	....	....	83,604	140,859
Tin and pewter wares	1,080,725	1,213,612	....	18	1,080,725	1,213,630
Tobacco, manufactured	12.651	19.669	....	....	12,651	19,669
Toys	26,783	46,825	....	....	26,783	46,825
Turnery and turners' wares	30.142	40,094	....	19	30,142	40,113
Twine	54,775	57,037	....	25	54,775	57,062
Umbrellas and parasols	79,777	119,905	....	....	79,777	119,905
Wool, sheep's, and other sorts	792.289	483,812	53,480	700	845,769	484,512
Woolen and worsted yarn	1,430.140	1,456,786	....	....	1,430,140	1,456,786
Woolen manufactures	8,729,609	10,170,788	1,325	1,394	8,730,934	10,172,182
All other articles	1,361,587	2,342,467	52,335	33,423	1,413,922	2,375,890
Total exports	£77.780.591	£98.709.688	£296.263	£224.093	£78,076,854	£98,933,781

exports to the United States. In 1854 there was a decrease of £2,248,058, and a further falling off of £4,092,283 is now observable. The amount to Germany has been swollen by the overland trade to Russia, the augmentation being £1,222,776. France exhibits the extraordinary increase of £2,837,368—equal to 90 per cent.—a result due partly to the purchase of war materials in this country, and partly to modifications in her tariff. To Turkey, as might have been expected, the exports have more than doubled. Russia is of course entirely out of the list, but the consignments to Balaklava and the other ports in her own possession amounted to nearly £500,000. Among the countries which show an improvement are Sweden and Norway, Brazil, and New Granada, the difference in each of these cases being large. The trade with Syria and Palestine, in consequence of the war, has experienced a great development. The exports direct to the Danubian Principalities, which declined from £179,510 in 1853 to £16,402 in 1854, stand in the present return at £45,337. Belgium, Greece, Italy, Mexico, Peru, Venezuela, and China, are all on the favorable side. Spain shows a falling off. The River Plate trade experienced a heavy reaction, Buenos Ayres and Uruguay both presenting a great decline. Portugal and Denmark have been stationary:

1. British Possessions:		
East Indies	£10,927,694	
Australia	6,278,966	
British America	2,885,331	
West Indies	1,979,956	
Gibraltar	829,854	
South Africa	791,313	
Malta	625,823	
Ports of occupation in Crimea	493,398	
Channel Islands	468,678	
Hong-Kong	389,265	
Sierra Leone, etc	306,094	
Mauritius	303,173	
Ionian Islands	211,886	
Other possessions	62,544	
		£26,552,875
2. United States, including California		17,318,086
3. Germany:		
Hanseatic Towns	£8,350,228	
Prussia	1,100,021	
Hanover	337,354	
		9,787,603
4. France		6,012,658
5. Turkey		5,639,898
6. Holland		4,558,210
7. Brazil		3,312,728
8. Italy:		
Naples and Sicily	921.220	
Sardinia	853,916	
Lombardy, etc	717,718	
Tuscany	620,307	
Papal Territories	147,013	
		3,260,169
9. Belgium		1,707,693
10. Portugal, including £124,922 to the Azores and Madeira		1,475,713
11. Egypt		1,454,371
12. Chili		1,330,385
13. Peru		1,285,160
14. Spain, including £110,015 to the Canary Isls.		1,268.815
15. Cuba		1,059,606
16. Sweden and Norway		1,032,784
17. Syria and Palestine		946,604
18. China		888,679
19. Western Coast of Africa		839,838
20. Denmark		759,651
21. Buenos Ayres,		742,442
22. New Granada		588,935
23. Mexico		585.898
24. St. Thomas		562,789
25. Java		529.815
26. Philippine Islands		398,037
27. Venezuela		378.491
28. Uruguay		294,938
29 Greece		222.460
30. Hayti.		160.128
31. Morocco		133,697
32. Wallachia and Moldavia		45,337
33. French Senegambia		11,270
34. Other countries		542,322
Total		£95,688,085

The commercial changes in Great Britain during this year (1856) have not been very important. Among the prominent changes are: I. "An act to amend the laws of England and Ireland affecting trade and commerce." The object of this act is to assimilate the laws of England and Ireland to those of Scotland, and thereby remedy the inconvenience now felt by the commercial community in matters of common occurrence in the course of trade. II. "Treaty of commerce and navigation between the United Kingdom and the republic of Chili." III. "Returns of trade and business to be made up to the 31st of March, the terminus of the financial year, instead of, as heretofore, to the 31st of December." "Treaty of commerce between the United Kingdom and the Swiss Confederation." "Differential duties on the trade and shipping of the Two Sicilies to be abolished." There is an evident want of reciprocity between the two nations, the United States and Great Britain, as relates to shipwrecks, etc. The late navigation act of Great Britain deprives consuls of all authority to protect the property saved belonging to their respective countries, except under treaty stipulations. Our treaty with England does not define the duties and rights of consuls in such cases.

Progress of the British Mercantile Marine since 1842.—The statistical abstract of the United Kingdom for the last fifteen years, which has just been issued by the Board of Trade, contain a series of tables of considerable interest to ship-owners, as showing the progress of the mercantile marine during a period in which has occurred the adoption of free trade and the repeal of the navigation laws. In 1842 the total tonnage of vessels entered with cargoes and in ballast at British ports was 4,500,028 tons, and with cargoes only 3,655,230 tons; the former amount comprised 3,294,725 tons of British and 1,205,303 tons of foreign shipping, In 1856 the total entries with cargoes and in ballast represented 10,553,134 tons of shipping, and with cargoes only 8,241,664 tons. In fifteen years, therefore, the tonnage had more than doubled, but the increase in British and foreign shipping was not at the same rate. The entries with cargoes and in ballast comprised 6,390,715 tons of British and 4,162 tons of foreign shipping. While, therefore, the British tonnage had nearly doubled, the foreign had been multiplied by almost 3½. Down to 1846 the rate of increase was nearly equal, but slightly in favor of the British flag; in 1849, the British tonnage had increased one half, while the foreign entries show an increase to two thirds. In 1850, the foreign tonnage which entered British ports had doubled, and the entries under the national flag declined, continuing to do so, as compared with 1847, down to 1853. Since the last named date British tonnage has again advanced, though not so rapidly as foreign, which tripled in fourteen years, the entries in 1855 having been 3,680,447 tons. The British entries in the same year amounted to 5,270,795 tons, whereas, if the increase had been at the same rate as foreign shipping, it would have been more than 9,880,000 tons. The return of the number and tonnage of registered vessels, and the number of men employed therein, prepared by the register-general of seamen, commences with 1846, the statistics of previous years not being procurable. The total increase of vessels during the eight years was 1049, of tonnage 1,059,735 tons, and of men 21,307, exclusive of masters. This includes Channel Island vessels, but not those belonging to British possessions abroad. This table is so classified as to show the proportionate increase in each branch of the shipping trade, sailing vessels being distinguished from steamers, and the home trade from the foreign. The whole trade includes the coasts of the United Kingdom, and continental ports between Brest and the Elbe; and the foreign trade all ports beyond those limits. There are many vessels, however, which are engaged partly in the foreign trade, and these are classed separately. In 1849 the number of sailing vessels was 17,807, and of steam vessels 414; in 1856 the former numbered 18,419, and the latter 851. While sailing vessels, therefore, had increased little more than a thirtieth, steam vessels had more than doubled. In 1849 there were 9298 sailing vessels engaged in the home trade, 6612 in the foreign trade, and 1897 partly in one trade and partly in the other. In 1856 the home trade employed 9390 sailing vessels, the foreign trade 8059, while those engaged partly in one trade and partly in the other numbered but 970. This gives an increase of 92 in the first class, and of 1447 in the second, while in the mixed class there was a decrease of 927, or nearly half. The statistics of the steam trade give results very different. In 1849 the home trade employed 312 steamers (exclusive of river vessels), the foreign trade 82, and of those engaged in part in both trades there were 20. In 1856 the numbers were respectively 317, 422, and 42, showing that while the home steam trade had increased scarcely 2 per cent., the mixed class had doubled, and the foreign-going steamers had been multiplied by six. There remains for notice the table giving the number and tonnage of the sailing and steam vessels built and registered in the United Kingdom during the fifteen

A RETURN OF THE SHIPPING EMPLOYED IN THE TRADE OF THE UNITED KINGDOM, EXHIBITING THE NUMBER AND TONNAGE OF VESSELS THAT ENTERED INWARD AND CLEARED OUTWARD (INCLUDING THEIR REPEATED VOYAGES), SEPARATING BRITISH FROM FOREIGN VESSELS, ALSO STEAM FROM SAILING VESSELS, AND DISTINGUISHING THE TRADE WITH EACH COUNTRY, IN THE YEAR 1853 (IN CONTINUATION OF PARLIAMENTARY PAPER NO. 299, OF SESSION 1852-3).

Countries.		INWARD.				OUTWARD.			
		BRITISH.		FOREIGN.		BRITISH.		FOREIGN.	
		Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.
Russia	Steam..	27	13,489	....	....	22	12,225	1	1,800
	Sailing..	1,790	397,775	1,881	377,754	1,353	295,037	1,089	200,010
Sweden	Steam..	38	11,388	2	190	36	10,872	....	....
	Sailing..	223	44,814	1,089	200,187	164	31,216	887	145,817
Norway	Steam..	13	3,185	....	....	16	3,920	....	....
	Sailing..	110	13,624	1,765	284,908	126	19,306	1,849	292,764
Denmark	Steam..	101	44,188	19	4,799	29	11,393	8	2,304
	Sailing..	84	7,966	2,120	157,789	406	75,779	5,034	529,957
Prussia	Steam..	....	....	11	2,638	....	....	10	2,350
	Sailing..	958	154,855	2,573	416,194	817	130,304	1,708	308,725
Germany	Steam..	432	153,096	124	41,659	419	150,254	117	31,365
	Sailing..	1,126	202,124	1,783	164,150	1,146	203,794	1,984	195,484
Holland	Steam..	825	246,627	184	38,566	605	176,056	185	38,434
	Sailing..	958	133,305	1,146	225,593	913	118,076	612	47,740
Belgium	Steam..	290	85,515	126	29,213	289	85,779	121	27,858
	Sailing..	345	40,441	480	70,987	272	18,254	200	23,695
Channel Islands	Steam..	326	51,599	....	....	320	53,818	....	....
	Sailing..	1,526	121,603	38	3,648	1,166	74,728	....	....
France	Steam..	1,576	290,158	15	1,597	1,491	275,303	15	1,597
	Sailing..	2,926	302,449	4,367	420,130	2,651	301,791	4,061	342,092
Portugal, Azores, and Madeira	Steam..	29	9,856	....	....	23	8,451	....	....
	Sailing..	607	62,386	179	22,644	626	68,785	548	94,063
Spain and Canaries	Steam..	1	403	12	2,510	1	500	11	2,279
	Sailing..	516	55,450	252	32,198	1,014	174,401	683	116,821
Gibraltar	Steam..	36	14,247	....	....	37	15,273	2	650
	Sailing..	24	3,766	3	210	174	21,728	67	11,955
Italian States	Steam..	32	14,212	....	....	23	14,877	1	150
	Sailing..	464	66,037	257	57,265	708	130,583	575	130,229
Malta	Steam..	....	....	....	....	2	756	....	....
	Sailing..	38	6,383	16	3,490	170	41,600	172	44,657
Ionian Islands	Sailing..	43	5,773	5	1,212	40	8,183	31	8,636
Greece	Sailing..	68	10,263	23	4,857	21	3,740	65	17,685
Turkey	Steam..	51	30,674	....	....	50	30,408	....	....
	Sailing..	272	56,335	277	68,964	245	53,458	581	153,994
Wallachia and Moldavia	Sailing..	242	42,106	315	55,600	73	12,489	50	6,558
Syria	Steam..	3	968	....	....	5	1,756	....	....
	Sailing..	28	5,377	14	3,146	36	7,244	10	1,997
Africa	Steam..	47	36,410	....	....	44	37,465	....	....
	Sailing..	563	158,438	291	81,098	581	173,109	260	61,931
Asia	Steam..	16	24,172	....	....	41	26,553	....	....
	Sailing..	834	476,983	68	44,390	1,515	739,492	408	214,437
America:									
British Northern Colonies	Steam..	4	1,791	....	....	2	1,281	....	....
	Sailing..	1,877	775,446	443	225,753	1,329	537,767	92	29,548
British West Indies	Steam..	1	321	....	....	1	321	....	....
	Sailing..	690	184,027	42	10,058	612	168,748	44	11,285
Foreign West Indies	Steam..	25	38,527	1	250	26	44,354	....	....
	Sailing..	150	43,224	239	60,926	204	56,949	342	90,229
United States	Steam..	79	86,354	27	37,390	86	88,428	36	49,397
	Sailing..	441	266,408	889	697,857	860	470,848	1,175	932,605
Central and Southern States	Steam..	16	14,731	....	....	16	17,338	....	....
	Sailing..	693	229,399	171	37,830	590	189,282	266	62,910
Falkland Islands	Sailing..	2	562	....	....	3	1,352	1	116
Arctic Regions	Sailing..	....	....	....	....	2	574	....	....
Whale Fisheries	Sailing..	62	16,113	1	113	67	16,982	....	....
Total		21,628	5,055,343	21,248	3,887,763	21,478	5,212,980	28,801	4,234,124

years since 1842. In that year 914 vessels, having an aggregate tonnage of 129,929 tons, were built; in 1856 the number was 1150, and the tonnage 244,578 tons. In 1842 the sailing vessels numbered 956, and the steamers 58; in 1856 the former were 921, and the latter 229. Steamers, therefore, have been nearly quadrupled, while the increase of sailing vessels was only about 7 per cent.

The following returns embrace vessels belonging to the Channel Islands, but not vessels registered in the British plantations. The marked increase in steam vessels should claim the attention of our shipbuilders.

1.—RETURN OF THE NUMBER AND TONNAGE OF BRITISH REGISTERED VESSELS EMPLOYED SOLELY AS HOME-TRADE SHIPS, IN THE YEARS 1849, 1850, 1851, 1852, AND 1853, WITH THE NUMBER OF MEN EMPLOYED; DISTINGUISHING SAILING VESSELS FROM STEAMERS.

Years.	Sailing Vessels.			Steam Vessels.		
	Number of Vessels.	Tonnage.	Number of Men employed.	Number of Vessels.	Tonnage.	Number of Men employed.
1849	9,298	665,726	40,208	312	54,089	4,442
1850	8,830	666,957	38,527	320	54,196	4,491
1851	8,898	685,641	36,906	368	78,820	6,048
1852	8,776	701,803	35,793	358	66,606	5,182
1853	8,477	689,342	36,051	374	85,471	6,689

2.—RETURN OF THE NUMBER AND TONNAGE OF BRITISH REGISTERED VESSELS EMPLOYED PARTLY AS HOME-TRADE SHIPS AND PARTLY AS FOREIGN-GOING SHIPS, IN THE YEARS 1849, 1850, 1851, 1852, AND 1853, WITH THE NUMBER OF MEN EMPLOYED; DISTINGUISHING SAILING VESSELS FROM STEAMERS.

Years.	Sailing Vessels.			Steam Vessels.		
	Number of Vessels.	Tonnage.	Number of Men employed.	Number of Vessels.	Tonnage.	Number of Men employed.
1849	1,897	281,951	12,715	20	5,539	262
1850	1,487	222.341	10,291	20	5,298	396
1851	1,489	242,656	8,570	18	4,926	282
1852	1,063	147,867	6,875	42	15,244	944
1853	970	156,800	7,134	28	7,250	560

3.—Return of the Number and Tonnage of British Registered Vessels employed solely as Foreign-going Ships in the Years 1849, 1850, 1851, 1852, and 1853, with the Number of Men employed; distinguishing Sailing Vessels from Steamers.

Years.	Sailing Vessels.			Steam Vessels.		
	Number of Vessels.	Tonnage.	Number of Men employed.	Number of Vessels.	Tonnage.	Number of Men employed.
1849…………	6,612	2,040,344	91,242	82	48,693	3,742
1850…………	7,149	2,143,234	93,912	86	45,186	3,813
1851…………	7,277	2,287,897	85,801	134	60,995	4,330
1852…………	7,431	2,365,995	103,618	149	83,369	7,151
1853…………	8,120	2,665,685	111,821	237	125,539	10,270

4.—Aggregate Returns, 1, 2, and 3, showing the Total Number of British Registered Vessels employed in Trading in, from, and to Great Britain and Ireland, in the Years 1849, 1850, 1851, 1852, and 1853, with their Tonnage and Number of Men.

Years.	Sailing Vessels.			Steamers.*		
	Number of Vessels.	Tonnage.	Number of Men employed.	Number of Vessels.	Tonnage.	Number of Men employed.
1849…………	17,807	2,988,021	144,165	414	108,321	8,446
1850…………	17,466	3,032,532	142,730	426	104,680	8,700
1851…………	17,664	3,216,194	131,277	520	144,741	10,660
1852…………	17,270	3,215,665	146,286	549	165,219	13,277
1853 …………	17,567	3,511,827	155,006	639	218,260	17,519

* River steamers are not included in this return.

An Account of the Number of Vessels, with the Amount of their Tonnage, that were built and registered in the several Ports of the British Empire, in the Years ending 5th January, 1851, 1852, and 1853, respectively.

	Year ending 5th January, 1851.		Year ending 5th January, 1852.		Year ending 5th January, 1853.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
England……………………………	528	101,666	521	109,811	556	123,082
Scotland……………………………	136	30,100	138	38,858	131	41,959
Ireland……………………………	25	1,929	18	968	25	2,450
Isles of Guernsey, Jersey, and Man………	36	3,835	30	2,926	30	2,933
British Plantations……………………	714	124,953	680	141,116	536	114,804
Total……………………	1,439	262,483	1,382	293,679	1,278	284,728

An Account of the Number of Vessels, with the Amount of their Tonnage (including their repeated Voyages), that Entered Inward and Cleared Outward at the several Ports of the United Kingdom, from and to Foreign Parts, during each of the three Years ending 5th January, 1853.

SHIPPING ENTERED INWARD IN THE UNITED KINGDOM, FROM FOREIGN PARTS.

Years.	GREAT BRITAIN.				IRELAND.				UNITED KINGDOM.			
	British and Irish vessels.		Foreign vessels.		British & Irish vessels.		Foreign vessels.		British and Irish vessels.		Foreign vessels.	
	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
1851	21,371	4,454,007	14,259	2,233,860	1,338	246,192	866	166,417	22,709	4,700,199	15,145	2,400,277
1852	21,299	4,632,373	15,056	2,664,574	1,603	306,013	1,230	269,134	22,902	4,938,386	16,286	2,933,708
1853	20,367	4,648,155	15,459	2,771,355	1,397	286,708	828	181,229	21,764	4,934,863	16,287	2,952,584

SHIPPING CLEARED OUTWARD FROM THE UNITED KINGDOM, TO FOREIGN PARTS.

Years.	GREAT BRITAIN.				IRELAND.				UNITED KINGDOM.			
	British and Irish vessels.		Foreign vessels.		British & Irish vessels.		Foreign vessels.		British and Irish vessels.		Foreign vessels.	
	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
1851	21,308	4,577,222	16,139	2,515,573	681	165,123	761	146,670	21,989	4,742,345	16,900	2,662,243
1852	20,985	4,669,508	16,682	991,883	813	212,982	1,025	233,731	21,798	4,882,490	17,707	3,225,614
1853	20,880	4,822,151	17,154	3,036,224	650	168,955	677	155,372	21,530	5,051,106	17,831	3,191,596

An Account of the Value of the Imports into, and of the Exports from, the United Kingdom, during each of several Years ending 5th January. Showing the Official as well as the Real or Declared Values of these.

Years ending Jan. 5.	Imports into the United Kingdom, calculated at the official rates.	Exports calculated at the official rates of valuation.			Produce and manufactures of the United Kingdom exported, at the real or declared value.
		Produce and manufactures of the United Kingdom.	Foreign and Colonial merchandise.	Total exports.	
1815………	£32,620,771	£32,200,580	£19,157,818	£51,358,398	£43,447,373
1853………	109,345,409	196,176,601	23,329,089	219,505,690	78,076,854
1854………	123,136,835	214,360,489	27,767,733	242,128,222	98,933,781

Decline in the real value of the exports.—The great increase in the official, and the comparative decline in the real or declared value of the exports, since 1815, has given rise to a great deal of irrelevant discussion. It has been looked upon as a proof that English commerce is daily becoming less prosperous, whereas, in point of fact, a precisely opposite conclusion should be drawn from it. The rates according to which the official values of the exports are determined were fixed as far back as 1696; so that they have long ceased to be of importance as affording any criterion of the actual value, their only use being to show the fluctuations in the *quantities* exported. To remedy this defect, a plan was formed during the early part of Mr. Pitt's administration, for keeping an account of the *real* value of the exports, as ascertained by the declarations of the exporters. Those who contend that her trade is getting into a bad condition, argue that the great increase in the official value of the exports since 1815 shows that the *quantity* of the articles exported has been proportionally augmented, while the fall in their real value shows that she is selling this larger quantity for a smaller price, a result which, they affirm, is most injurious. But the circumstance of a manufacturer or a merchant selling a large or a small quantity of produce at the same price, affords no criterion by which to judge as to the advantage or disadvantage of the sale; for, if, in consequence of improvements in the arts or otherwise, a particular article may now be produced for half the expense that its production cost 10 or 20 years ago, it is obvious that double the quantity of it may be afforded at the same price without injury to the producers. Now this is the case with some of the most important articles which are exported from England. Cottons and cotton-twist form a full third or more of her entire exports; and since 1814 there has been an extraordinary fall in the price of these articles, occasioned partly by cotton wool having fallen from about 1s. 6d. per lb. to about 5d. per lb., but more by improvements in the manufacture. Hence, while the official value of the exports of cotton goods and twist has increased from about £18,000,000 in 1814, to about £100,000,000 in 1853, their declared value has risen only from about £20,000,000 at the former period to about £33,000,000 at the latter. Surely, however, this is, if any thing can be, a proof of increasing prosperity; it shows that she can now export and sell with a profit (for unless such were the case, does any one imagine the exportation would continue?) nearly four times the quantity of cotton goods and yarn which she exported in 1814 for about the same price. See COTTON MANUFACTURE.

The commercial interests of England long suffered from the inextricable confusion of her maritime laws. From the Revolution down to 1786 some hundreds of acts were passed, each enacting some addition, diminution, or change of the duties, drawbacks, bounties, and regulations previously existing in the customs. Mr. Pitt has the merit of having first introduced something like order into this chaos. Under his auspices all the separate custom-duties existing in 1787 were repealed, and simple and intelligible ones substituted in their stead.

In the report of the Lords' Committee on Foreign Trade in 1820, it is stated that the laws under which the commerce of the country was regulated amounted to upward of 2000, of which 1600 were in force in 1815. After this report was printed, Mr. Huskeyson introduced great reforms into the laws affecting shipping and navigation. And since his time the repeal of a vast number of custom-duties and the many important and beneficial changes effected by Sir Robert Peel, have vastly simplified the commercial legislation of England. Various improvements have also been introduced by the late chancellor of the exchequer, Mr. Gladstone; and the Customs Consolidation Act of 1853 has brought the various laws relating to the customs into a concise and simple form. It comprises the whole law respecting the importation, exportation, warehousing, smuggling, etc., of goods, with the regulations to be observed in the coasting and colonial trades, etc., and is at once brief, comprehensive, and so clear as to be level to the comprehension of those least acquainted with such matters. Besides condensing and simplifying the various laws respecting the customs, this act has also introduced some most important changes. The merchant is now no longer obliged, when successful in a suit, to pay his own expenses, as was formerly the case; nor are goods in dispute now detained till the point be inquired into and decided, but are given up on the amount claimed being deposited. If the claim is found to have been unjust, the sum overcharged is returned, with interest at the rate of 5 per cent., and the expenses of the suit. The merchant may also, if he consider himself aggrieved by the decision of the board, have the case brought into open court before a commissioner, where he may meet the officer, and learn by examination the real facts of the case. The evidence so taken is reported to the board, who may thereupon confirm or modify their decision; it being optional with the merchant either to abide by it, or to carry the case before a competent tribunal. If the duty or penalty claimed be under £100, or the case be of a simple kind, it may be tried before magistrates, county courts, or other inferior tribunals.

Shipping.—In order to promote the shipping interest in Britain the navigation laws were passed, which were long considered the safeguards of British commerce. By these laws certain enumerated articles, which in fact comprehended every thing that was of importance in commerce, could be brought to her shores only in British ships, or in the ships of the country of which the goods were the produce, or in ships of the country from which the goods were to be brought. Experience proved that these restrictions which were intended for the benefit of British commerce, operated only as fetters upon trade. By the act passed in 1849, the restrictive provisions of the old acts were repealed from and after the 1st of January, 1850. Great alarm was created among the shipbuilders and others, by the change, which, as they apprehended, was fraught with ruin to the trade and commerce of the country; but instead of that, the trade increased more rapidly than before. The amount of tonnage built in 1849 was 121,266, in 1851 it was 149,599, and in 1853 it was 203,171.

The increase has been more remarkable in steam than in sailing vessels: in 1850 the number of steam-vessels built was 36, and their tonnage 3835; in 1853 the number of steam vessels built was 153, and their tonnage 45,215. Another circumstance which is remarkable, is the recent extraordinary substitution of iron for wood in the construction of steam vessels. Of the 158 built in 1853, no less than 117 were iron. Dr. Strang, in a communication made to the British Association in 1852, states, that during the last 7 years there have been constructed, or were constructing, in Glasgow and neighborhood, 123 vessels, 122 of which were iron. At Greenock and Port Glasgow, during the same period, there were constructed 66 steam vessels, 13 of which were of wood and 53 of iron.

The "merchant shipping act, 1854," which came into operation May 1st, 1855, contains some important changes in commercial regulations. Sections 20, 21, 22, 23, and 24, institute new modes of measuring ships; and as all American ships hereafter to be measured in that country must be measured according to one or other of its provisions, and pay dues on the tonnage thus ascertained, it is a change largely affecting our vessels. As far as the present short experience of it denotes, the effect, as a general rule, will be favorable to such as are sharp or with fine lines, and unfavorable to such as are full built; but it may reasonably be supposed that most new vessels will belong to the former class, and it will be seen (section 27) that the measurement of ships already measured is not compulsory, but may be made on application therefor. By the 29th section, the commissioner of customs, with the sanction of the Treasury, may alter or modify the modes of measurement. Section 102 requires from every master, clearing outward, a declaration of the nation to which the vessel claims to belong, and authorizes the detention of the vessel until it is made. Section 329 contains important provisions respecting the shipment and carriage of dangerous goods. Section 353 renders the employment of duly qualified pilots compulsory; but, under section 332, any pilotage authority, by by-law, made with the consent of her majesty in council, may exempt the master of any ships, or classes of ships, from being compelled to employ qualified pilots. Part 8 remodels the law relating to wrecks and salvage, and contains some important provisions, particularly as regards foreign vessels, and salvage services by government vessels. The remainder of the act is composed of laws, or parts of laws previously in force, the object being "not so much a change of laws as bringing existing laws into a consolidated shape." The last of the series of acts which completely changed the commercial system of this country was passed March 23d, 1854, and opened the coasting trade to foreign vessels; and England has obtained by treaty the concession of the coasting trade of Tuscany and Sardinia. By a minute of the Lords of the Treasury, in September, 1856, it was announced that the transfer should then take place of the control of the Commisioners of the Customs to that of the Lords of the Admiralty. Since that period the control has vested in the Admiralty.—*U. S. Consular Returns.*

The subjoined tables give a complete view of the shipping belonging to the different ports of the British empire, and of the navigation with foreign countries, in 1852 and 1853.

A RETURN OF THE NUMBER AND TONNAGE OF SAILING VESSELS REGISTERED AT EACH OF THE COLONIES OF THE UNITED KINGDOM RESPECTIVELY; DISTINGUISHING THOSE UNDER AND THOSE ABOVE FIFTY TONS REGISTER, ON THE 31ST DECEMBER, 1853: A SIMILAR RETURN OF STEAM VESSELS AND THEIR TONNAGE.

Ports.	SAILING VESSELS.				STEAM VESSELS.			
	Under 50 tons.		Above 50 tons.		Under 50 tons.		Above 50 tons.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
Africa.								
Bathurst	49	923	14	1,270	....	....	....	....
Sierra Leone	11	279	8	746	....	....	....	....
Cape of Good Hope	7	228	46	6,839	....	....	....	....
Mauritius	60	1,747	49	7,344	....	....	2	171
Australia.								
Sydney	150	8,805	141	26,321	6	191	9	1,487
Melbourne	65	1,584	55	7,327	1	44	5	460
Hobart Town	106	2,773	221	21,088	2	69	1	52
Launceston	32	834	32	6,344	....	...	...	....
New Zealand	117	2,400	29	1,918	....	...	....	....
America. *(British Northern Colonies.)*								
Newfoundland	458	13,774	490	49,720	1	40	1	96
Canada	257	8,628	437	73,181	22	789	69	8,564
New Brunswick	428	10,568	375	102,029	10	358	14	1,633
Nova Scotia and Cape Breton	1,167	52,998	1,773	135,989	3	96	...	....
Prince Edward's Island	213	6,002	132	19,831	....	....	1	57
British West Indies.								
Antigua	80	1,191	4	411	....	....	....	....
Barbadoes	26	626	9	738	....	....	....	....
Dominica	16	333	4	248	....	....	....	....
Grenada	46	484	....	....	....	....	....	....
Jamaica	75	1,798	9	1,054	....	....	....	....
Montserrat	1	13	1	59	....	....	....	....
Nevis	11	127	....	....	....	....	....	....
St. Christopher	18	245	....	....	....	....	....	....
St. Lucia	12	332	2	335	....	....	....	....
St. Vincent	35	623	7	656	....	....	....	....
Tobago	8	228	1	97	....	....	....	....
Tortola	34	205	2	182	....	....	....	....
Trinidad	51	886	4	305	1	48	....	....
Bahamas	135	2,900	31	2,615	....	....	....	....
Bermuda	14	421	30	2,754	....	....	....	....
Demerara	32	868	9	670	....	....	1	69
Berbice	17	273	2	133	....	....	....	....

AN ACCOUNT OF THE NUMBER OF VESSELS, WITH THE AMOUNT OF THEIR TONNAGE, AND THE NUMBER OF MEN AND BOYS USUALLY EMPLOYED IN NAVIGATING THE SAME, THAT BELONGED TO THE SEVERAL PORTS OF THE BRITISH EMPIRE, ON THE 31ST DECEMBER, 1851, 1852, AND 1853, RESPECTIVELY.

	On the 31st December, 1851.			On the 31st December, 1852.			On the 31st December, 1853.		
	Vessels.	Tonnage.	Men.	Vessels.	Tonnage.	Men.	Vessels.	Tonnage.	Men.
England	19,404	2,803,052	145,222	19,600	2,907,999	147,252	20,078	3,150,653	152,184
Scotland	3,587	536,266	29,587	3,450	535,008	29,512	3,451	559,141	29,563
Ireland	2,203	262,411	14,155	2,178	254,997	13,902	2,219	259,364	14,083
Isles of Guernsey, Jersey, & Man	849	60,615	5,798	858	61,274	5,978	860	61,046	5,701
British Plantations	8,201	669,741	46,166	8,316	665,114	46,868	8,701	734,218	52,365
Total	34,244	4,332,085	240,928	34,402	4,424,392	243,512	35,309	4,764,422	253,896

A RETURN OF THE NUMBER OF VESSELS, WITH THEIR TONNAGE, DISTINGUISHING STEAM FROM SAILING VESSELS, THAT WERE BUILT AND REGISTERED IN THE UNITED KINGDOM, DISTINGUISHING TIMBER FROM IRON VESSELS, IN THE YEAR 1853.

	TIMBER.		IRON.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
Sailing vessels	635	146,380	10	8,576
Steam vessels	36	3,305	117	44,910
Total	671	149,685	127	53,486

The following table is an abstract of the number of vessels and tonnage entered inward and cleared outward at each of the 12 principal ports of the United Kingdom during the year 1854, and also a return of the declared value of British and Irish produce and manufactures exported from the respective ports to foreign countries and British possessions during the same year.

Ports.	INWARD.		OUTWARD.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
London	10,943	2,667,823	8,174	2,127,419
Liverpool	4,493	2,195,404	4,551	2,161,265
Hull	2,789	504,348	1,884	374,859
Bristol	694	162,538	296	101,273
Newcastle	3,048	441,193	6,671	1,122,126
Southampton	873	262,276	861	279,658
Leith	1,086	130,586	393	71,545
Glasgow	514	125,482	914	256,519
Greenock	377	144,152	179	71,572
Dublin	337	71,602	148	44,793
Cork	461	87,323	325	62,671
Belfast	204	53,837	128	33,988
Total	25,814	6,846,564	24,524	6,697,688

An analysis of the calculations upon which these tables are based would doubtless show that the real difference between Liverpool and London is much less than it appears above, a large proportion of the trade of London being carried on by coasting vessels making short trips. The export returns are thus stated:

London	£22,330,272	Glasgow	£4,905,557
Liverpool	46,719,177	Greenock	554,508
Hull	10,003,122	Dublin	41,478
Bristol	751,718	Cork	148,096
Newcastle	1,521,551	Belfast	28,755
Southampton	2,334,141		
Leith	527,697	Total	£89,866,072

Showing that considerably more than one half the entire foreign trade of the 12 principal ports of Great Britain goes from Liverpool.

From the statistics of Glasgow, published by Dr. Strang in 1855, we learn that the tonnage of steamboats built on the Clyde during 30 years, from 1820 to 1850, amounted to 103,270, while in the 3 years 1851, 1852, 1853, it amounted to 141,713 in 206 vessels, which were almost entirely of iron. And to show the magnitude of this great department of Scottish industry, he adds that, during a period of 12 months, embracing the greater part of 1853, the tonnage of all vessels built in the ports of the Clyde was 64,114 tons, whereas the total tonnage of vessels built in London in 1853 was only 62,745, and in Liverpool, 45,682. In the years 1853-4, there were no less than 266 vessels built at Glasgow, including both steam and sailing vessels, with an aggregate of 168,000 tons.

A Return of the Number and Tonnage of Sailing Vessels Registered at each of the Ports of Great Britain and Ireland, including the Isle of Man and the Channel Islands; distinguishing those under and those above Fifty Tons Register, on the 31st December, 1853: also, a similar Return of Steam Vessels and their Tonnage.

Ports.	Sailing Vessels.				Steam Vessels.			
	Under 50 tons.		Above 50 tons.		Under 50 tons.		Above 50 tons.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
ENGLAND.								
Aberystwith	121	4,034	123	11,247	....	....	....	....
Arundel	50	1,372	44	5.901	....	....	....	....
Barnstable	51	1,724	29	3,300	....	....	....	....
Beaumaris	139	4,286	118	17,330	....	....	....	....
Berwick	30	1,015	29	3,112	....	....	1	219
Bideford	60	1,891	77	9,061	....	....	1	74
Boston	112	4,176	49	3,286	1	18	....	....
Bridgewater	55	1,965	69	11,476	2	21	....	....
Bridport	3	124	14	1,843	....	....	...	....
Bristol	165	4,974	229	61,354	12	308	18	3,728
Caernarvon	114	3,738	298	23,506	1	49	1	88
Cardiff	23	614	36	6,128	7	179	2	187
Cardigan	128	3,819	92	8,742	....	....	....	....
Carlisle	12	398	20	1,488	1	38	1	231
Chepstow	42	1,155	13	1,096	1	17	1	53
Chester	59	2,219	59	4,063	7	246	4	907
Colchester	191	3.981	69	7,907	1	23	....	....
Cowes	126	3,259	47	5,136	1	22	....	....
Dartmouth	166	4,591	253	28,291	1	19	....	....
Deal	19	346	....	....	....	....	....	....
Dover	48	1,369	21	2,503	....	....	1	54
Exeter	41	1,197	146	19,533	....	....	....	....
Falmouth	50	1,393	73	7,364	1	14	....	....
Faversham	225	4,936	82	10,355	1	9	....	....
Fleetwood	16	480	14	3,424	....	....	5	904
Fowey	38	1,365	109	10,696	....	....	....	....
Folkstone	7	137	7	900	....	....	....	....
Gainsborough	6	257	5	363	1	49	4	307
Gloucester	275	7,687	74	11,200	2	54	....	....
Goole	116	8,824	396	25,041	2	27	7	680
Grimsby	74	2,151	14	1,251	4	71	2	1,030
Hartlepool	3	17	124	26,777	6	124	....	....
Harwich	72	2,170	54	5,171	....	....	....	....
Hull	228	8,223	223	48,438	12	291	30	7,418
Ipswich	51	1,453	112	12,180	5	192	4	447
Lancaster	36	1,389	53	5,479	....	....	7	1,085
Liverpool	232	8,019	1,786	704.342	24	873	102	24,325
Llanelly	40	1,098	36	3,329	3	62	....	....
London	749	24,621	2,209	654,694	116	3,759	291	109,598
Lowestoft	40	1,093	23	1,862	1	17	5	2,123
Lyme	7	217	13	1,754	....	....	....	....
Lynn	55	1,769	122	18,569	2	26	....	....
Maldon	111	3,196	48	4,741	....	....	....	....
Maryport	19	562	88	16,088	1	34	1	199
Milford	73	1,979	70	8,494	1	48	....	....
Newcastle	7	3,164	695	147,782	89	1,624	9	2,226
Newhaven	10	216	15	2,405	....	....	....	....
Newport	19	766	59	11,378	2	67	1	52
Padstow	69	2,558	54	6.846	....	....	....	....
Penzance	27	693	63	7,497	....	....	....	....
Plymouth	250	7,394	200	36,759	4	105	2	266
Poole	33	871	75	13,429	1	22	....	....
Portsmouth	170	4,221	74	8,335	4	142	3	180
Preston	79	3.007	42	3,929	5	145	4	768
Ramsgate	95	2,564	37	3,485	1	10	....	....
Rochester	324	10,091	62	7,745	4	154	1	62
Rye	81	1,848	45	4,657	....	....	....	....
Saint Ives	63	1,380	98	11,038	....	....	4	726
Scarborough	62	1,767	134	32,079	....	....	....	....
Scilly	15	403	45	6,216	....	....	....	....
Shields	17	545	763	201,104	82	1,646	....	....
Shoreham	54	1,027	62	11,277	....	....	....	....
Southampton	136	3,588	85	10,744	8	265	13	1,864
Stockton	22	578	135	27,830	25	555	1	53
Sunderland	93	2,776	832	208,891	38	671	....	....
Swansea	73	2,116	94	14,301	6	141	6	519
Teignmouth	2	60	14	2,638	1	19	....	....
Truro	12	431	38	3,381	....	....	....	....
Wells	120	2,614	79	7,226	2	30	....	....
Weymouth	29	825	55	6,487	1	31	2	122
Whitby	48	1,649	341	59,274	3	85	....	....
Whitehaven	14	402	181	31,359	1	37	4	879
Wisbeach	25	930	79	10,796	3	70	2	482
Woodbridge	30	1,008	38	2,718	....	....	....	....
Workington	3	88	90	18,394	1	18	....	....
Yarmouth	328	9,332	289	32,991	5	87	3	282
Total, England	6,588	204,195	12,448	2,771,806	504	12,514	543	162,138
SCOTLAND.								
Aberdeen	19	539	212	46,411	1	41	7	3,116
Alloa	28	884	51	13,693	1	25	4	302
Arbroath	17	704	94	13,409	....	....	....	....
Ayr	16	486	26	4,472	....	....	1	70
Banff	49	1,666	96	11,343	....	....	....	....
Borrowstounness	29	942	44	4,891	....	....	....	...
Campbeltown	26	883	1	576	....	....	2	259
Dumfries	73	2,327	51	8,437	....	....	....	....
Dundee	34	1,161	284	55,466	3	94	7	1,686
Carry forward								

A Return of the Number and Tonnage of Sailing Vessels Registered at each of the Ports of Great Britain and Ireland, including the Isle of Man and the Channel Islands; distinguishing those under and those above Fifty Tons Register, on the 31st December, 1853: also, a similar Return of Steam Vessels and their Tonnage.—*Continued.*

Ports.	Sailing Vessels.				Steam Vessels.			
	Under 50 tons.		Above 50 tons.		Under 50 tons.		Above 50 tons.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
Brought forward..........								
Glasgow........................	78	2,744	382	152,528	17	610	91	26.963
Grangemouth....................	8	297	38	7,955	4	81	3	747
Greenock.......................	220	6,209	184	65,677	2	47	12	1,965
Inverness......................	169	4,195	79	6,536	....	....	2	585
Irvine.........................	41	1,194	77	17,714	....	....	3	476
Kirkcaldy......................	63	2,020	36	7,096	....	....	1	62
Kirkwall.......................	22	560	21	1,925	....	....	....	....
Leith..........................	79	2,350	102	22,007	13	274	15	3,672
Lerwick........................	54	1,231	8	755	....	....	....	...
Montrose.......................	10	437	88	14,359	....	....	1	76
Perth..........................	10	316	44	4,262	1	19	2	116
Peterhead......................	8	246	40	9,485	....	....	....	....
Port Glasgow...................	88	1,442	16	4,827	1	14	12	2,181
Stornoway......................	42	1,131	14	1,477	....	....	....	....
Stranraer......................	5	548	18	856	....	....	....	....
Wick...........................	23	665	16	1,281	....	....	....	....
Wigtown........................	36	1,236	16	1,543	....	....	1	316
Total, Scotland...........	1,197	36,418	2,048	478,981	43	1,205	164	42,542
IRELAND.								
Ballina........................	2	36	1	215	....	....	....	....
Belfast........................	159	5,428	822	75,536	2	28	10	2.186
Coleraine......................	11	272	...	....	....	....	....	....
Cork...........................	158	3,696	228	41,626	7	214	16	4.827
Drogheda.......................	7	193	41	5,166	....	....	5	1,787
Dublin.........................	291	8,407	127	21,588	3	119	43	11,656
Dundalk........................	5	181	18	1,431	1	24	2	844
Galway.........................	12	359	3	502	....	....	....	....
Limerick.......................	59	1,761	40	10,315	....	....	1	800
Londonderry....................	10	256	14	4,171	3	125	4	1,339
Newry..........................	78	2,401	39	5,293	....	....	3	873
Ross...........................	2	69	16	5,756	....	....	....	....
Skibbereen.....................	94	2,285	3	202	....	....	....	....
Sligo..........................	13	401	19	3,739	1	44	1	67
Strangford.....................	32	1,053	21	2,406	....	....	....	....
Tralee.........................	12	306	4	729	....	....	....	....
Waterford......................	60	1,524	94	12,964	....	....	19	5,791
Westport.......................	4	87	1	120	....	....	....	....
Wexford........................	28	1,006	70	7,660	....	....	....	....
Total, Ireland.............	1,037	29,721	1,061	199,419	17	554	104	29,670
Isle of Man....................	318	7,422	39	2.947	....	....	5	1,197
Channel Islands................	207	5,445	286	43.743	1	21	4	271

Commercial Intercourse between Great Britain and the United States.—The definite treaty of peace between the United States and Great Britain, in 1783, contains only one stipulation in any manner relating to commercial intercourse. Article viii. provides that the navigation of the Mississippi, from its source to the ocean, shall forever remain free and open to the subjects of Great Britain and the citizens of the United States. It was not until 1794 that commercial intercourse between the two nations was defined by treaty stipulations. The treaty of that year regulates trade between the high contracting parties, on the continent of America, in the East Indies, the territories of Great Britain in Europe and in those of the United States. It provides that no other or higher duties shall be paid by the ships or merchandise of the one party in the ports of the other, than such as are paid by the like vessels or merchandise of all other nations: that no other or higher duty shall be imposed in one country on the importation of any articles, the growth, produce, or manufacture of the other, than are or shall be payable on the importation of the like articles being of the growth, produce, or manufacture of any other foreign country; nor shall any prohibition be imposed on the exportation or importation of any articles to or from the territories of the two parties respectively, which shall not equally extend to all other nations; the British government reserving to itself the right of imposing on American vessels entering into the British ports in Europe "a tonnage duty equal to that which shall be payable by British vessels in the ports of America, and also such duty as may be adequate to countervail the difference of duty now payable on the importation of European and Asiatic goods when imported into the United States in British or in American vessels." The other stipulations respecting commerce relate chiefly to the trade with the West Indies. The duration of this treaty, so far as it regulates the commerce between the United States and the European possessions of Great Britain, is limited to 12 years. During the interval which elapsed from the treaty of peace in 1783 to the ratification of the treaty of amity, commerce, and navigation, in 1794, the commercial relations between Great Britain and the United States were regulated by the separate and distinct legislation of the several States on the one side, and by general orders in council on the other. See articles Colonies and United States.

The navigation laws of Great Britain, immediately after the proclamation of peace, were enforced against the vessels and commerce of the United States. The first in the series of these laws was the act of 1651. It provided that no goods or commodities whatever, the growth, production, or manufacture of Asia, Africa, or America, should be imported either into England or Ireland, or any of the plantations, except in English-built ships, and belonging either to England or to English plantation subjects, and of which the master and three fourths of the crew were also English; and that no goods of the growth, production, or manufacture of any country in Europe should be imported into Great Britain, Ireland, or the plantations, except in British ships, or in such ships as were the real property of the people of the country or place in which the goods were produced, and from which they could only be, or were usually exported. This act was never enforced, nor intended to be enforced, in the British North American colonies. It was especially aimed at the Dutch, who were at this period the great carriers of the world. Having but few staples of their own to export to foreign countries, their merchant ships were found in every port, and were even employed in bringing home the products of the British colonies to the mother country.

After the Restoration, the navigation act was reenacted; with such amendments, however, as seemed still necessary to give more effective protection to British interests, and curb the Dutch yet further. Among the provisions of the new act of 1660, it was declared that no "sugar, tobacco, cotton, wool, indigo, ginger, fustic, or other dyeing woods of the growth or manufacture of our Asian, African, or American colonies, shall be shipped from the said colonies to any place but England, or to some other of his majesty's said plantations." Whatever relaxations were permitted in the operation of these navigation laws in the North American colonies, the United States became subjected to them in all their rigor immediately on assuming an independent existence. In the language of Lord Liverpool, "The connection which had so long subsisted between Great Britain and the countries now forming the United States of America was finally dissolved by the acknowledgment of their independence in the year 1783; the ancient commercial system arising out of that connection *of course ended with it;* and the laws by which the trade of these countries, considerd as colonies, had hitherto been regulated ceased to have effect." The king, by and with the advice and consent of his privy council, was, however, vested with authority to regulate the future commerce between Great Britain and the United States. The first order in council issued after the independence of the United States had been acknowledged by Great Britain, established the following regulations:

First. That any goods, the importation of which into this kingdom is not prohibited by law, being the growth or production of any of the territories of the United States of America, may be imported directly from thence into any of the ports of the kingdom, not only in British ships, owned by British subjects, and navigated according to law, but, also, in ships built in the countries belonging to the United States of America, and owned by the subjects of the said States, and whereof the master and three fourths of the marines, at least, are subjects of the United States. *Secondly.* That any goods, being unmanufactured (except fish-oil, blubber, whale-fins, and spermaceti), and also any pig-iron, bar-iron, pitch, tar, turpentine, rosin, potash, pearl-ash, indigo, masts, yards, and bowsprits, being the growth or production of any of the territories of the United States of America, may be imported directly from thence into any of the ports of Great Britain, upon payment of the same duties as the like sort of goods are, or may be subjected to, if imported from any British island or plantation in America; and that the excepted articles, as well as all others not enumerated, the growth, production, or manufacture of the said United States, shall be admitted on the payment of the same duties as are levied on similar articles when imported from the most favored nation, except such nations only with which treaties of reciprocity have been established. *Thirdly.* It was ordered that goods and merchandise, being the growth, production, or manufacture of the territories of the United States, though imported in ships belonging to the subjects of the said States, should be exempted from the alien's duty. *Fourthly.* It was permitted to be imported into the other American and West Indian possessions, from the ports of the United States, in *British ships only*, such articles of the growth, production, or manufacture of any of the said States (except salted provisions and the produce of the fisheries), as might by law, before the independence of the United States, have been imported from the said States; but prohibiting all intercourse between the United States and the said American and West Indian possessions in ships belonging to citizens of the United States.

The first three orders, it will be perceived, suspend, in favor of the United States, that provision of the navigation laws of Great Britain which enacts "that no goods or commodities whatsoever, of the growth, production, or manufacture of any part of America, are to be imported into any of his majesty's European dominions in any other ship or vessel than such as do truly *belong to* his majesty's subjects, and navigated according to law, in the manner therein described, under the penalty of forfeiting all such goods and the ship or vessel in which they are brought." The commerce of the United States, with respect to certain articles enumerated (and it is admitted that these articles formed a principal portion of the American export trade at that period), was also allowed the same preference as was granted to the remaining American possessions of Great Britain. The privileges conferred on American commerce by this order are shown in the following table:

Merchandise.	Duties, if imported from	
	the United States.	other foreign countries.
Potash..........per cwt.	Free.	$0 54
Pearl-ash........ "	Free.	0 54
Iron, bar........ "	Free.	13 48
Pitch,...........per last.	$2 64	2 98
Tar.............. "	2 64	2 97
Skins, beaver........each	0 02	0 16½
Tobacco........per pound	0 30	0 84

The last regulation operated to exclude United States' vessels from the ports of British possessions in America, including the West Indies, and to restrict the importation of the products or manufactures of the said States in such possessions to *British ships only*, navigated according to law. The order was dictated by a spirit of illiberality and selfishness, universally condemned both in England and the United States; and furnished a prolific subject of diplomatic discussion between the two governments, until the question was definitely and satisfactorily settled toward the close of the year 1830. The following summary exhibits a brief abstract of the separate acts of the different State legislatures, affecting British commerce, passed between 1783 and 1789: By laws passed in New Hampshire, Massachusetts, and Rhode Island, vessels owned, in whole or in part, by the subjects of Great Britain, were prohibited from taking on board, in these provinces, any goods or merchandise of the growth or manufacture of these States, or of any other of the United States; and such vessels, so loaded, were, together with their cargoes, made subject to seizure and condemnation. The legislature of Pennsylvania vested in Congress a power to prohibit for 15 years the importation or exportation of all merchandise in vessels belonging to or navigated by the subjects of any nations with which Congress shall not have formed treaties of commerce.

By laws passed in Massachusetts and Rhode Island, Congress was empowered to prohibit the importation of British West India produce in British vessels. Another law was enacted, in Pennsylvania, imposing a duty of 4s. 6d. (currency) per ton on the vessels of every nation with which Congress had not made treaties of commerce. In Maryland, a duty of 1s. per ton was imposed on all foreign shipping except British, and on British a duty of 5s. per ton. In 1788 Virginia passed a law imposing a duty of 6s. per ton on British vessels, and half that amount on all other foreign vessels. In North Carolina the discrimination was still greater; the duties on British vessels entering the ports of that State being 5s. per ton, while that on all other foreign vessels was only 1s. per ton.

The import duties of the different States on British cargoes were equally characterized by a similar spirit of retaliation. New Hampshire, Massachusetts, Rhode Island, Virginia, Maryland, South Carolina, and Georgia imposed discriminating duties, varying from 50 to 100 per cent. on British cargoes over those levied on similar merchandise imported in other foreign vessels.

The effect of these countervailing and retaliatory measures can be traced in the following tables:

Value of British exports into the United States, upon an average of six years before the war of independence, ending with 1774, $13,113,773; of six years ending with 1789, $11,201,486; annual decrease since the war, $1,912,287. Annual value of exports from the United States to Great Britain, upon an average of six years before the war of independence, ending with 1774, $8,410,281; of six years since the war of independence, $4,361,452; annual decrease since the war, $4,048,829.

A close analysis of the official returns of trade during this period will show that tobacco and rice were the articles upon which this decrease chiefly fell. The quantity of tobacco exported to England decreased annually, upon an average of six years, 44,774,458 pounds, valued at $2,798,390; and the annual decrease in rice exported to England from the United States was 259,035 cwt., valued at $943,326; making a total decrease in tobacco and rice of $3,741,716. The tonnage employed in the trade during the two periods above designated can not be ascertained with accuracy. We are enabled, however, to supply from British authorities the number and tonnage of vessels employed in the trade between the two countries for two periods —of three years before, and subsequent to, the war of independence:

Number and tonnage of vessels annually clearing from Great Britain for the United States, on an average of the years 1770, 1771, and 1772, 628—81,951. Number and tonnage of vessels annually entering British ports from the United States, on a like average, 699—91,540; total, 1327—173,491. Number and tonnage of British vessels clearing from British ports, annually, on an average of the years 1787, 1788, and 1789, 272—55,785. Number and tonnage of United States' vessels clearing, annually, from British ports, on like average, 157—25,725. Number and tonnage of British vessels clearing from the United States for British ports, annually, on an average of the years 1787, 1788, and 1789, 261—52,595. Number and tonnage of United States' vessels clearing from the United States for British ports, annually, on a like average, 163—26,564; total, 853—160,669. Showing a decrease, during the periods compared, of 474—12,822.

Thus, in the very infancy of our commerce, the disastrous effects of restrictions, and of the retaliatory measures which they provoked, were exhibited as well in the spirit of commercial illiberality and antagonism which they engendered between the two countries, as in the general decrease of navigation and trade. That the object as well as the effect of the various orders in council relative to the trade between Great Britain and this county, issued from 1783 to 1794, was to paralyze the efforts even then made in the United States to compete for a portion of that trade which England had, long anterior to this period, wrested from Holland, and now seemed to regard as legitimately her own, can not be doubted. A British statesman (Lord Liverpool), in a work on this subject, published in 1792, remarks:—"That this increase in our shipping is to be ascribed to *our navigation system* may be made to appear from recent experience in the application of it to the trade of the United States. When those countries were part of our plantations, a great portion of their produce was transhipped to Great Britain and our West India Islands in *American bottoms*; they had a share in the freight of sugars from those islands to Great Britain. But since the independence of those States, since their ships have been excluded from our plantations, and that trade is *wholly confined to British-built ships*, we have gained that share of our carrying trade from which they are *now excluded*, and we moreover enjoy a considerable proportion in the carriage of the produce of the United States."

The commercial policy of the United States, from the very infancy of the government, has been to encourage reciprocity, and freedom of commerce with all nations willing to adopt a similar principle. In the report from the Treasury Department on the subject of commerce, submitted to Congress in 1791, the basis of a commercial system was suggested, in which the Secretary argued that duties imposed upon imports would be disadvantageous in building up trade. "Instead," the report adds, "of embarrassing commerce under piles of regulating laws, duties, and prohibitions, it should be relieved from all its shackles, in all parts of the world. Would even a single nation begin with the United States this system of free commerce, it would be advisable to begin it with that nation." In the spirit of this suggestion, the United States, soon after the peace of 1783, proposed to enter into treaties of commerce, not only with Great Britain, but also with France, Spain, and Portugal. Every overture, however, to that end, was, under various pretexts, rejected; and it was not until five years after the adoption of our present Constitution that Great Britain could be induced to listen to any propositions on the part of the United States, having in view the equalization or reciprocity of commercial relations between the two nations.—SEYBERT'S *Statistical Annals*, page 58. Under the operation of their navigation laws, the productions of Asia, Africa, and America, could only be imported direct from the places of their growth in British vessels. As respects the United States, this restriction was suspended, as already observed, by orders in council, and proclamations issued in pursuance thereof, until the treaty already cited was ratified.

The following tables exhibit the details of the import and export trade between Great Britain and the United States from 1795 to 1807, and from the latter year to 1815, when a convention of reciprocity was entered into and ratified between the two governments:

Years.	Exports from Great Britain to the U. S.	Imports into Great Britain from the U.S.	Years.	Exports from Great Britain to the U. S.	Imports into Great Britain from the U.S.
1795	$26,270,590	$6,760,680	1801	$37,587,650	$13,532,590
1796	30,270,160	10,404,850	1802	26,647,450	9,617,520
1797	25,283,995	5,877,560	1803	26,364,055	9,570,490
1798	27,901,845	8,913,600	1804	31,992,130	8,257,[illegible]
1799	35,282,790	9,094,705	1805	35,723,825	8,882,780
1800	39,427,970	11,789,615	1806	43,065,610	9,999,420

The preceding table is derived from British authorities; and though it exhibits a variance in almost every instance, more or less, from the United States' official reports, it is believed to approximate the actual value of the imports and exports in the English market. From 1803, when the stipulations of the treaty of 1794, relative to commerce, expired, there was no treaty regulating the commercial intercourse between the two countries until 1815. It is true a treaty was agreed to, December 31, 1806, between Messrs. Monroe and Pinckney and the commissioners appointed by Great Britain for that purpose; but so restrictive were some of its stipulations, especially as respecting American commerce with the East Indies, that it was rejected by the President, without having been submitted to the Senate, notwithstanding it contained a stipulation for an equalization of tonnage and other duties in the intercourse between the United States and the dominions of Great Britain in Europe. This principle was recognized and admitted in the commercial convention of July 3d, 1815, entered into between the two countries, with the limitation, however, on the part of England, to her dominions in Europe. Prior to the adoption of this treaty, the United States passed an act repealing all the discriminating duties of import and tonnage in regard to the vessels of such nations as should extend similar favors to the shipping and produce of the United States; thus carrying into practical working, and recommending by legislative example, the suggestion of Mr. Jefferson already quoted, that if "even a single nation would begin with the United States the system of free commerce, it would be advisable to begin it with that nation." We recur, however, before proceeding to trace the operation of this convention in the subsequent returns of trade, to the tables, resuming at the year 1806:

Years.	Exports from Great Britain to the U. S.	Imports into Great Britain from the U.S.	Years.	Exports from Great Britain to the U. S.	Imports into Great Britain from the U.S.
1806	$43,065,610	$9,999,420	1811	$7,159,145	$11,547,075
1807	39,605,600	14,237,610	1812	20,677,960	6,470,760
1808	19,960,295	4,181,710	1813	Records destroyed by fire.	
1809	25,938,065	11,026,655	1814	36,515	113,105
1810	39,066,585	13,672,025	1815	59,682,505	11,811,440

In Seybert's *Statistical Annals* we find a minute analysis of the trade between the United States and Great Britain during the years designated in the previous tables.

In the year 1793, exports from the United States to Great Britain were estimated, in a report of the Secretary of the Treasury, under date December 23, 1793, at $9,363,416, and the imports into the United States from Great Britain at $15,285,428, leaving a balance in favor of Great Britain of $5,922,012. From 1793 to 1800, the amount of manufactures imported into the United States from Great Britain exceeded in value the amount of similar exports to all the nations in Europe, as will be seen from the following table, taken from British returns:

Years.	Amount of manufactures exported from Great Britain to	
	Nations in Europe.	The United States.
1793	$17,659,230	$16,363,625
1794	22,291,915	17,944,445
1795	21,113,910	24,462,860
1796	22,488,415	29,178,200
1797	18,664,150	24,356,580
1798	19,908,250	26,565,340
1799	22,768,040	33,481,105
1800	37,580,615	32,947,335

The annual value of merchandise exported from the United States to the European dominions of Great Britain, on an average of the years 1802, 1803, and 1804, amounted to $18,665,777; and on a similar average, the annual value of the merchandise imported into the United States from Great Britain amounted to $35,737,030; showing an annual balance of $17,071,253 against the United States. The annual value of British produce and manufactures, and of foreign and colonial merchandise, distinguished in separate columns, exported from Great Britain to the United States, and to all parts of the world, during the years designated, will be seen in the following tables:

Value of the Exports from Great Britain.

Years.	To the United States.		To all parts of the world, including the United States.	
	British manufactures and produce.	Foreign and colonial merchandise.	British manufactures and produce.	Foreign and colonial merchandise.
1805	$55,057,045	$2,177,650	$205,344,710	$50,200,945
1806	61,987,440	2,380,315	216,210,880	48,933,525
1807	59,232,565	1,257,145	202,399,325	50,013,980
1808	26,208,695	305,635	204,408,355	45,440,375
1809	36,292,500	1,011,340	251,213,805	78,874,755
1810	54,603,760	1,484,665	249,878,170	63,633,875
1811	9,206,265	165,320	174,586,405	45,111,695

The aggregate value of British manufactures and produce exported to the United States during the seven years designated above, was $302,588,270, making an annual average of $43,226,896; the aggregate value of British produce and manufactures exported to all parts of the world, including the United States, during the same period, was $1,504,041,650, making an annual average of $214,863,093. The aggregate value of foreign and colonial merchandise exported from Great Britain to the United States during the same period was $8,782,070, making an annual average of $1,254,582; the aggregate value of similar exports to all parts of the world, including the United States, was $382,209,150. The preceding figures exhibit many interesting facts relative to the trade between the two countries, during the period which intervened between 1793 and 1816. The exports of foreign and colonial merchandise from Great Britain to the United States show that England enjoyed but a small share of our carrying trade; while a comparison between the totals of domestic manufactures exported to the United States, and to all other parts of the world, will exhibit the importance to Great Britain of unrestricted commercial intercourse with the United States.

The effect of the restrictive and retaliatory measures which were, at this period, adopted by both countries, is even more fully illustrated in the tonnage employed in this trade by each, respectively, from 1790 to 1816. The number of British vessels which entered and cleared between the United States and Great Britain amounted to 1715, with an aggregate tonnage of 382,552 tons. The number of American vessels which entered and cleared in the same trade, during the same period, was 3245 vessels, with an aggregate tonnage of 516,702 tons. In 1790, 557 British vessels were employed in the commerce between the two countries; in 1800 this number was reduced to 139. In 1790 the American vessels employed in this trade amounted only to 464; in 1800 this number reached as high as 1057. In 1789, 253 British vessels engaged in this trade entered British ports from the United States, while 358 vessels cleared in the same trade. In a period of 10 years, up to 1799, the number that entered from the United States was reduced to 42 vessels, while the number that cleared fell to 57. In 1806, 561 vessels employed in the trade with the United States entered British ports; of these only 56 were under the British flag; and of the 575 vessels that cleared from British ports in the same trade, only 39 were British.

These statistics, which are chiefly compiled from Seybert, show an augmentation of tonnage in the United States, and a diminution in the tonnage of Great Britain engaged in the trade between the two countries, well calculated to excite alarm among the ship-owners in England, and even to arrest the attention of the British government. And when it is considered that it was at that period—if it has not always been—the policy of Great Britain to sacrifice, if necessary, the interests even of commerce and trade to the great object of strengthening her naval power, it will not be a subject of surprise that orders in council and acts of Parliament were issued, in quick succession, avowedly designed to check this rapid progress of American navigation, and drive American ships from the carrying trade, even as respected the exportation of the products of the United States to other countries. "Trade," said the report of the privy council, to whom the subject was, at this time, referred by his majesty's orders, "was considered principally as the means of promoting the employment of ships, and was encouraged chiefly as it conduced to the one great national object—the naval strength of the country."

It was the universal prevalence throughout England of this sentiment, exhibited upward of a century in her navigation laws, in her prohibitions and restrictions, in her differential duties, and, above all, in her colonial system, that emboldened the privy council to recommend to his majesty "that, notwithstanding their (the United States') extreme anxiety for an arrangement on the principle of reciprocity, if Congress should propose (as they certainly will) that the principle of equality should be extended to the ports of our colonies, and that the ships of the United States should be there treated as British ships, it should be answered, that this demand can not be admitted even as a subject of negotiation." Hence, but little could be expected from the treaty of 1794, in which this principle was carried out to the fullest extent of rigorous restriction; and hence, also, the series of regulating orders, acts, and counter-acts, which were made the instruments of commercial warfare between the two countries for upward of a quarter of a century. It would be a tedious task to present even a synopsis of the different restrictive and retaliatory measures adopted by the two governments during this long period. Were it even otherwise, it would be superfluous to go into minute details, as the legislation of both governments during this period, as well as its effects upon the commerce of the two countries, are succinctly set forth in the former reports issued from this Department.

It will, therefore, suffice to refer to the tables of trade and tonnage already given, as the best illustration that can be offered of the operation of these measures, and of the total inadequacy of restrictions and prohibitions as a necessary means of fostering commercial industry, or of augmenting the naval power of a nation. The ablest pens in England have been employed in demonstrating that it is to other causes than the navigation laws that Great Britain owes her vast commercial greatness, and that naval ascendancy which she has so long maintained (McGregor, Part 15, vol. ii., p. 1370) and it is a question still unsettled whether the adoption by the United States of the navigation laws and the restrictive policy of Great Britain, even as a means of protection or self-defense, was as beneficial in its ultimate results upon the commercial prosperity of the country, as would have been a strict adherence to the maxim of Mr. Jefferson, already cited, that "commerce should be relieved from all its shackles in all parts of the world." Be this as it may, the enlightened policy which now rules the councils of Great Britain—a policy which, at this distant and remote period in British history, received the co-operation and support of two of England's greatest statesmen, Mr. Pitt and Sir Robert Peel—has dissipated the fallacies upon which past legislation was based, and has demonstrated already, in the brief period of five years, that England can best compete with the merchant-marine of the world by placing the trade of every port in her vast dominions, European and colonial, for the ships of all countries, upon the footing of an unrestricted coasting-trade.

A liberal tariff of duties, especially upon articles of prime necessity among the great masses of her people, even should they be classed in the category of luxuries, is all that seems now wanting to perfect the present commercial code of this powerful kingdom. The present duty on raw tobacco is, at least, 1000 per cent. above prime cost. The commercial convention of 1815, between Great Britain and the United States, was limited to four years. The second article of this treaty provides for an equality of duties on imports and tonnage in the ports of the United States and the ports of the British territories in Europe. With respect to imports, this equality of duties applies only to articles being the growth, produce, and manufacture of the respective countries. The intercourse between the United States and the British West Indies and American colonies is not to be affected by any provisions of the convention; "but each party is to remain in complete possession of its rights with respect to such intercourse." Under the stipulations of this convention, the vessels of Great Britain are exempted from the payment of the *extra* tonnage and import duties, only when they arrive from, and their cargoes are of the growth, produce, or manufacture of, the British dominions in Europe; and the vessels of the United States, in like manner, are admitted into British ports on terms of equality as to tonnage and import duties, with British vessels, only when their cargoes consist of merchandise the growth, produce, or manufacture of the United States. The effect of this convention, especially of its restrictive clauses, upon the shipping interests of Great Britain, formed no exception to the general rule, that all shackles upon commerce ultimately recoil upon those by whom they are imposed.

In the practical consequences of this arrangement, as was stated by the celebrated Huskisson, in a speech delivered in Parliament, the adherence of Great Britian to another part of her navigation laws, instead of serving, appeared to that statesman to have shackled the shipping interests of that country. And he thus illustrates his position: "An American vessel, on her voyage to England, is freighted with a cargo wholly produced in the United States. For her return to America, she may load in British ports, with a cargo partly the produce or manufacture of any other country. This a British ship can not do; for if a British ship were to bring to the United States a single cask of brandy, or a pipe of wine, she would be liable to seizure and forfeiture." And yet, at this very period, and up to the year 1830, the representatives of the American government were pressing upon the cabinet of England the justice as well as the policy of unrestricted commercial intercourse between all the ports of the two countries, but without success.

In 1818 another convention was ratified between the two governments, by the 4th article of which that of 1815 was continued in force for the term of 10 years from that date; and in 1827 it was indefinitely extended and continued, either party being at liberty, on giving 12 months' notice to the other, to annul and terminate the said convention. No terms, however, would be acceded to by the British government respecting the trade with her American colonies. A recapitulation of the various acts of Parliament and orders in council, as well as the general history of the commercial antagonism and reciprocal exclusion which marked this period, belongs more properly to the digest of our commercial relations with the English colonial possessions. It is true, it would not be difficult to trace the influence of this controversy in the commercial legislation, more particularly in relation to the tarriff regulations of both countries, during the entire period of its continuance. Still, the general subject belongs to a review of our trade with the colonies of Great Britain, and to that portion of this digest reference is made.

It has been already stated that, in the convention of 1827, it was agreed that the provisions of the convention of 1815 should be indefinitely extended and continued; but that it should be competent, nevertheless, to either of the parties, on giving 12 months' notice, to annul and abrogate the said convention. No such notice has been given by either party, and, consequently, the convention still remains in force. Since that period, however, the commercial policy of Great Britain has totally changed. The vast pile of navigation laws which contributed to build up her naval power, and extend her commerce to every corner of the globe, has been swept away by the reforming hand of a more liberal legislation; the whole framework of her tariff policy has been demolished; the heavy duties on the various classes of raw material have been removed; and, with the exception of a few articles on which, for revenue purposes only, heavy duties are still retained, the raw produce of the world is brought to the store-houses of her manufacturers, unincumbered with those custom-house charges which, before this period, absorbed so large a share of the profits of their industry and skill.

The act of 12 and 13 Victoria, chapter 29, passed on the 26th June, 1849, introduced this new era in the commercial history of Great Britain. The leading provisions of this act, as well as of the various acts, orders in council, proclamations, etc., which it superseded, will be found at length in a report from the Department of State in 1853, entitled "Ex. Doc. No. 52, Senate," pages 9-16. Section 21 of this act declares that it shall come into operation on the 1st day of January, 1850. Thus, at length, the limbs of British commerce were freed from the pinions by which it was fettered for upward of two centuries. The visions of Mr. Pitt were realized in the liberal policy of Sir Robert Peel's enlarged and enlightened statesmanship. This act establishes the comprehensive principle of admitting into the ports of Great Britain, or into any British possessions, goods of any sort, in a ship of any country, from any part of the world. Such prohibitions and restrictions, however, as were, before the passage of this act, deemed necessary either for the safety or for the protection of revenue and mercantile interests, still remain in force. The following is a brief summary of such prohibitions and restrictions, so far as they affect the commercial relations of the United Statas with Great Britain:

Books, wherein the copyright shall be first subsisting, first composed, or written or printed in the United Kingdom, and printed or reprinted in any other country, as to which the proprietor of such copyright or his agent shall have given to the commissioners of customs a notice in writing that such copyright subsists, such notice also stating when copyright shall expire.

Coin, viz.: False money or counterfeit sterling; silver coin of the realm, or any money purporting to be such, not being of the established standard in weight or fineness; extracts, essences, or other concentrations of coffee, chicory, tea, or tobacco, or any admixtures of the same; malt. Prints, indecent, or obscene; paintings, books, cards, lithographic or other engravings, or any other indecent or obscene articles. Snuff-work: tobacco-stalks stripped from the leaf, whether manufactured or not; tobacco-stalk flour.

The following goods prohibited to be imported except in transit, and subject to such regulations and restrictions as the Commissioners of the Treasury may direct, and duly reported as goods in transit: I. Articles of foreign manufacture, and any packages of such articles bearing any names, brands, or marks, being, or purporting to be, the names, brands, or marks of manufacturers resident in the United Kingdom. II. Parts of articles, viz.: Any distinct or separate part of any article not accompanied by the other part or all the other parts of such articles so as to be complete and perfect, if such articles be subject to duty according to the value thereof.

The following goods prohibited to be imported, except subject to restrictions on importation (arms, ammunition, gunpowder, or any other goods, may be prohibited by proclamation or order in council): I. *Silk.*—Manufactures of silk, being the manufactures of Europe, unless into London, Liverpool, Hull, Southampton, Leith, Dublin, or ports appointed by the commissioners, or into Dover or Folkestone, direct from Calais or Boulogne, and unless in ships of 50 tons' burden or upward. II. *Spirits*, not being perfumed or medicinal spirits, unless in ships of 50 tons' burden at least, and in casks or other vessels, each of such casks or other vessels being of the contents of 20 gallons at least, and duly reported, or in glass bottles, or stone bottles, not exceeding the size of three-pint bottles, and being part of the cargo of the importing ship, and duly reported. III. *Tobacco, Snuff, Segars, Cigarillos or Cigarettos.*—Unless in ships of not less than 120 tons' burden, and into ports approved by the Commissioners of the Customs. IV. Tobacco, segars, or snuff, unless in packages each containing not less than 80 pounds' net weight. Tobacco and snuff for private use, in packages under the legal size, may be admitted by special leave of the Board, provided it be for the use of the person to whom it is consigned, and be inserted in the manifest and report, the application and proof being made by such person. V. Cigarillos or cigarettos, unless in packages each containing not less than 75 pounds' net weight. VI. If any goods be imported contrary to the foregoing prohibitions and restrictions, the same to be forfeited.

The following are the only ports into which tobacco and snuff can be imported, viz.:

England.—London, Liverpool, Southampton, Falmouth, Lancaster, Whitehaven, Plymouth, Newcastle, Swansea, Hull, Preston, Cowes, Bristol.

Scotland.—Glasgow, Port Glasgow, Aberdeen, Leith, Greenock.

Ireland.—Dublin, Belfast, Cork, Galway, Limerick, Londonderry, Newry, Sligo, Waterford, Wexford, Drogheda.

The 43d section of 16 and 17 Victoria provides that no goods shall be deemed to be imported from any particular place, unless imported direct from such place, and shall have been there laden on board the importing ship, either as the first shipment of such goods, or after the same shall have been actually landed at such place.

Section 41 (chapter 107) of 16 and 17 Victoria declares that it shall be lawful to import into the United Kingdom any goods not prohibited, and to warehouse such as are subject to duties of customs, in duly approved warehouses, without payment of duty on their first entering; but the duties on the following goods, and such other goods as the Commissioners of the Treasury may, from time to time, direct, shall be paid on the first importation thereof, viz.: corn, grain, meal, and flour, and wood goods from British possessions. No goods except diamonds, bullion, lobsters, and fresh fish of British taking, and imported in British ships, which may be landed without report or entry, shall be unshipped or be landed on Sundays or holidays, nor on any other days except between 8 o'clock in the morning and 4 o'clock in the afternoon from the 1st of March until the 1st of November; and between 9 o'clock in the morning and 4 o'clock in the afternoon from the 1st of November until the 1st of March, or during such other hours as may be appointed by the commissioners; nor shall any goods be unshipped or landed, unless in the presence or with the authority of a customs officer; nor shall they be landed, except at some legal quay, wharf, or other duly-appointed place; nor shall any goods, after having been transhipped, be removed into any other craft, without permission of such officer, under the penalty of forfeiture; and if any goods shall be unshipped for the purpose of being landed after due entry thereof, they shall be forthwith removed to and landed at the place at which the same are intended to be landed; and in default thereof, such goods shall be forfeited, together with the barge or other vessel employed.

The master of every ship, whether laden or in ballast, shall, within 24 hours after arrival from ports beyond the seas, and before bulk be broken, make due report of such ship in the form following,* or to the same effect, embracing the several particulars indicated therein; and if the cargo of such ship shall have been laden at several places, he shall state the names of those places, in the order of time in which the same were laden, opposite to the particulars of the goods so laden; and failing so to do, or if any of the particulars contained in such report be false, the master shall forfeit £100 ($500). The master of every ship arriving from ports beyond the seas, at the time of making report, if required, shall deliver to the collector or comptroller the bill of lading, or a copy thereof, for any part of the cargo laden on board, and shall answer all such questions relating to the ship, cargo, crew, and voyage, as he shall put to him; and in case of fail-

---

* Form of Entry.

NAME OF SHIP.	BRITISH OR FOREIGN. (If foreign, country to which she belongs.)	NUMBER OF CREW.			PORT OR PLACE WHENCE ARRIVED.
		British seamen.	Foreign seamen.	Name of master.	

ure or refusal, or to answer truly, or to produce such bill of lading or copy; or if the same be false; or if any bill of lading be uttered or produced by any master, and the goods specified therein shall not have been *bona fide* shipped on board such ship; or if any bill of lading uttered or produced by any master shall not have been signed by him, or any such copy shall not have been received previously to his leaving the place where the goods expressed therein were shipped; or, if after the arrival of any ship within four leagues of the coast of the United Kingdom, bulk be broken, or any alteration made in the stowage of the cargo so as to facilitate the unlading of any part thereof; or if any part be staved, destroyed, or thrown overboard, or any package be opened, in every such case the master shall forfeit £100 ($500).

A perfect entry shall be made before unshipment, by the importer or his agent, of all goods liable to duty and intended for home use on the landing thereof, and the particulars thereof shall agree with those of the report, and any certificate of origin or other document conferring a benefit by the distinction; and whenever the value of any goods is required to be stated in the entry, the importer or his agent shall declare to the same at the foot thereof. It is competent, under the provisions of 16 and 17 Victoria, chapter 107, section 57, for the officers of the customs to detain goods which appear to them to be undervalued; in which case, they shall forthwith give notice in writing to the party entering the same, and stating the value thereof as estimated by them; either delivering such notice in person, or transmitting it by post to the address stated in the entry;[*] and the commissioners shall, within seven days after the detention of such goods, determine either to deliver them on the entry or retain them for the use of the crown; in which latter case, they shall cause the value, as stated in the entry, together with 5 per cent. additional, and the duty already paid, to be paid to the party entering them, in full satisfaction for such goods; or, on application, may permit such person to amend his entry at such value.

Sections 66 to 73 of the act already cited require that, with each entry, two or more duplicates shall be delivered, in which all sums or numbers may be expressed in figures, and the number of duplicates shall be such as the collector or comptroller may require. Importers or agents willfully failing to comply with these regulations, so far as applicable to the goods entered by them, shall pay £20 ($100). No entry shall be valid unless the goods are properly described therein by the denominations, and with the character and circumstances according to which such goods are charged with duty, or may be imported either for home use, or to be warehoused for exportation only. If any goods or other things shall be found concealed in any way, or packed to deceive the officers, in any package landed in pursuance of any entry, such package and its entire contents shall be forfeited; and if any goods not duly entered shall be taken or delivered from any ship or warehouse, the same shall be forfeited.

It is provided, however, that no entry shall be required in respect of passengers' baggage, which may be landed, examined, and delivered as the commissioners may direct; but if prohibited or uncustomed goods be found concealed therein, either before or after landing, the same shall be forfeited, together with the other articles of the package. Surplus stores, not being merchandise, nor deemed excessive, may be entered for private use, or warehoused for future use as ship stores, although they can not be legally imported as merchandise. At ports where agents for the clearance of ships, goods, or baggage shall be required to be licensed, any person not so licensed, or duly appointed a clerk to a person licensed, acting as such agent or clerk, or, whether licensed or not, making entry of any goods without the authority of the proprietor or consignee, shall for such offense forfeit £20 ($100); but no such penalty shall extend to persons acting for dock companies, or otherwise authorized by law to pass entries, or to any merchant, importer, or consignee of goods, acting himself in respect thereof; or any clerk or servant exclusively employed by him, or by any such person in copartnership. Officers of customs may require of persons applying to transact business on account of others a written authority, and, in default of its production, refuse to transact such business. Officers of customs may take samples of goods for examination, for ascertaining the duties payable thereon, or for such other purpose as the commissioners may deem necessary, and dispose of the same in the manner they may direct.

If within fourteen days after the arrival of the ship (exclusive of Sundays and holidays), the importer shall not make entry of his goods, or, having entered, shall not within that time, or within such further period as the commissioners shall direct, land the same, the officers may convey the same goods to the queen's warehouse; and whenever the cargo of any ship shall have been discharged within fourteen days, excepting only a small quantity, the officers of customs may forthwith convey such remaining goods to the queen's warehouse; and, also, at any time after arrival, may convey any small parcels or packages of goods to the queen's warehouse, there to remain during the remainder of such fourteen days, for due entry; and if the duties on goods so conveyed to the queen's warehouse be not paid within three months afterward, or within such further period as the commissioners may direct, together with all charges of removal and warehouse rent, such goods may be sold, and the proceeds thereof be applied, first, to the payment of freight and charges, next, of duties, and the overplus, if any, shall be paid to the proprietor on his application for the same; but if such goods be of a perishable nature, the commissioners may forthwith direct their sale, and apply the proceeds thereof: provided, always, that, if, 48 hours, or any earlier period after the report, is specified in the bills of lading for the discharge of cargo, the importer, etc., neglect to enter and land the same within such 48 hours, the master or owner of such ship may then himself enter and land such goods. Whenever goods shall remain on board ship beyond the period of 14 days after arrival, or beyond any further period the commissioners may allow, such ship shall be detained by the proper officer until all expenses be paid for watching and guarding such goods beyond the prescribed period, not exceeding 5s. ($1 20) per diem, and for removal to the queen's warehouse, provided they be removed.

If goods be removed from any ship, quay, wharf, or other place, previous to the examination thereof by the proper officer of the customs, unless under the care or authority of such officer; or if goods entered to be warehoused, or re-warehoused, shall be carried into the warehouse, unless with the authority or under the care of the proper officer, and in such manner, by such persons, within such time, and by such roads or ways as the officer shall direct, such goods shall be forfeited. All goods warehoused shall be deposited in the packages in which they shall have been imported, except such goods as are permitted to be shipped[*] on the quay, or bulked, sorted, lotted, packed, or re-packed in the warehouse after the landing thereof, in which case they shall be deposited in the packages in which they shall be when the account thereof is taken by the proper officer; and if such goods are not so deposited, or if any alteration shall afterward be made in them, or in the packing thereof in the warehouse, or if they shall be removed without the presence or sanction of the proper officer, except for delivering under the proper warrant, order, or authority for that purpose, they shall be forfeited.

---

[*] In cases in which articles shall have been undervalued, or entered under a wrong denomination, and the difference of duty shall not exceed £10 ($50), the collector and comptroller may permit the entry to be amended, on proof that no fraud had been intended, taking a deposit not exceeding £2 ($10) to abide the Board's decision.

[*] The temporary transfer of goods from one package to another.

All goods deposited in warehouses shall be cleared, either for home use or exportation, at the expiration of five years from the date of warehousing, or within such further period and in such cases as the Commissioners of the Treasury shall direct, unless the owner or proprietor of such goods be desirous of re-warehousing them; in which case they shall be examined by the proper officers, and the duties due on any deficiencies or difference between the quantity ascertained on landing and the quantity then found to exist, subject to such allowances as are by law permitted in respect thereof, together with the necessary expense attendant thereon, shall be paid down, and the quantity so found shall be re-warehoused in the name of the then owner or proprietor thereof, in the same manner as on first importation.

If any warehoused goods shall not be duly cleared, exported, or re-warehoused, and the duties due on the deficiencies shall not be paid down at the expiration of five years from the previous entry and warehousing, or within such further period as shall be directed, the same, if worth the duty, after one month's notice to the warehouse-keeper, shall, with all convenient speed, be sold either for home use or exportation, with or without the consent of the warehouse-keeper, and the proceeds thereof be applied to the payment of the duties, warehouse rent, and charges, and the surplus, if any, be paid to the owner or proprietor, if known; but if he can not be found, the surplus shall be carried to the crown's account, to abide the claim of such party on his appearing and making it good; and if such goods be not worth the duty, then, after one month's notice, the same may be exported or destroyed, with or without the concurrence of the owner thereof, or the proprietor of the warehouse, as the commissioners shall see fit; and the duties due upon any deficiencies not allowed by law shall be paid by the proprietor of the warehouse.

The commissioners of customs may permit any goods to be taken out of the warehouse without payment of duty, for such purpose or for such period as to them shall appear expedient, and in such quantities, and under such regulations and restrictions, and with such security, by bond, for the due return thereof or the payment of the duties, as they may direct. No warehoused goods shall be taken or delivered from the warehouse, except upon due entry for exportation, under the care of the proper officers, or upon due entry and payment of the full duties for home use, except goods delivered into the charge of the searchers to be shipped as stores, in such quantities as the collector or comptroller shall allow, subject to the regulations of the commissioners.

Upon the entry of goods to be cleared from the warehouse for home use, the person entering the same shall deliver a bill of entry and duplicates thereof, in like manner and form, and containing the same particulars, as are herein before required on the entry of goods to be delivered for home use on the landing thereof, as far as the same may be applicable, and shall pay down to the proper officer of the customs the full duties thereon, not being less in amount than according to the account of the quantity taken by the proper officer on the first entry, except as to the following goods, viz.: tobacco, wine, spirits, figs, currants, raisins, and sugar; the duties whereon, when cleared from the warehouse for home use, shall be charged upon the quantity ascertained by weight, measure, or strength, at the time of actual delivery thereof, unless there is reasonable ground to suppose that any portion of the deficiency between the weight ascertained on landing and first examination, and that ascertained at the time of actual delivery, has been caused by illegal or improper means; in which case, the proper officer of customs shall make such allowances only for loss as he may consider fairly to have arisen from natural evaporation or other legitimate cause. When any deficiency occurs in goods chargeable to pay duty according to value, the value thereof shall be estimated, as nearly as conveniently may be, by the officers of customs, according to the market price of the like sort of goods. No duty shall be charged in respect of any deficiency in goods entered and cleared from the warehouse for exportation, unless the officers of customs have reasonable ground to suppose that such deficiency or part thereof has arisen from illegal abstraction.

No entry for home consumption, from and after the passing of this act (customs consolidation act, 16 and 17 Vict., chap. 107), shall be received for any timber or wood goods in bond, for a less quantity, at any one time, than 5 loads, unless such wood goods shall be delivered by tale, in which case the entry may be passed for any quantity not less than 240 pieces; and no less quantity shall be delivered in virtue of any such entry, at any one time, than 1 load of such timber or wood goods, or than 90 pieces, if delivered by tale. No pack or parcel of playing-cards imported into the United Kingdom shall be sold or kept for sale, without being separately inclosed in a wrapper provided by the Commissioners of Inland Revenue, with such device thereon as they may direct, and securely fastened, so that such wrapper can not be opened without being destroyed; and persons selling or offering for sale any pack or parcel of playing-cards not separately inclosed, etc., shall be liable to a penalty of £10 ($50), and the goods to seizure.

The first and immediate effect of these liberal reforms, introduced by the acts and regulations just cited, and briefly condensed so far as they relate to foreign commerce, is, that a large bulk of our trade with France is now caaried on by means of *transit* through English ports. This branch of trade in 1851 increased the commerce and shipping of England to the extent of $11,413,195 (£2,282,639), and in 1852 to the extent of $12,822,145 (£2,564,429).* The increase in British tonnage in 4 years after the passage of the act (12 and 13 Victoria, chap. 29), was as high as 700,000 tons, and the number of sailors was augmented to the amount of at least 20,000. Thus Great Britain herself derived the first fruits of a policy so comprehensive and liberal. The only restriction—if we except her tariff duties which bear with special rigor upon one of our leading staples†—which the act of 1849 has left untouched, was that which related to the coasting trade of Great Britain and her colonial dominions.

In 1854 (March 16), Lord Stanley introduced in the House of Lords his bill for the repeal of the regulations which then governed the coasting trade of Great Britain. He was of opinion that it would be a narrow and foolish course of reasoning to make the commerce of Great Britain in any way dependent on the fears or inexperience of other nations. "We should," he remarked, "go on fearlessly and independently in our course of improvement, and show our confidence in the principles we advocated by the sincerity and energy with which we enforced them. By the repeal of the laws of this country with reference to our coasting trade, there was no doubt that America would, in time, see that it was to her advantage to hold out to us the same benefits we extended to her, and other countries would do the same. With regard to the bill, he had no doubt it would eventually be found to contribute, in most important respects, to the benefit and advantage of all classes connected with, or dependent in any way on, the shipping interests."

---

* Speech delivered by Mr. Cardwell in the House of Commons, February 3d, 1854.

† See Comparative Tariffs, Great Britain, article *Tobacco.*

The preceding extract is given for the purpose of exhibiting the motives and views of British statesmen in admitting foreign vessels to the coasting trade of European ports of Great Britain. The bill met with but little serious opposition; and by the act entitled 17 Victoria, chapter 5, foreign ships are admitted to the coasting trade, subject, as to stores for the use of their crews, to the same laws and regulations as British ships. The regulations for this trade are prescribed in sections 1, 2, 3, and 4 of the act. The first section empowers her majesty to exercise in respect of ships and merchandise employed and conveyed in the coasting trade, like powers as are conferred in respect of foreign ships and merchandise employed and conveyed in the over-sea trade. Section second subjects foreign ships engaged in the coasting trade, in respect of stores and as to other custom-house regulations, to the same laws to which British ships, when so employed, are now subject. Section third equalizes foreign with British ships as to all dues, duties, and charges whatever, the employment of pilots, and as to all restrictions or extra charges whatever of private persons or bodies corporate. Section fourth subjects foreign steam-vessels, carrying passengers in the coasting trade, to the provisions of the steam-navigation act. The following is a summary of the rules applicable to British vessels engaged in the coasting trade, and, by virtue of the act above cited, also to foreign vessels which may avail themselves of the privileges granted by the act:

"All trade by sea from one part of the kingdom to any other part thereof shall be deemed to be a coasting trade and all ships employed therein shall be deemed coasting ships; and if doubt shall at any time arise as to what or to or from what parts of the coast shall be deemed a passage by sea, the Commissioners of the Treasury may determine in what cases the trade by water from one place to another in the United Kingdom shall or shall not be deemed a trade by sea."

Coasting ships confined to coasting voyage.—No goods shall be laden on board any ship in the United Kingdom, to be carried coastwise until all goods brought in such ship from parts beyond the seas shall have been unladen; and if any goods shall be taken into or put out of any coasting ship at sea or over the sea, or any such ship deviate from her voyage unless forced by unavoidable circumstances, and in either case, if the master shall not declare the same in writing, under his hand, to the collector or comptroller at the port where such ship shall afterward first arrive, he shall forfeit £100 ($500).

Times and places for landing and shipping.—If goods shall be unshipped from any ship arriving coastwise, or be shipped or water-borne to be shipped on Sundays or holidays to be carried coastwise, or unless in the presence or with the authority of the proper officer of the customs, or unless at the times and places appointed, the same shall be forfeited, and the master of the ship shall forfeit £50 ($250).

Master to keep a cargo-book, and penalties for false entries.—The master of every coasting ship shall keep a cargo-book, stating the names of the ship, the master, the port to which she belongs, and, on each voyage, of the port to which she is bound; and at every port of lading, an account of all goods taken on board, stating the descriptions of the packages, the quantities and descriptions of the goods, whether packed or stowed loose, the names of the shippers and consignees, so far as such particulars are known, and at every port of discharge shall note the days on which any are delivered, and the times of departure; and such master shall produce such book on demand of any officer of customs, who may make any remark therein; and if, upon examination, any package entered in the cargo-book as containing foreign goods shall be found not to contain such goods, that package, with its contents, shall be forfeited; or if any package shall be found to contain foreign goods not entered in such book, such goods shall be forfeited; and if the master shall fail to keep such cargo-book, or to produce it, or if at any time there be found on board goods not entered in such book as laden, or any goods not noted as delivered, be not on board, the master shall forfeit £20 ($100).

Account previous to departure to be delivered to collector, and commissioners may grant general transires.—Before any coasting ship shall depart from the port of lading, an account, in duplicate, signed by the master, shall be delivered to the collector or comptroller, and he shall retain the duplicate, and return the original, dated and signed by him, and such account shall be the clearance of the ship for the voyage, and the *transire* (pass) for the goods expressed therein; and if any such account be false, the master shall forfeit £20 ($100).

Provided that the Commissioners of Customs, whenever it shall appear expedient, may permit general *transires* to be given for the lading and clearance, and for the entry and unlading of any coasting ship and goods.

Notice of arrival, excise goods and forfeiture.—Within 24 hours after the arrival of any coasting ship at the port of discharge, and before any goods be unladen, the *transire*, with the name of the place where the lading is to be discharged noted thereon, shall be delivered to the collector or comptroller, who shall note thereon the date of delivery; and if any goods on board be subject to any duty of excise, the same shall not be unladen without the authority or permission of the proper officer of excise; if any goods shall be laden or unladen contrary to any act relating to the customs, such goods shall be forfeited.

Officers may go on board and examine any coasting ship.—Any officer of customs may go on board and search any coasting ship, and examine all goods on board, and all goods then lading or unlading, and demand all documents which ought to be on board such ship; and the collector or comptroller may require that such documents shall be brought to him for inspection; and the master refusing to produce such documents on demand, or to bring the same to the collector or comptroller when required, shall forfeit £20 ($100).

Exemptions from coasting regulations.—Steam vessels and sailing vessels employed in the conveyance of passengers and their baggage coastwise, are to be placed precisely on the same footing, and in neither case are the baggage and effects of passengers to be subjected to coast regulations, or the vessels to tonnage duty; and all articles of apparel and household furniture, liquors, and provisions, taken by passengers for their private use, or small quantities of shop goods taken by tradesmen, passengers on board such vessels, are to be considered as baggage, and exempt from coast regulations; as are also exempt packages, live fish, chippings of granite, cobble stones, whin stones, kelp, Kentish rag stones, flints picked off land, pebbles, gravel, and chalk, faggots or bavins for bakers' use, hay, straw, fresh meat, soap, ashes for manure, coal-ashes, iron-stone, and all stone quarried in the country, bones for manure, bricks and British tiles, slates, native timber, and wood for pit-props and sleepers, also china clay. It is not known positively how many nations have so far reciprocated the coasting trade privileges thus granted by Great Britain to foreign nations. On the 6th day of February, 1855, Tuscany entered into a convention with Great Britain for that purpose. The first article of this treaty stipulates that the subjects and ships of each of the high contracting parties shall enjoy in the dominions and territories of the other the same rights with respect to the coasting trade, and shall be treated in every case with regard to that trade in the same manner as native subjects and national vessels. A similar treaty was negotiated with Sardinia, March 22d, 1855. So long, however, as the restrictions with respect to the colonial coasting trade continue in force, it is very doubtful whether any of the great commercial nations of the world will be disposed to abolish or relax their present coasting trade regulations. As respects the United States, there would be no equivalent whatever.

The effect of the act of 1854, *opening the coasting trade of Great Britain to foreign vessels.*—During the month ending July 5th, 1852, the tonnage entered inward (in all British European ports), in the coasting trade was 1,044,862 tons. For the same month in 1853, it reached 1,097,472 tons, and in the corresponding month of 1854, it was 1,069,384 tons. The clearances outward (in the same trade), for July, 1852, were 1,131,561 tons; for July, 1853, 1,196,188; and for the same month in 1854, 1,189,513. With but one or two exceptions, the whole of the tonnage given above was British; a fact which a comparison of the figures representing this trade during the same month in 3 consecutive years, as given in the British official returns of trade, will at once exhibit.

The following condensed summary will explain the regulations which must be complied with by every vessel, from the period of arrival in port until her discharge is completed; and with respect to exportations, the necessary proceedings from the entry outward until the vessel's final clearance, will also be indicated. They are presented somewhat at length, so that a comparison between them and the United States' custom-house regulations and laws may be the more easily made.

Importation, as legally defined, takes place immediately the importing ship comes within the limits of the port, and the "time of a ship's arrival" is that at which the report thereof shall or ought to have been made. Exportation is, in like manner, determined to be the time at which goods shall be shipped on board an export vessel; and final clearance, the time of her departure. The master of every merchant vessel, within 24 hours of entering the port of arrival, is bound, under a penalty of £100 ($500), to report his cargo to the chief officer of customs. The chief officer of any ship in commission from her majesty or any foreign State, having foreign goods on board, is required, in like manner, to deliver an account in writing under his hand, and to the best of his knowledge, of the description and particulars of such goods. Before, however, the master is allowed to report, he must declare before some person duly authorized by the postmaster-general, that he has delivered at the post-office all letters that were on board his ship. And, likewise he must, under a penalty of £20 ($100), and the further sum of £10 for each alien not included in the declaration, truly declare to the number of aliens on board, or landed from his ship. At the time of making his report, the master is to deliver, if required, to the collector or comptroller, the bill of lading, or a copy thereof, for every part of the cargo, and to answer such questions as shall be put to him, as to the ship, cargo, crew, and voyage. The master, officer, crew, or passengers retaining letters after the delivery of the ship's letters at the post-office, shall forfeit £5 ($25) for each letter; and for detaining letters after demand by the officer of customs or person authorized by the postmaster-general, £10 ($50) each.

So soon as a vessel has reported, the importers, agents, or consignees of the cargo, having been advised by receipt of bills of lading, or other intimation, may each enter their several goods. A latitude of 14 days is allowed by law for this purpose; but, in order to clear the vessel more *speedily*, sight entries are permitted to the master or owner of any ship lying alongside the legal quays, or sufferance wharves, south of the Thames from London bridge eastward to Dockhead—the regulations and legal provisions given in the summary are those that are followed at the port of London, but the general regulations are the same at other ports—under such general description as is contained in the report, for any goods that shall not have been entered by the owners thereof within forty-eight hours from the day of the report (or earlier, if a briefer limit of time be set forth in the bill of lading), upon condition that perfect entry be made by the proprietor within one month from the date of landing. Goods so circumstanced are only liable to seizure from inaccuracy of entry after the lapse of a month. When a value is required to be stated, the importer or his agent is to subscribe a declaration verifying such value; and false declarations render the party making them liable to a penalty of £100 ($500).

The following tabular statement exhibits the port charges at the principal ports of England, Scotland, and Ireland, condensed from official authorities:

Light Dues.

Names and number of lights.		Coasters.	British and foreign privileged vessels over sea.
Scilly	1	$0 24 per vessel....	$0 00½ per ton.
Eddystone........	1	0 48 "	0 01 "
Milford...........	2	0 24 "	0 01 "
Portland..........	2	0 24 "	0 01 "
St. Bees..........	1	....	0 04 "y'rly.*
Foulness..........	1	0 00½ per ton.....	0 00½ "
Caskets...........	3	0 12 per vessel...	0 01 "
Nore	1	0 24 per 100 tons.	†0 24 per 100 tns
Well	1	0 00½ per ton......	0 00½ per ton.
Flatholm	1	0 24 per vessel...	0 01½ "
Lizard............	2	0 48 "	0 01 "
Needles & Hurst..	3	0 24 "	0 01 "
Owers.............	1	0 24 "	0 01 "
Haisbro'..........	3	0 00½ per ton......	0 00½ "
Goodwin	1	0 24 per vessel...	0 01 "
Sunk..............	1	0 00½ per ton.....	0 01 "
Flambro'	1	0 00½ "	0 00½ "
South Stack.......	1	0 00½ "	0 00½ "
Fern	2	0 01½ "	0 01½ "
Burnham..........	1	0 72 per vessel, at Bridgewater‡..	1 00 per vessel, at Bridgewater.§
Lowestoft.........	4	0 00½ per ton......	0 00½ per ton.
Air¶............	1	0 04 " ...	0 08 on vessels entering the port of Chester.
Lundy............	1	0 00½ "	0 00½ per ton.
Spurn	1	0 00½ "	0 00½ "
Bideford Bar......	2	0 24 per voyage on limestone vessels	0 03 "
Bardsey	1	0 00½ per ton.....	0 00½ "
Usk...............	1	0 00½ "	0 00½ "
Lynn Well........	1	0 02 "	0 02 "
Beachy Head.....	1	0 24 per vessel...	0 00½ "
Caldy.............	1	0 02 per ton.....	0 02 "
Nash	2	0 00½ "	0 01 "
Haisbro' North end......	1	0 00½ "	0 00½ "
South Sand Head....	1	0 00½ "	0 02 "
Forelands.........	3	0 00½ "	0 00½ "
Falmouth harbor..	1	0 00½ "	0 01 "

Since the 1st of January, 1854, a reduction of 25 per cent. in the light dues of the United Kingdom has been allowed.

* Vessels entering the harbors of Whitehaven, Parton, and Workington, and none other.

† But not chargeable on any excess above 500 tons.

‡ At Bristol, 12 cents per vessel.

§ At Bristol, under 100 tons, 72 cents per vessel; 100 tons and under 250 tons, $1 20 per vessel; 250 tons and upward, $1 80 per vessel.

¶ And buoys in the River Dee.

Besides the preceding list of light-houses, all of which are under the jurisdiction of the Trinity House, there are others, under the control of private individuals, who have generally obtained a lease of the same from the crown for a definite number of years, with authority to charge certain fees on shipping. These fees, however, are the same on American as on British vessels.

The Scotch, or northern lights, are under the management of a board of parliamentary commissioners.

The act of 6 and 7 William IV., chapter 79, enacts that, from the first of January, 1837, all British and foreign privileged vessels, not wholly in ballast, which shall pass any Scotch light-house, or derive any benefit therefrom, shall pay one cent per ton for each time of passing.

Irish Lights.—Foreign vessels, one cent per ton for each light passed, except harbor lights, which are only chargeable to vessels entering the ports within which they are situated. British and Irish, and equalized vessels, half a cent per ton (quarter cent if in ballast) for each light, except as above, with a duty of 24 cents on every "entry, cocket (a duplicate shipping bill), or warrant," when from foreign ports, but not otherwise. The charters of most of these private light-houses authorized the levying of higher fees from foreign than from British shipping. When England, therefore, entered into reciprocal treaties with foreign powers, the government had to make these light-houses compensation for the diminution that consequently took place in the charges on foreign ships. The Trinity corporation, however, has long since surrendered its right to such compensation, and the act 6 and 7 William IV. forbids such compensation being made thereafter.

Pilotage.—Pilots are established, in various parts of the kingdom, by ancient charters or by particular statutes. The most important of these are those of Trinity House of Deptford Strand; the fellowship of the pilots of Dover, Deal, and the Isle of Thanet, commonly called the Cinque Ports pilots; and the Trinity House of Hull and Newcastle. A corporation for the regulation and licensing of pilots in Liverpool was established by 5 George IV., chapter 73. The law provides, also, that no vessel in the coasting trade is to pay for less than eight feet of water, nor any vessel to pay for odd inches under half a foot. No coasting vessel, inward or outward bound, of the burden of 100 tons and upward (unless she be in ballast), is to refuse a pilot, at option, as the master or owner is to pay full pilotage if one be offered.

Harbor and Dock Dues—Foreign Trade. (Per act 51 George III., chapter 5.)—All parts of Europe to the northward of Cape Finisterre and to the westward of the North Cape, and without the Cattegat and Baltic Sea, and including the islands of Guernsey, Jersey, Alderney, and Sark, the Faro Isles, and Iceland, 18 cents per ton.

All ports within the Cattegat and Baltic, including the whole of Sweden, the White Sea, and all ports to the eastward of the North Cape; all ports in Europe to the southward of Cape Finisterre, without the Mediterranean, Newfoundland, Greenland, Davis's Straits, Canaries, Western Islands, Madeira, and Azores, 24 cents per ton.

All ports on the east coast of North America, the West Indies, the east coast of South America, to the northward of Rio de la Plata, inclusive; all parts of the west coast of Africa, and islands to the northward of the Cape of Good Hope; and all ports within the Mediterranean, including the Adriatic and Black Seas and Archipelago, the islands of the Archipelago, the islands of St. Helena, Ascension, and the Cape Verd Islands, 36 cents per ton.

All ports in South America to the south of Rio de la Plata, in the Pacific Ocean, in Africa and Asia, to the eastward of the Cape of Good Hope, 36 cents per ton.

For more complete information respecting the port charges, etc., of the various countries above mentioned, see articles under the heads of those countries.

Anchorage—Municipal Corporation Grant by Purchase from King Charles the First.—On classes one, two, and three, 24 cents per vessel. Classes four to seven, 30 cents. Vessels wind-bound, exempt from dock-dues only. The preceding table will be better comprehended by giving a *pro forma* statement of port charges for a vessel of 500 tons, entering at and clearing from the port of Liverpool:

INWARD.		
Pilotage, 17 feet, at 9s	£7 13s. 0d.	$36 72
Row-boat hire in the river and warping into dock	1 5 0	6 00
Lights, 5¾d. per ton	11 19 7	57 50
Dock dues, 1s. 4½d. per ton	34 7 6	165 00
Discharging cargo, about	20 0 0	96 00
Total	£75 5s. 1d.	$361 22
OUTWARD.		
Loading cargo, supposing ship to carry 750 tons (from 11d. to 1s. per ton), say 1s. per ton	£37 10s 0d.	$180 00
Lights, 5¾d. per ton	11 19 7	57 50
Pilotage, 17 feet, at 4s. per foot	3 8 0	16 32
Clearance	1 1 0	5 04
Total	£53 18s. 7d.	$258 86

Port of London—Tonnage Rates. (Act 4 and 5 William IV., chapter 32.) *First Class.*—For every vessel trading coastwise between the port of London and any place in Great Britain, Ireland, the Orkneys, Shetland, or the Western Islands of Scotland, for every voyage both in and out of the said port, one cent per ton.

For every vessel entering inward, or clearing outward, in the said port, from or to Denmark, Norway, Lapland (on this side of the North Cape), or from Holstein, Hamburg, Bremen, or any other port of Germany bordering on or near the Germanic Ocean, or from or to Holland, or any other of the United Provinces, or Brabant, Flanders, Antwerp, or other ports of the Netherlands, or from or to France (within Ushant), Guernsey, Jersey, Alderney, Sark, or the Isle of Man, for every voyage, both in and out of the said port, one cent per ton.

For every vessel entering inward, or clearing outward, in the said port, from or to France (between Ushant and Spain), Portugal, Spain (without the Mediterranean), or any of the Azores, Madeira, or Canary Islands, or any of the United States of America, or of the British provinces or colonies in North America, or Florida, there shall be paid for every voyage in and out of the said port one cent and a half per ton.

For every vessel entering inward, or clearing outward, in the said port, from or to Greenland, Gibraltar, France, or Spain (within the Mediterranean), or any country, island, port, or place within or bordering on the Mediterranean or Adriatic Seas, or from the West Indies, Louisiana, Mexico, South America, Africa, East Indies, China, or any other country, island, or place within or bordering on or near the Pacific Ocean, or from any other country, island, or place whatsoever, to the southward of 25 degrees of north latitude, for every voyage, both in and out of the said port, one cent and a half per ton.

Among other exemptions, this charge does not apply to vessels going in or out of the port of London when in ballast.

Tonnage Dues charged by the London Dock Company. First class.—Vessels from any port in the United Kingdom, Isle of Man, Jersey, Guernsey, Alderney, Sark, or other European ports outside the Baltic, between the North Cape and Ushant (Hamburg, Bremen, and Embden excepted—see second class), with liberty to reload for any port, 12 cents.

Second class.—Vessels from Hamburg, Bremen, and Embden, with liberty to reload for any port, 12 cents.

Third class.—Vessels from any port in the Mediterranean, with liberty to reload for any port, 18 cents.

Fourth class.—Vessels from all other ports or places whatsoever (with the exceptions after mentioned); with liberty to reload for any port, 18 cents.

Vessels loading for any ports or places in the third or fourth classes, not having discharged their cargoes in the docks, 18 cents.

RATES OF PILOTAGE DEMANDED AND RECEIVED BY PILOTS LICENSED BY THE CORPORATION OF TRINITY HOUSE OF DEPTFORD STRAND, FOR PILOTING VESSELS.

From	To	7 feet and under.	8 feet.	9 feet.	10 feet.	11 feet.	12 feet.	13 feet.	14 feet.	15 feet.	16 feet.	17 feet.	18 feet.	19 feet.	20 feet.	21 feet.	22 feet.	23 feet and upward.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
The Sea, Orfordness, the Downs, Hoseley Bay & *vice versa.*	The Nore or Warps	3 13 6	4 2 9	4 12 0	5 1 3	5 5 9	6 5 0	6 13 6	7 7 3	7 16 6	8 14 9	9 8 6	10 17 0	11 10 0	12 17 6	14 5 3	16 11 3	18 8 0
	Gravesend, Chatham, Standgate Creek, or Blackstakes	4 12 0	5 7 9	6 3 3	6 18 0	7 11 9	8 5 6	8 19 6	9 13 3	10 7 0	11 0 9	11 14 6	14 1 6	16 13 0	19 6 6	21 5 0	23 3 9	25 2 3
	Long Reach	4 16 6	5 12 3	6 8 0	7 2 6	7 18 3	8 14 9	9 8 6	10 0 0	10 16 3	11 10 0	13 3 6	15 9 0	18 11 0	21 5 0	23 0 0	24 16 9	26 13 6
	Woolwich or Blackwall	5 5 9	6 1 6	6 17 0	7 11 9	8 10 3	9 4 0	10 2 6	11 0 9	11 14 6	12 8 6	14 3 6	16 5 9	19 11 0	22 1 6	24 16 9	27 12 0	....
	Moorings or London Docks	5 16 0	6 9 9	7 3 6	7 17 3	8 19 6	9 13 3	10 11 6	11 10 0	12 8 6	13 2 3	14 14 6	17 0 6	20 10 3	23 4 6	....	....	....
The Nore or Warps and *vice versa.*	Gravesend, Standgate Creek, or Blackstakes	1 18 9	2 3 3	2 7 0	2 10 6	2 19 9	3 6 3	3 11 9	3 15 6	4 2 9	4 10 3	5 1 3	5 16 0	6 8 9	7 14 6	8 14 0	9 13 3	10 12 6
	Long Reach or Chatham	2 6 0	2 10 6	2 15 3	2 19 9	3 9 0	3 18 3	4 2 9	4 7 0	4 13 9	5 5 0	5 16 0	6 15 3	8 5 6	9 13 3	10 12 6	11 11 9	12 15 3
	Woolwich or Blackwall	2 15 3	3 1 9	3 8 0	3 13 6	4 2 9	4 10 3	4 19 0	5 8 6	5 16 0	6 4 3	7 2 6	8 3 9	9 4 0	11 11 9	12 11 3	13 16 0	....
	Moorings or London Docks	3 4 6	3 10 9	3 17 3	4 2 9	4 16 6	5 5 9	5 15 0	6 4 3	6 13 6	7 2 6	8 1 0	9 4 0	11 0 9	12 17 6	13 16 0	....	....
Gravesend Reach and *vice versa.*	Long Reach	9 3	14 9	1 0 3	1 5 3	1 10 0	1 14 6	1 19 0	2 3 9	2 8 3	2 13 0	2 17 6	3 2 0	3 6 9	3 11 3	4 12 0	5 10 6	....
	Woolwich or Blackwall	1 3 0	1 7 6	1 12 3	1 16 9	2 4 3	2 13 6	3 2 6	3 11 9	3 18 3	4 5 6	4 13 9	5 1 3	6 4 5	7 11 9	8 19 6	9 13 3	....
	Moorings or London Docks	1 7 6	1 14 0	2 0 6	2 6 0	2 15 3	3 4 6	3 13 6	4 2 9	4 12 0	5 1 3	5 10 6	5 19 6	7 7 3	8 14 9	....	....	....
	Sheerness, Standgate Creek, or Blackstakes	2 15 3	2 19 0	3 1 9	3 4 6	3 13 6	4 2 9	4 12 0	5 1 3	5 10 6	5 19 6	6 8 9	6 18 0	7 7 8	7 16 5	....	....	....
	Chatham	3 4 6	3 8 0	3 10 9	3 13 6	4 2 9	4 12 0	5 1 3	5 10 6	5 19 6	6 8 9	6 18 0	7 7 3	7 16 5	8 5 6	....	....	....
Long Reach, and *vice versa.*	Woolwich or Blackwall	18 6	1 2 0	1 4 9	1 7 6	1 16 9	2 6 0	2 15 3	3 4 6	3 13 6	4 2 9	4 12 0	5 3 6	5 16 0	6 8 9	8 5 6	9 4 0	....
	Moorings or London Docks	1 7 6	1 11 3	1 14 0	1 16 9	2 6 0	2 15 3	3 4 6	3 13 6	4 2 9	4 12 0	5 3 6	5 16 0	6 8 9	7 7 3	9 4 0	....	....
	Sheerness, Standgate Creek, or Blackstakes	3 4 6	3 8 0	3 10 9	3 13 6	4 2 9	4 12 0	5 1 3	5 10 6	5 19 6	6 8 9	6 18 0	7 7 3	7 17 6	8 5 6	8 14 9	....	....
	Chatham	3 13 6	3 17 3	4 0 0	4 2 9	4 12 0	5 1 3	5 10 6	5 19 6	6 8 9	6 18 0	7 7 3	7 16 6	8 5 6	8 14 9	9 4 0	....	....
Woolwich or Blackwall, & *vice versa.*	Moorings or London Docks	18 6	1 2 0	1 4 9	1 7 6	1 10 0	1 12 3	1 16 9	2 1 6	2 6 0	2 10 6	2 15 3	2 19 9	3 4 6	3 9 0	....	....	....
	Sheerness, Standgate Creek, or Blackstakes	3 13 6	3 17 3	4 0 0	4 2 9	4 12 0	5 1 3	5 10 6	5 19 6	6 8 9	6 18 0	7 7 3	7 16 6	8 5 6	8 14 9	....	....	....
	Chatham	4 2 9	4 6 6	4 9 3	4 12 0	5 1 3	5 10 6	5 19 6	6 8 9	6 18 9	7 7 3	7 16 6	8 5 6	8 14 9	9 4 0	....	....	....

Multiply the pounds by 20, and add in the shillings; multiply the product by 12, and add in the pence; multiply the product by 2, and the result will be cents.

PILOTAGE.

	From or to	To or from	per foot.
HULL.—	The distance at sea where the North Ness of Dimlington bears west south-west to the northward of Kilnsea North Cliff	Hawke Roads or Grimsby Roads.	$0 60
		White Booth R'ds.	0 84
		The port of Kingston-upon-Hull.	1 30
	The distance at sea where Kilnsea North Cliff bears west north-west to the northward of the new sand buoy, or the floating light-vessel at the entrance of the River Humber	Hawke Roads or Grimsby Roads.	0 36
		White Booth R'ds.	0 60
		The port of Kingston-upon-Hull.	0 96

Outward—British and privileged vessels in ballast.... 0 64
" " " with cargoes. 0 96

There are other inconsiderable charges levied at this port for buoyage and beaconage, which are so insignificant in amount, and are equally levied upon British as upon foreign vessels, that they are omitted.

SCOTLAND.

PILOT DUES.

GLASGOW AND GREENOCK.—From any place between the Cambray light and the Clochet light, or from anchorage at Fandie Roads, Roothesay Bay, or Quarantine Station, Holy Lock or Greenock Roads and moorings, and to the quay or berthing, per ton $0 08
From Greenock to Port Glasgow, per ton 2

LEITH.—Vessels 7 feet and under, per foot	20
" 8 " "	24
" 9 " "	26
" 10 " "	28
" 11 " "	30
" 12 " "	32
" 13 feet and above "	36

IRELAND.

TOWAGE.

DUBLIN.—*Tug Steamer.*—There being no fixed rates, the master makes the best terms he can, according to the state of the weather, etc., as follows: From Kingston Harbor or the Bay of Dublin to Custom House Quay, $25 to $50; from the light-house at the entrance of the river to quay, $15 to $25, and in proportion for shorter distances.

PILOTAGE.

DUBLIN.—British and foreign privileged vessels from outside of the banks over bar	per foot	$0 66¼
From inside banks over bar	"	44¼
From bay over bar	"	32¼
From Poolbeg to basin	"	11
Outward	"	44½

Vessels in ballast, and vessels under 50 tons register, are exempted. There are other charges and dues payable to the corporation for preserving and improving the port; but as they are small in amount, and equally applicable to British vessels, they are omitted.

PILOT DUES.

CORK.—*From April* 1 *to October* 1.—Vessels under 80 tons	$2 88
Vessels from 80 to 120 tons	3 84
" 120 " 160 "	4 80
" 160 " 220 "	5 28

The largest vessels may get to Passage; vessels drawing 11 feet may get up to Black Rock or Cork at spring tides; vessels drawing 11 to 12 feet get into Cross Haven, which is within the entrance of Cork Haven.

Larger vessels must remain at Cork or Passage for pilotage, to which points the same rates are levied on American as on British vessels.

PILOT DUES.

BELFAST.—*From Belfast to Garmoyle or Whitehouse Roads, or vice versa.*—

	Foreign trade.	Coasters.
Vessels under 100 tons	$9 60	$7 20
Vessels of 100 tons and under 125	10 80	8 40
" 125 " " 150	12 00	9 60
" 150 " " 200	14 40	12 00
" 200 " " 250	16 80	14 40
" 250 " " 300	19 20	16 80
" 300 " " 350	21 60	19 20
" 350 " " 400	24 00	21 60
" 400 " " 450	25 20	22 80
" 450 " " 500	28 80	20 25
" 500 " " 550	31 20	26 40
" 550 tons and upward	33 60	28 80

QUAYAGE.

On vessels from foreign ports, per ton	10
Coastwise	6

Besides the foregoing, there are sundry wharf and other minor port charges, which are equally levied on British as on foreign privileged vessels.

The preceding tables give the principal charges on British and privileged vessels entering at or departing from the ports designated. For minor details, reference is made to the consular returns from the different ports respectively. The foreign trade of Great Britain, during the year ending January 5, 1854, employed 35,303 vessels, with an aggregate of 7,797,550 tons. The gross amount of custom duties received the same year was £22,419,308 ($112,096,540). The exports of British and Irish produce and manufactures during the same period amounted in value to £87,357,306 ($436,786,530). The official returns for 1854 exhibit the following facts:

Imports to and from Great Britain and Ireland in 1854	£152,591,513 =	$762,957,565
Exports to and from Great Britain and Ireland in 1854	115,833,704 =	579,168,520
Imports to and from the U. S. in 1854 and 1855		$261,468,520
Exports from the United States of foreign goods	$26,158,368	
Exports from the United States of domestic manufacture	30,427,187	
Exports from the United States of other produce	162,323,948	
Exports from the United States of specie and bullion	56,247,343	
Total		$275,156,846

The largest amounts of British imports from foreign countries were from the United States, viz., £29,795,590 ($148,977,950); from France, £10,634,727 ($53,173,635); from China, £9,125,040 ($45,625,200); from Russia, £9,055,503 ($45,277,515); from Holland, £6,733,172 ($33,665,860); and from Spain, £3,594,501 ($17,972,505). The largest amounts exported to foreign countries were to the United States, viz.: £21,127,631 ($105,638,155). In this amount are included only such articles as are the produce of the United Kingdom, exclusive of colonial and foreign products. The like exports to France amounted to £3,175,290 ($15,876,450); to Holland, £4,573,034 ($22,865,170); to Hanse-towns, £7,413,715 ($37,068,575); to Brazil, £2,891,840 ($14,459,200); to Victoria, £5,741,315 ($28,706,575); to New South Wales, £3,648,072 ($18,240,360); to South Australia, £1,146,113 ($5,730,565); and to the East Indies, £9,127,556 ($45,637,780). The principal imports were grain and flour, cotton, wool, wood, timber, deals, and staves; wine, butter, tea, and tallow. The principal exports were cotton goods, cotton yarn, woolen goods, linen, silk, woolen yarn, millinery and haberdashery, apparel, hardware and cutlery, iron, unwrought and wrought, earthenware and pottery, coals and coke, and tin. The number of vessels entered at ports in England during the year 1853 was: British, 10,345, with an aggregate of 1,933,741 tons; foreign, 16,509, with an aggregate of 2,953,048 tons. Of the above, there entered the port of London 3033 British, measuring an aggregate of 561,342 tons; and 5058 foreign, with an aggregate of 910,552 tons. The entries at Liverpool were: British, 1524 vessels, measuring 488,405 tons; and foreign, 1682 vessels, with an aggregate of 787,003 tons. The number of vessels engaged in the foreign trade entered at ports in Scotland during the year 1853 was: British, 1863, with an aggregate of 402,372 tons; foreign, 2503 vessels, measuring in all 289,752 tons. The total number of vessels that entered the ports of Ireland during the year 1853 was: British, 1159, measuring 234,892 tons; and foreign, 1195, with an aggregate tonnage of 237,499 tons. In the ports of the Isle of Man and the Channel islands, there entered during the same year: in the former, British vessels, 7; aggregate tonnage, 992; foreign, 31; aggregate tonnage, 3494; in the latter, British vessels, 1072, with an aggregate tonnage of 48,141; foreign vessels, 213, with an aggregate tonnage of 14,852. The total number of steam-vessels that entered the ports of the United Kingdom during the year 1853 was: British, 3968, with an aggregate of 1,171,911 tons; foreign vessels, 521, with an aggregate of 158,812 tons. The number of steam-vessels that cleared from all the ports of the United Kingdom in 1853 was: British, 3594, with an aggregate of 1,067,381 tons; foreign vessels, 507, measuring in all 158,184 tons. In 1854, the official value of imports into the United Kingdom was £124,338,478 ($621,692,390); and of exports from the United Kingdom £29,821,656 ($149,108,280).

A new system has been introduced into Great Britain of giving in the annual returns of trade, the "real" instead of the "official" value of imports and exports. The standard of the latter having obtained, without any change or alteration, for a period of more than 200 years, could be of but little benefit in computing the value of the foreign trade of Great Britain, and has been adhered to so long solely for the purpose of supplying data for general comparison. The real value of the imports and exports above given is thus stated: imports, £152,591,513 ($762,957,565); exports, £115,833,704 ($579,168,520).

In the preceding pages, the laws, regulations, and customs of a permanent character, which constitute the commercial legislation of Great Britain as respects her intercourse with the United States, have been succinctly stated. Various modifications in tariff duties, navigation laws, etc., have necessarily resulted from such changes in commercial legislation as are invariably incident to a state of war. These have, in substance, been noticed elsewhere, so far as they have come to the knowledge of the Department. They are, however, generally limited in their duration, and are designed either for financial or protective purposes during the continuance of the present difficulties with Russia. It is not deemed necessary, therefore, to lengthen this digest by any detailed enumeration of such modifications, for the reason that it is to be anticipated* that all such temporary modifications, demanded by the exigencies of war, will ere long have been superseded by the permanent commercial legislation of the United Kingdom.

In 1787 there were imported into Great Britain 22,600,000 pounds of cotton, obtained from the following sources:

British West Indies	6,600,000
French and Spanish Colonies	6,000,000
Dutch and Portuguese Colonies	4,200,000
East India, procured from Ostend	100,000
Smyrna and Turkey	5,700,000
From the United States	

The following tables have been compiled from the official reports of the United States' Treasury Department, and are submitted for the purpose of illustrating the commerce between the United States and Great Britain, especially with reference to our leading staples, during a period of 26 years.

The first table exhibits the quantities and value of cotton exported from the United States to Great Britain during the period indicated. Generally speaking, the imports of cotton into Great Britain are concentrated at the port of Liverpool. This is shown by the annexed table, exhibiting the imports of cotton into Great Britain in 1852:

Into	Bales.	Tons.
Liverpool	2,205,738	365,000
London	48,700	8,000
Hull and Bristol	27,200	5,000
Scotland	75,700	13,000
Total	2,357,338	391,000

The imports into Liverpool of raw cotton during a period of 10 years, ending with 1852, were as follows:

Years.	Bales.	Tons.	Years.	Bales.	Tons.
1843	1,557,597	260,000	1848	1,568,000	262,000
1844	1,490,984	248,000	1849	1,732,700	288,000
1845	1,652,731	276,000	1850	1,578,100	263,000
1846	1,134,194	189,000	1851	1,748,946	291,000
1847	1,087,058	182,000	1852	2,205,738	365,000

The countries from which the cotton was imported in 1852 are given in the following table, which will also serve to show the relative importance of Liverpool as compared with other British ports, as the great emporium of the cotton trade:

---

* This has been realized since the above was written.

Imported from	Bales of Cotton.				
	Into Liverpool.	Into London.	Into Hull.	Into Scotland.	Total.
United States..	1,715,113	1,800	11,700	60,600	1,789,213
East Indies....	149,613	46,200	14,600	11,000	221,413
Mediterranean.	186,035	....	....	3,900	189,935
Brazil, etc.....	144,097	100	....	....	144,197
West Indies...	10,880	600	900	200	12,580
Total......	2,205,738	48,700	27,200	75,700	2,357,338

Before giving the general table of exports of this staple to Great Britain, the following summary, condensed from a treatise on the cotton crop of the United States, etc., recently publised, will prove interesting. Previous to 1791, Great Britain obtained her supplies of cotton from the West Indies, South America, and the countries around the eastern parts of the Mediterranean. In 1784, there were 71 bags shipped from the United States to Great Britain, and there seized, on the ground that America could not produce so much. See COTTON.

In 1853, Great Britain exported upward of 147,000,000 pounds; of this upward of 82,000,000 were derived from the United States, and over 59,000,000 from India.

The returns of trade for 1855 show that notwithstanding the war, the consumption of cotton in Great Britain from 1st January to 31st August was 1,449,980 bales, against 1,289,200 for the same period in 1854, giving the large increase of 160,780 bales. The stock in Liverpool on 31st August, 1855, was 269,320 bales less than on the 31st August, 1854.

From the East Indies, Great Britain imported—

	Pounds.
In 1850................................	123,200,000
" 1852................................	84,022,432
" 1853................................	180,431,496

GENERAL SUMMARY OF THE TOTAL IMPORT, EXPORT, AND STOCK OF COTTON IN THE UNITED KINGDOM, DECEMBER 31, 1853, 1852, AND 1851.

	Great Britain.				Liverpool.		
	Total.	American.	Surat.		Total.	American.	Surat.
	Bales.	Bales.	Bales.		Bales.	Bales.	Bales.
Stock, Dec. 31, 1852.......	657,520	360,770	133,210	....	577,810	338,820	79,570
Import in 1853............	2,264,711	1,533,542	485,527	....	2,028,824	1,461,136	324,777
	2,922,231	1,894,312	618,737	....	2,606,634	1,799,956	404,347
Export in 1853............	349,600	176,000	151,500	....	259,600	172,100	65,500
	2,572,631	1,718,312	467,237	....	2,347,034	1,627,856	338,847
Stock, Dec. 31, 1853.......	717,580	308,870	270,650	....	597,500	286,170	176,370
Showing the deliveries for home consumption from the ports of Gt Britain to have been, in 1853...	1,855,051	1,409,442	196,587	And from Liverpool.......	1,749,534	1,341,686	162,477
Or, per week in 1853......	35,670	27,110	3,780	Or, per week in 1853......	33,640	25,800	3,120
" " 1852......	36,770	29,030	3,090	" " 1853......	35,100	27,930	2,620
" " 1851......	31,970	24,460	3,740	" " 1851......	30,140	23,330	3,080
" " 1850......	29,140	20,710	3,410	" " 1850......	26,670	19,180	2,490
" " 1849......	30,520	24,610	2,420	" " 1849......	28,340	22,980	1,940

TABLE EXHIBITING THE QUANTITIES AND VALUE OF RAW COTTON EXPORTED FROM THE UNITED STATES TO GREAT BRITAIN AND IRELAND, FROM 1830 TO 1855, BOTH YEARS INCLUSIVE.

Years.	Quantity.	Value.	Years.	Quantity.	Value.
	Pounds.	Dollars.		Pounds.	Dollars.
1830	209,830,421	20,678,633	1843	584,845,504	35,781,117
1831	220,816,846	20,117,355	1844	486,729,222	39,591,351
1832	229,007,272	22,429,050	1845	605,144,786	35,675,859
1833	238,241,746	26,254,970	1846	346,158,667	27,707,717
1834	284,723,803	36,007,564	1847	351,268,799	35,841,265
1835	270,084,400	45,701,411	1848	572,003,127	41,295,258
1836	292,518,707	48,910,846	1849	739,344,905	47,444,899
1837	321,579,368	44,857,118	1850	431,531,091	48,884,453
1838	441,857,943	45,787,687	1851	670,645,120	49,720,854
1839	310,753,950	46,074,579	1852	752,573,780	50,666,209
1840	494,915,090	41,945,354	1853	768,596,498	74,523,210
1841	348,306,248	35,634,005	1854	696,247,047	64,736,401
1842	378,647,649	30,102,417	1855	673,498,259	57,616,749

Tobacco Trade between the United States and Great Britain.—It is ascertained, by British statisticians that the yearly consumption of tobacco in Great Britain and Ireland amounts to 26,000 tons, about one half of which it is supposed is smuggled, owing to the excessive duties (upward of 1000 per cent.) levied on the article under the tariff system of that kingdom. The quantity of segars and snuff imported does not exceed two or three hundred weight per annum. The following table, compiled from parliamentary returns, shows the imports of tobacco into the United Kingdom, and the quantities entered at each port, during the year 1850:

Ports.	Leaf.	Manufactr'd and segars.	Total.
	Tons.	Tons.	Tons.
London.................	7,638	482	8,120
Liverpool................	6,870	146	7,016
Bristol...................	435	....	435
Glasgow..................	414	7	421
Leith.....................	200	....	200
Southampton............	140	55	195
Other places............	3	4	7
Total................	15,700	694	16,394

The following return, transmitted to the House of Commons, for the year ending January 5, 1853, shows the annual consumption of tobacco in the United Kingdom, and duty levied on the same:

Ports.	Leaf.	Manufactured and segars.	Total.	Duty.	
	Tons.	Tons.	Tons.	Pounds.	Dollars.
London..........	4,762	69	4,831	1,752,988	8,764,940
Liverpool........	2,755	8	2,763	980,632	4,903,160
Bristol...........	780	....	780	275,485	1,377,425
Glasgow.........	631	1	632	223,761	1,118,805
Dublin...........	604	3	607	215,567	1,077,835
Belfast...........	377	....	377	133,111	665,555
Newcastle.	341	....	341	120,444	602,220
Cork.............	270	....	270	95,362	476,810
Limerick.........	258	....	258	91,004	455,020
Leith............	238	1	239	84,514	422,570
Preston..........	179	....	179	63,312	316,560
Chester..........	158	....	158	55,908	279,540
Shields..........	147	....	147	52,025	260,125
Waterford........	132	....	132	46,670	233,350
Londonderry.....	116	....	116	40,992	204,960
Southampton.....	8	5	13	8,195	40,975
Other places, less than 100 tons each	904	3	907	320,771	1,603,855
Total..	12,660	90	12,750	4,560,741	22,803,705

The following table, exhibiting the exports of tobacco from Great Britain for 1852, will show the quantities and destination of that article supplied by England to foreign countries, relatively to the quantities imported. Total quantity imported, 15,700 tons, or 35,168,000 pounds.

TOTAL QUANTITY EXPORTED.

	Hhds.		Hhds.
W. coast of Africa.	1,725	Christiana.........	20
Holland...........	227	Drontheim.........	17
Malta..............	134	Senegal............	15
San Sebastian......	110	Guernsey..........	14
Alexandria.........	58	Liberia............	10
Bahia..............	51	Isle of Man........	54
Antwerp...........	44	Sundry places......	22
Rio de Janeiro.....	39		
Gibraltar...........	36	Total.........	2,602
Draaman...........	81		

The foregoing table shows that in 1852 there were exported from Great Britain about 2,602,000 lbs. (allowing 1000 lbs. to the hhd.) out of the 35,168,000 lbs. imported, showing the amount retained for consumption to be 32,566,000 lbs.

TABLE EXHIBITING THE QUANTITIES AND VALUE OF FLOUR, BEEF, TALLOW, HIDES, AND NAVAL STORES EXPORTED FROM THE UNITED STATES TO GREAT BRITAIN, FROM 1830 TO 1855, BOTH YEARS INCLUSIVE.

Years.	Flour.	Value.	Beef.	Tallow.	Hides.	Value.	Tar, pitch, rosin and turpentine.	Value.
	Barrels.	Dollars.	Barrels.	Pounds.	Number.	Dollars.	Barrels.	Dollars.
1830............	326,182	1,544,194	200	6,737	28,627	140,408	128,125	251,726
1831............	879,430	4,931,951	26	364	233,153	40,766	159,190	815,964
1832............	95,958	479,821	117	....	13,420	65,030	172,062	490,054
1833............	22,207	121,169	603	....	33,000	151,433	171,388	403,250
1834............	19,687	96,834	....	36,153	32,064	132,036	181,921	454,659
1835............	5,876	25,341	24	....	12,721	56,856	151,407	439,311
1836............	161	1,134	....	....	17,975	90,555	197,824	781,288
1837............	....	....	....	....	59,743	139,642	218,180	733,881
1838............	8,295	62,510	....	....	25,059	73,444	219,794	579,076
1839............	167,585	1,826,627	....	....	5,616	18,696	176,721	506,215
1840............	620,919	1,387,343	....	29,580	8,817	17,924	191,448	470,450
1841............	208,984	1,003,465	8,610	25,222	4,238	83,507	201,789	482,370
1842............	208,024	1,242,787	2,001	1,716,820	6,731	168,597	218,553	575,574
1843............	19,426	84,815	6,886	3,653,614	8,882	381,769	145,006	371,526
1844............	167,296	745,436	43,717	4,657,200	33,107	777,906	270,317	648,124
1845............	35,355	152,382	41,188	5,239,440	41,179	854,254	280,263	689,364
1846............	1,015,244	5,186,677	80,820	6,125,462	67,058	1,354,341	305,254	958,275
1847............	2,457,076	15,104,574	66,473	5,924,156	24,481	1,269,975	245,779	632,810
1848............	958,744	6,119,876	47,061	3,399,469	7,008	806,204	232,026	586,739
1849............	953,815	5,077,220	72,850	5,598,227	1,032	1,330,687	317,417	724,630
1850............	369,777	1,779,352	60,520	2,254,613	351	828,780	366,980	911,281
1851............	1,004,783	4,573,009	54,750	4,195,866	....	895,783	285,735	761,403
1852............	1,531,994	6,808,378	81,828	2,421,436	....	764,843	345,417	945,224
1853............	1,878,065	6,795,313	80,570	1,481,876	....	1,348,565	341,518	1,099,532
1854............	2,026,121	13,715,111	73,537	5,390,288	888	1,644,425	461,528	1,565,633
1855............	189,712	1,583,039	8,787*	7,612,622	19,307	2,900,907	421,118	1,183,866

* Also, in 1855, 67,149 tierces.

A VIEW OF THE TRADE BETWEEN GREAT BRITAIN AND THAT PORTION OF HER NORTH AMERICAN COLONIES NOW INCLUDED IN THE UNITED STATES, FROM 1697 TO 1774; AND BETWEEN GREAT BRITAIN AND THE UNITED STATES, FROM 1775 TO 1820—COMPILED FROM BRITISH AUTHORITIES. [W. signifies *war*; P. *peace*.]

Years.	Imports from the United States.	Exports to the United States.	Years.	Imports from the United States.	Exports to the United States.	Years.	Imports from the United States.	Exports to the United States.
W. 1697....	$1,403,720	$707,755	W. 1739....	$3,757,890	$3,479,345	W. 1780....	98,815	4,145,350
P. 1698....	1,130,275	2,290,485	W. 1740....	3,592,080	4,066,910	W. 1781....	499,395	4,273,505
P. 1699....	1,276,985	2,019,595	W. 1741....	4,561,015	4,427,460	W. 1782....	188,200	1,333,650
P. 1700....	1,975,105	1,721,705	W. 1742....	3,296,140	4,000,265	W. 1783....	851,205	5,015,600
P. 1701....	1,545,675	1,719,135	W. 1743....	3,404,035	4,146,025	P. 1784....	3,746,645	18,397,360
W. 1702....	1,678,940	934,050	W. 1744....	3,837,625	3,204,410	P. 1785....	4,467,980	11,541,115
W. 1703....	1,021,480	1,481,050	W. 1745....	2,772,155	2,676,265	P. 1786....	4,215,595	8,017,330
W. 1704....	1,609,870	880,445	W. 1746....	2,797,505	3,774,835	P. 1787....	4,468,190	10,070,560
W. 1705....	754,820	1,458,615	W. 1747....	2,803,570	3,633,360	P. 1788....	5,118,945	9,430,710
W. 1706....	935,375	808,455	W. 1748....	3,583,130	4,150,370	P. 1789....	5,250,995	12,626,500
W. 1707....	1,423,995	2,066,235	P. 1749....	3,317,620	6,152,930	P. 1790....	5,955,360	17,158,890
W. 1708....	1,432,175	1,200,925	P. 1750....	4,073,845	6,565,420	P. 1791....	5,971,160	21,127,235
W. 1709....	1,622,680	1,347,985	P. 1751....	4,178,260	6,165,840	P. 1792....	5,193,535	21,357,090
W. 1710....	1,249,080	1,468,300	P. 1752....	5,020,915	5,740,845	W. 1793....	4,970,200	17,573,405
W. 1711....	1,623,490	1,488,135	P. 1753....	4,868,700	7,264,730	W. 1794....	3,128,665	19,299,355
W. 1712....	1,829,865	1,548,455	P. 1754....	5,038,810	5,881,400	W. 1795....	6,760,680	26,270,590
P. 1713....	1,516,110	1,422,785	P. 1755....	4,697,770	5,564,990	W. 1796....	10,404,850	30,270,160
P. 1714....	1,978,875	1,667,220	W. 1756....	3,296,785	6,760,890	W. 1797....	5,877,560	25,283,995
P. 1715....	1,486,235	2,256,840	W. 1757....	3,053,420	8,141,750	W. 1798....	8,913,600	27,901,845
P. 1716....	2,121,945	2,010,225	W. 1758....	3,353,600	8,563,445	W. 1799....	9,094,705	35,282,790
P. 1717....	2,130,450	2,698,335	W. 1759....	8,199,545	11,727,270	W. 1800....	11,789,615	39,427,970
W. 1718....	2,287,355	2,126,675	W. 1760....	4,159,725	13,564,785	W. 1801....	13,532,590	37,587,650
W. 1719....	2,815,275	1,965,010	W. 1761....	4,475,155	8,600,485	P. 1802....	9,617,520	26,647,450
W. 1720....	2,340,940	1,598,525	W. 1762....	4,588,070	6,935,080	W. 1803....	9,570,490	26,364,055
W. 1721....	2,469,355	1,659,525	P. 1763....	5,785,645	8,298,740	W. 1804....	8,257,335	31,992,130
P. 1722....	2,188,480	2,123,625	P. 1764....	5,632,255	11,365,625	W. 1805....	8,882,780	35,798,825
P. 1723....	2,808,810	2,057,965	P. 1765....	5,801,495	9,862,565	W. 1806....	9,999,420	43,065,610
P. 1724....	2,313,405	2,307,930	P. 1766....	5,238,045	9,218,915	W. 1807....	14,237,610	39,605,600
P. 1725....	2,078,250	2,748,465	P. 1767....	5,670,390	9,728,990	W. 1808....	4,181,710	19,960,295
P. 1726....	2,631,525	2,766,500	P. 1768....	6,364,205	10,990,090	W. 1869....	11,026,655	25,938,065
P. 1727....	3,186,025	2,514,635	P, 1769....	5,362,820	6,864,985	W. 1810....	13,072,025	39,066,585
P. 1728....	3,026,625	2,589,315	P. 1770....	5,477,425	9,774,375	W. 1811....	11,547,075	7,159,145
P. 1729....	2,626,420	2,144,795	P. 1771....	6,742,100	21,007,375	W. 1812....	6,470,760	20,677,960
P. 1730....	2,862,930	2,687,305	P. 1772....	6,326,585	15,456,900	W. 1813....	Records destroyed by fire.	
P. 1731....	3,254,315	2,684,345	P. 1773....	6,871,605	9,937,295	W. 1814....	113,105	36,515
P. 1732....	2,595,180	2,656,270	P. 1774....	6,902,125	12,995,380	W. 1815....	11,851,440	59,682,505
P. 1733....	3,348,175	2,744,450	W. 1775....	9,767,005	985,500	P 1816....	11,931,120	38,999,835
P. 1734....	3,056,750	2,781,875	W. 1776....	528,215	282,150	P. 1817....	15,285,000	31,885,140
P. 1735....	3,261,685	3,345,320	W. 1777....	68,050	293,965	P. 1818....	17,184,160	41,917,180
P. 1736....	3,499,330	2,794,210	W. 1778....	89,970	187,820	P. 1819....	13,440,380	21,508,475
P. 1737....	3,876,915	3,412,180	W. 1779....	117,985	1,753,500	P. 1820....	18,256,710	19,601,310
P. 1738....	3,101,200	3,756,350						

COMPARATIVE STATEMENT OF THE COMMERCE OF THE UNITED STATES WITH GREAT BRITAIN, EXHIBITING THE VALUE OF EXPORTS TO AND IMPORTS FROM EACH COUNTRY, AND THE TONNAGE OF AMERICAN AND FOREIGN VESSELS ARRIVING FROM AND DEPARTING TO EACH COUNTRY, DURING THE YEARS DESIGNATED.

YEARS.	COMMERCE.				NAVIGATION.			
	VALUE OF EXPORTS.			VALUE OF IMPORTS.	AMERICAN TONNAGE.		FOREIGN TONNAGE.	
	Domestic produce.	Foreign produce.	Total.		Entered the United States.	Cleared from the U. States.	Entered the United States.	Cleared from the U. States.
1845............	$44,234,279	$4,822,180	$49,056,459	$45,500,903	390,060	390,990	242,761	220,718
1846............	44,321,868	1,893,603	46,215,471	43,957,740	383,827	391,120	226,052	191,261
1847............	86,266,935	1,028,422	87,295,357	67,597,628	487,278	607,518	444,890	417,251
1848............	67,762,741	8,964,012	76,726,753	61,845,119	460,308	508,153	875,285	810,085
1849............	76,648,294	1,961,876	78,590,170	61,154,538	600,769	650,951	555,639	421,005
1850............	68,733,730	4,436,643	73,173,373	75,159,424	518,766	465,355	554,963	809,326
1851............	109,531,612	8,414,403	117,946,015	93,847,886	643,299	642,216	581,847	808,888
1852............	110,803,055	4,766,920	115,569,975	90,628,389	776,971	651,460	584,164	427,765
1853............	117,878,996	3,423,275	121,302,271	130,267,340	855,081	695,108	553,967	476,748
1854............	139,215,387	5,840,452	145,055,839	146,438,537	860,996	890,108	595,054	475,681
1855............	132,992,351	6,600,518	139,592,869	106,548,180	905,708	863,065	376,065	292,610

Table exhibiting the Quantities and Value of Tobacco (raw), Indian Corn, Pork, Bacon and Lard exported from the United States to Great Britain and Ireland, from 1830 to 1855, both Years inclusive.

Years.	TOBACCO. Quantity.	TOBACCO. Value.	INDIAN CORN. Quantity.	INDIAN CORN. Value.	PORK. Quantity.	HAMS & BACON. Quantity.	LARD. Quantity.	Value.
	Hogsheads.	Dollars.	Bushels.	Dollars.	Barrels.	Pounds.	Pounds.	Dollars.
1830	20,291	1,583,971	51,416	29,425	2,200	1,646	....	20,832
1831	26,785	1,882,336	190,938	133,447	130	2,865	....	1,833
1832	36.393	2.345,450	322	180	2,705	602	....	29,378
1833	23,884	2,259,197	3,240	2,174	921	7,430	600	10,997
1834	30,658	2,937,020	....	....	....	4,994	....	498
1835	27.583	3,400,639	353	230	12	1,815	....	345
1836	38,855	4,593,442	....	....	....	11,461	....	1,293
1837	21,733	1,879,868	12	15	....	400	....	40
1838	25,732	2,857,203	135	110	....	667	....	88
1839	30,330	5,404,967	519	467	10	150	....	241
1840	27.136	3,227,880	104.841	61,569	....	1,061	....	115
1841	43,131	5,114,836	12,548	7,136	4,769	26,394	444,305	80,379
1842	36,999	3,212,207	123,665	75,901	6,900	160,274	3,430,732	237,028
1843	21,050	1,262,616	....	....	3,230	656,328	4,560,484	305,293
1844	39,132	2,900,126	89,073	43,893	10.280	350,189	8,976,805	643,705
1845	26,169	1,985,037	135,688	67,882	14,140	96,907	5,687,675	497,066
1846	27.943	2,423,223	1,192,680	797,176	13.001	530,026	8,211,389	768,226
1847	29,745	2,583,775	15,526,525	13,760,310	73.940	14,367,105	17,798,770	3,471,597
1848	23.801	2,260,937	5.062,220	3,367,418	87,760	29,218,462	27,783,841	5,283,259
1849	21,857	1,771,123	12,396,242	7 496,676	111.385	53,150,465	21,388,265	6,482,194
1850	30,926	3,025,585	5,947,206	3,504,806	44,631	37,377,769	31,692,591	4,381,939
1851	23,698	3,458,885	2,760,329	1,354,879	9,258	14,729,169	6,623,783	1.587,851
1852	17.696	2,512,225	1,894,700	1,110,622	1,632	3,207,993	8,976,124	1,075,299
1853	32.236	3,438,423	1,653,840	983,690	17,156	13,297,379	9,725,186	2,239,094
1854	17,664	2,146,942	5,965,850	4,879,187	43.664	38,890,737	26,715,141	6,193,894
1855	24,203	3,507,760	5,935,284	5,492,420	54,663*	30,240,161	15,349,922	5,915,120

* 5,679 tierces were also exported in 1855.

Table exhibiting the Imports into, and Exports from the United Kingdom of Great Britain and Ireland, from 1801 to 1853, inclusive, designed to show the general Foreign Trade of that Kingdom during the Period designated.

Years.	Value of imports into the United Kingd.	Total exports.	Years.	Value of imports into the United Kingd.	Total exports.
	Dollars.	Dollars.		Dollars.	Dollars.
1801	158,931,300	176,223,250	1828	225,837,215	333,673,175
1802	149.131,050	191,549,900	1829	219,976,430	334,190,635
1803	133,113,480	142,500,850	1830	231,502,365	348,503,740
1804	139,097,760	158,130,250	1831	248,639,140	357,162,450
1805	142,806,350	155,100,305	1832	223,052.730	380,350,740
1806	134.498,290	167,897,170	1833	229,722,130	399,105,550
1807	133,672,125	155,077,630	1834	246,823.665	426,991,340
1808	133,977,700	151,939,950	1835	245,146,670	455,788,915
1809	158,752,785	231,313,160	1836	286,480,225	488,059,280
1810	195,598,060	217,096,680	1837	273,811,425	428,897,890
1811	132,550,930	133,995.600	1838	306,490,065	525,827,395
1812	130,817,155	195,207,815	1839	310,240,605	510,953,280
1813	Records destroyed by fire.		1840	337,463,550	582,405,075
1814	168,776,320	267,865,855	1841	322.221,340	584,514,435
1815	164,936,980	293,122,750	1842	326,266,430	569,209,010
1816	137,158,020	245,989,250	1843	351,074,560	659,164,735
1817	154,171,495	251,520.555	1844	377.246.870	729,783,270
1818	184,425,910	267,801,690	1845	426,487,540	754,389,510
1819	153,884,050	217,394,900	1846	379,670,110	723,045,280
1820	162,193,250	244,757,685	1847	454,609,330	730,860,040
1821	153,963,800	257,307,165	1848	467,735,670	754,980,200
1822	152.655.705	267,350,495	1849	529,373,035	950,506,970
1823	178,992,165	262,152,560	1850	502,302,165	985,548,380
1824	177,341,395	294,676,260	1851	553,395,625	1,071,924,565
1825	221,044,015	281,600,910	1852	546,727,045	1,097,728,495
1826	189,069,450	255,210,115	1853	615,496,565	1,110,361,120
1827	224,540,865	130,263,775			

Table exhibiting the Amount of Gold and Silver Coin and Bullion exported from the United States to Great Britain, from 1830 to 1855, both Years inclusive.

Years.	Value.	Years.	Value.
1830	$20,154	1843	....
1831	625,718	1844	....
1832	876,481	1845	$98,112
1833	....	1846	2,312
1834	....	1847	....
1835	1,000	1848	1,085,047
1836	10,000	1849	225,565
1837	629,180	1850	868,657
1838	....	1851	11,572,608
1839	846,790	1852	32,127,379
1840	1,905,957	1853	18,006,581
1841	1,226,719	1854	26,865,399
1842	599,491	1855	46,300,738

Laws and Regulations Relative to Passengers' Baggage in England and the United States, Explained and Compared.—The laws and Treasury orders regulating the admission of baggage, personal effects, etc., into the ports of Great Britain and of the United States, respectively, are based upon principles so totally dissimilar, that a comparative view of both can only be presented by exhibiting a synopsis of each. The policy of Great Britain would seem to be to restrict the privilege of *free entry* to such articles of *wearing apparel* as *have been worn*, and not made up for the purpose of being introduced into the country, free of duty; while the regulations in force at the different ports of the United States exhibit a spirit of the utmost liberality in that regard, enabling passengers, whose "baggage and personal effects" have been honestly made up, and faithfully manifested, to proceed to their destination, without delay or cost, or being subjected to the many thousand vexatious annoyances which a less liberal policy, in regard to "passengers' baggage, personal effects," etc., must inevitably produce. The American policy on this subject is, besides, highly beneficent to the large classes of emigrants who seek an asylum on our shores, literally carrying with them their "bed and baggage," their weaving-looms, spinning-wheels, and other articles and implements of handicraft, all of which are admitted, under the tariff act of 1846, free of duty.

In the United States, the admission of personal baggage, etc., is regulated by schedule one, Tariff Act of 1846, and of various decisions of the Treasury Department subseqeuntly issued. The several provisions of the above-named schedule, and of the Treasury decisions, may be classified as follows: 1. Household effects, old and in use, of persons or families arriving from foreign countries, if used abroad by them, and not intended for any other person or persons, or for sale, free. 2. Wearing apparel, in actual use, and other personal effects, not merchandise; professional books, implements, instruments and tools of trade, occupation, or employment of persons arriving in the United States (provided that this exemption shall not extend to or include machinery or other articles imported for use in any manufacturing establishment, or for sale), free. 3. Personal and household effects (not merchandise) of citizens of the United States dying abroad, free. The exemption from duty contemplated by law in the first clause, above cited, must be confined to such articles as are generally used in housekeeping, and which had actually been in use by the individual or family while living abroad, and not imported for sale, barter, or traffic. The exemption from duty of wearing apparel, and other personal effects, provided for in the second clause quoted, must be confined to such articles as are generally used on or about the person, and not considered as merchandise; the articles admitted under this clause to be limited to an extent not exceeding in number, quantity, or value what is usual for a traveler, or other person, to wear, keep, or carry with him for his own use. The professional books, implements, instruments, and tools of trade, occupation, or employment, enumerated in the same clause, are limited in number, quality, and value to what the collector may consider reasonable and proper for the person to whom they belong, in his profession, occupation, trade, or employment; but the term "implements and tools of trade," under no circumstance to be considered as comprehending any machine or article to be worked by other than manual power.

Regulations as to Passengers' Baggage, Personal Effects, etc., in Great Britain.—Hours of attendance at the different baggage warehouses as follows: From 1st March to 31st October, from 8 o'clock A. M., until 7 o'clock P. M.; and from 1st November to 28th February, from 9 A. M. until 5 P. M.

After all baggage shall have been landed, those passengers having only *single packages* will be entitled to have them first examined; the remaining passengers will then be called into the examination-room in rotation, according to the list furnished by the captain [passengers themselves must see that their names are properly inserted in the captain's list]. All wearing apparel, after examination, will be immediately delivered, provided it appears that the apparel *has been worn*, and not made up for the purpose of being introduced into the United Kingdom without payment of duty. All dutiable articles forming a part of passengers' baggage will be delivered immediately after examination, on the amount of duties due thereon being deposited with such accredited person as may be authorized to receive the same, and also a small sum for passing the entry. All merchandise brought with baggage is liable to seizure. Such goods must be regularly reported and entered, and the regulations of the law strictly complied with. If any passenger shall, upon being questioned by the proper officer of customs, deny that he or she has any goods liable to duty in his or her possession, and such goods be subsequently discovered, they will be liable to seizure, and the passenger to a penalty of treble the value thereof.

Foreign newspapers found in the baggage of passengers, if bound, are to be charged with duty as "goods manufactured," 10 per cent. *ad valorem;* if unbound, they are duty free. Fowling-pieces, the property of parties returning to England, may be delivered free, upon declaration that they are of British manufacture. A pair of pistols, a single rifle, or a single fowling-piece, brought by a passenger with his baggage, may be delivered duty free, upon a declaration that the same is for private use only.

Duty is not to be charged on any quantity less than a pint of ordinary drinkable spirits, of whatever strength; or half a pint of eau de Cologne, or other cordial water, or any medicated or perfumed spirits or liqueurs, imported for private use. Passengers who are not *frequent visitors*, may include with their baggage, entitled to free entry, an amount of segars or manufactured tobacco under the weight of half a pound. On half a pound and upward the duty on the whole weight is to be charged. Passengers, however, from the West Indies or other long voyages may enter any quantity of segars or manufactured tobacco not exceeding seven pounds' weight. Books and musical instruments, though for private use, are dutiable.

All packages of baggage landed by "sufferance," when not cleared from the examining floor of the station, at which they may have been landed, within six working days, are to be forwarded to the queen's warehouse for security of duties. Passengers who may be unwilling or unable to clear such articles of baggage as may be liable to duty, can either abandon the same, or they may be left in the queen's warehouse for six months, in order to give their proprietors an opportunity of taking them back without payment of duty.—BEEDELL'S *British Tariff*, 1854–'5, pp. 82 to 87.

Regulations relative to the Entry of Vessels into the Ports of Great Britain and of the United States compared.—Vessels entering any ports in Great Britain are subject to the following regulations, viz.: So soon as a vessel has reported, the importers, agents, or consignees of the cargo, having been advised by receipt of bills of lading, or other intimation, may each enter their several goods. A latitude of 14 days is allowed by law for this purpose; but, in order to clear vessels more speedily, *sight entries* are permitted to the master or owner of any ship lying alongside the legal quays, or sufferance wharves, south of the Thames from London Bridge eastward to Dockhead, under such general description as is contained in the report, for any goods that shall not have been entered by the owners thereof within 48 hours from the day of report, upon condition that perfect entry be made by the proprietor within one month from the date of landing. Goods so circumstanced are only liable to seizure for inaccuracy of entry after the lapse of a month, or after the proprietor's perfect entry has been passed. If perfect entry be not made at the end of a month, or a delivery order obtained, the goods may then be sent to the queen's warehouse, and dealt with as if landed by "bill of sight."—B. M., 1st June, 1850.

The master of every merchant-vessel, within 24 hours of entering the port of arrival, is bound, under a penalty of $500, to report his cargo to the chief officer of customs. Before, however, the master is allowed to report, he must declare, before some person duly authorized by the postmaster-general, that he has delivered at the post-office all letters that were on board his ship. And likewise, he must, under a penalty of $100, and the further sum of $50 for each alien not included in the declaration, truly declare to the number of aliens on board or landed from his ship. Goods generally are liable to seizure for being landed without entry; and packages uncleared from the queen's warehouse are sold after the expiration of the following periods, viz.: Merchandise, 3 months; passengers' baggage, 6 months; and ships' surplus stores, 12 months. If, after the arrival of any ship within four leagues of the coast of the United Kingdom, bulk shall be broken, or any alteration made in the stowage of the cargo of such ship so as to facilitate the unlading of any part of such cargo; or if any part be staved, destroyed, or thrown overboard, or any package be opened, unless accounted for to the satisfaction of the commissioners of customs, in every such case such master shall forfeit the sum of $500. For willfully making a false report, or if the particulars, or any of them, of such report be false, the master shall forfeit the sum of $500. (16 and 17 Victoria, chap. 107.)

By the act of Congress of March 2, 1799, masters of vessels are required to produce a manifest of cargo on board, on the arrival within four leagues of the coast of the United States, to such officer of a revenue-cutter, or other officer of the customs, as shall first come on board such vessel, for his inspection. The law requires that the manifest shall be in writing, signed by the master of such vessel, and shall contain the name, description, build, and true tonnage of such vessel, the place to which she belongs, with the names of the owner or owners, the name of the master, the names of the places where the goods shall have been taken on board, and the places within the United States to which they are respectively consigned, particularly noting the goods destined for each place respectively, and a just and particular account of all the goods so laden on board, whether in packages or stowed loose, of any kind whatever. The names of the passengers on board, specifying the number and description of packages belonging to each, together with the remaining sea-stores, if any, are to be truly stated. If any goods be imported in any such vessel without having a manifest on board, agreeable to the foregoing directions, or which shall not be included therein, or shall not agree therewith, the master of such vessel shall forfeit and pay a sum of money equal to the value of the goods not included therein; and all such merchandise not included in the manifest, belonging or consigned to the master, mate, officers, or crew of such vessel, shall be forfeited. No addition, erasure, substitution, or alteration whatsoever, can be made in the manifest of the cargo of any such vessel after her arrival within four leagues of the coast of the United States, without subjecting the master of such vessel to the penalty of the law. On any vessel arriving from a foreign port, the master is to report to the collector within 24 hours after his arrival; and within 24 hours thereafter further to report, in form, all the particulars required to be inserted in his manifest, and shall declare to the truth of such manifest. No vessels permitted to enter until the master shall have delivered all letters directed to persons within the United States. Merchandise unladen without permit from the proper officers of the customs to be forfeited; and the master and mate, each, forfeit $1000. Before departure for a foreign port, the master of every vessel must deliver to the collector a manifest of the whole cargo and the value thereof, and obtain a clearance, under the penalty of $500.

Colonial Possessions of Great Britain.—As a necessary preliminary to a clear exposition of the laws and regulations which govern the existing commercial relations between the United States and the colonial possessions of Great Britain, it will be necessary to take a brief retrospective glance at the rise and progress of American commerce, from the earliest settlement of the colonies down to the present period. Although these preliminary remarks will be more especially addressed to the commercial intercourse between the United States and the colonial possessions of Great Britain in North America, they will equally apply to all the other possessions of that power throughout the world, by reason of the general application of that liberal and enlightened system of commercial policy adopted by the British Parliament in 1849, and inaugurated as the future commercial law of that kingdom on the 1st day of January, 1850.

From the earliest settlement of the different colonies on the North American continent by the governments of the Old World, a system of colonial legislation, similar in effect, and oppressive in operation, was commenced by each, respectively, prohibiting all commercial intercourse with any other than the mother country, and rendering the infant colonies dependent on her alone for the supplies necessary for their subsistence and comfort. The effects of such a policy were soon exhibited in the anomalous and destitute condition to which the earlier colonists were reduced. Carrying with them, as they did, into the newly discovered wilderness of the western continent, that adventurous and enterprising spirit which had led them to forsake the homes of their childhood, and to brave the perils of a voyage across the Atlantic, it may easily be imagined, that they did not quietly submit to an illiberal and short-sighted policy, which reduced them to a condition of industrial and commercial vassalage that had well-nigh crushed every effort to develop the abundant treasures which nature had so lavishly spread before them, and which, under a different system, would soon have brought within their reach the rich exchanges of an extensive commerce. They were, in the language of one well acquainted with our earlier colonial history, "prevented from manufacturing for themselves, or from engaging largely in ship-building or commerce; isolating them from the rest of the world, leaving them no trade except to the mother country."

The selfish and monopolizing spirit which governed the British legislature in the enactment, as well as in the rigorous enforcement, of these restrictions on the colonies which she had planted in North America, may be understood from a remark elicited from Lord Chatham by a remonstrance against this oppressive policy, to wit: that "the British American colonies had no right to make even a nail for a horse-shoe." "In and out of Parliament," says the Treasury report of 1832, "as a political right and as a national privilege, an absolute monopoly was demanded for supplying the colonies with every article of consumpton, and of transporting the whole of their produce to Europe."

In the charter of Virginia there was an express stipulation empowering the colonists to carry on a direct intercourse with foreign states. This privilege naturally drew their attention to the cultivation of the soil, and to the production of such articles as would be most likely to find a foreign market, and yield them such returns as were most suitable to their condition and their necessities. Accordingly we find them, at a very early period, successfully engaged in the cultivation of tobacco. This article found a ready demand in the markets of Holland, and warehouses were soon established for its reception at several of the principal ports of that republic. This privilege, however, was not long permitted; the British merchants, stimulated by an unworthy spirit of cupidity, soon perceived the advantages which this direct trade between the colonies and Holland conferred upon their commercial rival, and at once adopted active measures to suppress it.

The interests and power of the British government were appealed to, until, with a total disregard to the necessities and claims of the colonists, and in palpable violation of the rights and privileges guarantied to them by solemn compact, they were forbidden to carry their produce to Holland or to any other foreign country, and were compelled to ship direct to British ports, and commit their commercial operations exclusively to the management and control of British merchants.

Several acts of Parliament followed, prohibiting all foreign trade with the colonies, and restricting them to a direct intercourse with the mother country. The first act which indicated the future policy of Great Britain toward her colonies, and bore with much severity upon their industry and enterprise, was that of 1650, restricting their trade to British or colonial-built ships. This was the commencement of the system begun by Oliver Cromwell, and continued with unabated rigor down to the period of the Revolution.

The act of 1650 was followed by another passed during the reign of Charles II. (1660), prohibiting the exportation to any foreign country, of certain enumerated articles, the produce of the colonies, and requiring that vessels laden with such articles should proceed direct from the colonies to a British port. Non-enumerated articles, including fish, salted provisions, grain, flour, etc., could, for a period, be carried direct to any port in the world—a privilege, however, which was subsequently materially abridged; but, lest the dependence of the colonies upon the mother country should be in any degree relaxed, the return cargoes were, with the exception of salt, to be relanded in England for reshipment to the colonies.

The policy which dictated this restrictive measure was rendered still more oppressive by an act passed in 1663, providing that "no commodity of the growth, production, or manufacture of Europe shall be imported into the British plantations, but such as are laden and put on board in England, Wales, or Berwick-upon-Tweed, and in English-built shipping, whereof the master and three fourths of the crew are English."

Under the baneful influence of this system of unwise, unjust, and oppressive legislation, it may seem almost incredible that the colonies should have been able to maintain any advancement in commerce, population, or wealth; yet, if we follow them in their struggles and privations from the commencement of this illiberal and unjust policy, during the Commonwealth under Cromwell, down to the period of the

Revolution, we shall find them steadily, though slowly, increasing in all these elements of a nation's prosperity. This was mainly attributable to the privileges of commercial intercourse between the colonies themselves, continental and insular, which was permitted to them as a part of the British dominions. To this unfettered and profitable trade the American colonies were chiefly indebted for whatever commercial progress they had made prior to the Revolution. The following table exhibits the extent and value of this trade in 1769: Imports, $13,000,000; exports, $12,000,000; total, $25,000,000. Of this aggregate of trade, that with the West Indies stood thus: Exports, $3,700,000; imports, $7,950,000; total, $11,650,000.

At the commencement of the revolutionary war, the colonies enjoyed the privilege of trading with England, the British West Indies, and that part of Europe south of Cape Finisterre; and though oppressed by unjust exactions, and burdened by illiberal restrictions, they not only contributed to the wealth and material prosperity of the mother country, but gave every promise of thriving, and achieving a name of their own.—De Bow's *Review*.

During the revolutionary war, all commercial operations were suspended, and the peace of 1783 found the trade of the new thirteen independent sovereignties in a most feeble and languishing condition. Their independence made them a foreign country to the North American and West India colonies; and by a rigorous system of colonial non-intercourse, they were cut off from all trade with those who were their natural commercial neighbors, and, prior to the Revolution, their most profitable customers.

The exhausted condition to which the several States were now reduced rendered the first few years after the close of the war a period of the most intense solicitude. The confederated States were fully sensible of the absolute necessity of opening a foreign trade, and especially of recovering their lost intercourse with the British West Indies; but every proposition to that end, urged through their accredited ministers, was met by a decided refusal.

As early as 1783, Mr. Pitt, then Chancellor of the Exchequer, proposed a bill in the British Parliament based upon the liberal principle of "admitting to all the ports of the British dominions American vessels loaded with goods, the growth or produce of these [the United] States, on the same terms as British vessels and goods," but the proposition at once startled the fears of the British merchants, who, with the aid of Lord North, Mr. Fox, and Lord Sheffield, succeeded in transferring the whole subject to the discretion of the king and his council. The consequence was, that an order was immediately issued, not only excluding American vessels from all participation in the colonial trade, but prohibiting the exportation from the United States of provisions and fish, even in British bottoms.

Two years after Mr. Pitt's unsuccessful motion for reciprocal trade between the dominions of Great Britain and the United States, John Adams, American minister at the court of St. James, was instructed to renew the proposition; but it met with no more favorable reception than it did in 1783, Lord Liverpool declaring "that it could not be admitted even as a subject of negotiation."

In 1789, another effort was made by the United States to negotiate with Great Britain a commercial treaty, particularly with reference to the colonial trade, based upon principles of a more liberal reciprocity.

Mr. Morris, then in London, was especially instructed to effect, if possible, a negotiation admitting American productions, in American bottoms, into British North American possessions, and bringing, in return, the productions of those colonies to our own ports and markets. The result of these renewed efforts was communicated to the government of the United States by Mr. Morris, in his dispatch of September 18, 1790, and was, in effect, that no arrangement by treaty could be made.

From this period down to the year 1822, the ports of the British American colonies were virtually closed against the commerce of the United States, some slight relaxations having been granted, abating, however, to no perceptible extent, the stringency of the measures adopted by the British Parliament, with a view to confine, within the very narrowest limits, the commercial enterprise of a country in which, even at that early period, she descried a future rival for maritime supremacy. These relaxations permitted a direct trade with the British West India Islands in certain specified articles, and under certain restrictions, but were not accepted by the United States.

During the period which elapsed between the years 1790 and 1822, several efforts were made to place our trade with the British American colonies upon a basis of equality; these efforts proving fruitless, the United States determined to submit no longer to a policy so detrimental to her commercial prosperity, so obstinately persisted in, and hitherto resisted only by the unavailing force of diplomatic remonstrance.

Before resorting, however, to any extreme measures for the proper vindication of our commercial rights, the government of the United States, still anxious to avert, by means of conciliatory legislation, a total suspension of trade and commerce with Great Britain and her American colonies, announced, by act of March 3, 1815, the principles upon which she was desirous of maintaining commercial relations with all foreign nations.

This act repealed all discriminating duties of impost and tonnage on foreign vessels in regard to all countries which should adopt a similar policy in favor of the United States. This fair and liberal proposition was followed by a convention between Great Britain and the United States, in which the provisions of the act referred to were adopted, so far as they were applicable to the trade between the United States and the dominions of that power in Europe, but refusing to place her colonial trade on the same basis. A more extended notice of the provisions of this convention, more properly came under the preliminary remarks on the commercial relations of the United States with Great Britain. It will suffice to observe, in this place, that the restriction respecting colonial trade was made the subject of a special stipulation, in the following words, viz.: "The intercourse between the United States and his Britannic majesty's possessions in the West Indies, and on the continent of North America, shall not be affected by any of the provisions of this article [article 2], but each party shall remain in possession of its rights with respect to that intercourse."

The act of April 18, 1818, was the commencement of the measures of retaliation by which the government of the United States had now determined to force Great Britain into a more just and liberal system of commercial legislation, by excluding from American ports all ships belonging to that nation coming from any colonies to which vessels of the United States were not admitted.

The second section of this act required bonds to be given in the case of all British vessels departing from ports in the United States, conditioned that the cargoes should not be landed in such colonies. This was followed by a similar act, passed in 1820, prohibiting the ports of the United States to British vessels coming by sea, from any ports or places in all the American possessions of Great Britian; and providing further, that no produce should be brought into the United States from such colonies, unless imported direct from the place of production.

The effect of these several retaliatory enactments upon the commercial interests of Great Britain led some of her most sagacious statesmen to bestow upon the whole subject their serious attention, and repeated efforts were made in the British Parliament to remove the restrictions upon colonial trade, of which the American government so justly complained; and so successful were these efforts, that the United States government was informally advised that the plan proposed by Lord Goderich, for a more liberal colonial policy, would be carried out by the British Parliament. To remove all difficulty on the part of the government of the United States, in giving effect to any plan based upon principles of equality, and, at the same time, to show that the retaliatory measures adopted in 1818 and 1820 were purely defensive, and resorted to only after every means of negotiation had failed, the act of May 2, 1822, was passed, authorizing the President to declare the ports of the United States open to British vessels trading to and from the colonies, "on receiving satisfactory evidence that the ports of the islands or colonies of Great Britain have been opened to the vessels of the United States."

This was followed soon after by an act of Parliament fully meeting the contingency provided for in the act of Congress above referred to; and, in August following, the President's proclamation was issued, declaring, in the language of the act of Congress, "the ports of the United States open to British vessels trading to and from the colonies." This act of Parliament, however, was in a great measure rendered nugatory by the insertion of a clause restricting American vessels to a direct trade with the colonies, and by the terms of the Treasury circular of 24th September following, subjecting British vessels coming from the colonies to heavy discriminating duties. This course was justified by the government of the United States, on the ground that it became necessary, as a means of countervailing the discriminating duties to which American produce was subjected when imported into the colonies, or from the colonies to Great Britain, in British bottoms. In a subsequent part of these remarks, it will be seen that, in effect, this equality, with some few exceptions, has prevailed since the abolition of imperial duties on colonial importations; but the principle which it involves, that of foreign interference with the colonial tariffs of Great Britain, was never admitted by that government, nor was it ever pressed by the United States. Indeed, the correctness of the views expressed on this subject by the Earl of Aberdeen, in a dispatch to Mr. Barbour, six years subsequently to this period, has never been questioned by the government of the United States; and their application has been continued to this day, in the discriminating duties just alluded to as exceptions, without any objection or remonstrance on the part of the American government. As the policy of these countervailing duties involves a fundamental principle of commercial law, the language of the Earl of Aberdeen in reference to it is not deemed inappropriate in this place:

"It never could be intended to agree that, under no circumstances, should the vessels of the one [the mother country] have no advantage over those of the other; and the undersigned is not aware of any instance in which one country has remonstrated with another country, having colonies, upon the terms on which it has regulated its own intercourse with those colonies. * * *

"The intercourse between a country and her colonies is as absolutely out of the scope of stipulation, negotiation, or remonstrance, as is the intercourse between one island or port of the mother country and another."

The object of Great Britain, during this protracted controversy with the government of the United States, for commercial equality in colonial trade, was avowedly to secure to British navigation all the advantages derivable from an exclusive trade with her colonies, even in the productions and manufactures of the United States—an object easily promoted, if not virtually accomplished, by the naturalization of American productions imported into the colonies, and their exportation thence in British vessels, at the low duties assignable to goods, wares, and merchandise, the produce of the colonies.

It was a part of a system chiefly designed to encourage British navigation, and, incidentally, to quote again from the Earl of Aberdeen, "for extending the commercial transactions of British colonists, giving them the advantages of a trade of deposit, and facilities for collecting a revenue."

Notwithstanding these restrictions, equally injurious to the commerce of both countries, the United States still maintained an active and profitable trade in supplying the West India colonies with her staple productions through the neutral and other colonies with which she was permitted to carry on a direct intercourse. The British interdict of 1826 closed the ports of all the British American possessions, with the exception of the northern colonies, including the Bermuda Islands, to American vessels; still, the statistical returns of that period exhibit a steady and vigorous indirect trade carried on through the circuitous routes just indicated.

The following tables, compiled from official returns, show the value of our exports and imports to and from the British American colonial possessions, from 1821 to 1830, during which period the restrictive and countervailing measures of both governments were, to some extent, relaxed, and our trade with these possessions was relieved from the onerous imposts of indirect and circuitous channels. During a portion of this period, as will be seen by glancing over the following tables, and noting the disparity in the amounts during the years designated, American trade was barely able to struggle through the restrictions and burdens which pressed upon it. The remarks already submitted with reference to the legislation of that period, both in Great Britain and the United States, will sufficiently explain the discrepancies.

STATEMENT EXHIBITING THE VALUE OF IMPORTS AND EXPORTS TO AND FROM THE UNITED STATES AND THE BRITISH AMERICAN POSSESSIONS, DURING THE YEARS SPECIFIED.

YEARS.	BRITISH WEST INDIES.		N. AMERICAN POSSESSIONS.	
	Imports.	Exports.	Imports.	Exports.
1821.....	$927,346	$265,102	$490,704	$2,009,791
1822.....	355,537	452,141	526,817	1,898,873
1823.....	1,844,931	1,627,967	463,779	1,827,208
1824.....	2,758,067	1,771,008	714,144	1,782,969
1825.....	2,437,122	1,647,046	619,884	2,556,032
1826.....	2,204,412	2,110,802	653,950	2,588,795
1827	895,207	690,577	445,118	2,830,748

The foregoing tables will exhibit, at a glance, the injurious effects consequent upon the different acts of retaliatory legislation resorted to and enforced by both nations during this prolonged and unyielding contest. Other tables will be introduced in the proper place, showing the value and extent of trade between the United States and the British colonial possessions subsequently to the year 1830, when a policy, based upon the just principles of reciprocal benefit and generous competition, succeeded the illiberal and unwise measures by which the commercial intercourse of both countries had, for nearly half a century, been diverted from its natural channels.

It will be recollected that by the act of Congress of 1823, passed as soon as could be after the Treasury circular of September 14, 1822, already referred to, had been issued, the claim to an equality with Great Britain as to duties on importations into the colonies was reasserted, and the terms of the President's proclamation of August of the same year were affirmed. Great Britain could not be induced to yield this point: her object being to enable her to "protect the staples of her own subjects, by levying discriminating duties on the like productions of foreign countries." Without such imposts, the British government contended "that the productions of her North American colonies would be totally excluded from the markets of the West India Islands, as they could not possibly compete with similar productions of the United States."

This determination, and these discriminating duties, led to the refusal by Congress to accept the terms on which the ports of the British colonies were opened to American trade by the act of 1825.

The conditions on which this trade was offered were not deemed admissible, inasmuch as they demanded that the commerce and navigation of Great Britain, and her possessions abroad, with the United States, should be placed on the footing of the most favored nation; while discriminations existed in such colonial possessions, not only unequal as respected Great Britain, but exclusively applicable to the commerce of the United States.

These different acts are recurred to for the purpose of elucidating more clearly the illiberal policy and narrow jealousies which preceded the new era in the commercial policy of both countries, upon which they at length entered.

In 1829, Mr. McLane, the American minister at London, in pursuance of instructions to that effect, proposed to the British cabinet "a restoration of the trade between the United States and Great Britain, with special reference to her American possessions, upon a basis of reciprocal concession, and announced the willingness of his government to accede to the terms prescribed by the act of Parliament of 1825."

In opening this negotiation, Mr. McLane introduced the proposition which he was authorized to submit, by referring to "the misunderstandings and jealousies which had hitherto characterized the commercial relations of both countries," observing, "that it was the interest of both governments to extinguish these causes of mutual bitterness; to correct the errors which may have interrupted the harmony of their past intercourse; to discard from their commercial regulations measures of hostile monopoly; and to adopt instead a generous system of frank and amicable competition." Such, in Mr. McLane's judgment, would be the happy result of the proposition he was instructed by his government to submit, namely, "that the government of the United States would now comply with the conditions of the act of Parliament of July 5, 1825, by an express law opening their ports for the admission of British vessels, and by allowing their entry with the same kind of British colonial produce as might be imported in American bottoms, the vessels of both countries paying the same charges; suspending the alien duties on British vessels and cargoes, and abolishing the restrictions defined in the act of Congress of 1823, on the intercourse between the United States and the British colonies; and that such a law should be immediately followed by a revocation of the British order in council of the 27th July, 1826, the abolition or suspension of all discriminating duties on American vessels in the British colonial ports, and the enjoyment by the United States of the advantages of the act of Parliament of 5th July, 1825."

In submitting this proposition, Mr. McLane distinctly declared that, "whatever may be the disposition which his majesty's government may now be pleased to make of this subject, it must necessarily be final;" a declaration which, doubtless, contributed somewhat to the satisfactory and liberal arrangement which soon followed.

In anticipation of a final and satisfactory adjustment of this question, and, at the same time, to manifest the liberal spirit which animated the government of the United States in its solicitude and willingness at all times to terminate a contest equally detrimental to the commerce of both nations, an act was passed in May, 1830, clothing the President with power, on receiving satisfactory evidence of the willingness of the British government to accede to the proposition submitted by Mr. McLane, to issue his proclamation ratifying the terms of that proposition, and tendering to British vessels engaged in the colonial trade the advantages which it secured.

On the 17th of August following, Mr. McLane was officially notified by the Earl of Aberdeen, that his government was prepared to accept the terms on which it was proposed to relax their colonial system, and permit a direct trade between the United States and the North American possessions, and only awaited the necessary action on the part of that government to promulge the requisite orders to that end. Accordingly, on the 5th day of October following, the President, by virtue of the authority conferred on him by the above-mentioned act, issued his proclamation, declaring that the act "concerning navigation," passed on the 18th day of April, 1818, the act supplementary thereto, passed on the 15th day of May, 1820, and the act entitled "An act to regulate the commercial intercourse between the United States and certain British ports," passed on the 1st day of March, 1823, were absolutely repealed; and that the ports of the United States were, from the date of the proclamation, open to British vessels and their cargoes, from the islands, provinces, and colonies of Great Britain, on or near the North American continent, and north-east of the United States.

These several acts, it will be borne in mind, constituted the whole system of retaliatory measures adopted by the government of the United States, during the continuance of the commercial controversy now brought to a close. Corresponding orders in council were also promulged by the British government, giving full validity to the arrangement, and placing the United States on an equal footing, with respect to colonial trade, with the other nations that had complied with the act of 1825.

The commercial intercourse between the United States and the American colonial possessions was now established on a basis, in some respects, it is true, restrictive, but still sufficiently liberal and broad to inspire with renewed energy the commercial interests of the nation, and direct them in the more equal competition on which they were permitted to enter.

Nearly 50 years before this period, the policy to which Great Britain now gave her assent was suggested and urged with great earnestness by Mr. Pitt, then Chancellor of the British Exchequer. His proposition, already noticed, was to the effect that American vessels loaded with goods, the growth or produce of the United States, should be admitted to all the ports of the British dominions. Every administration, from the formation of this government down to the year 1830, directed its best energies to effect a negotiation with the British government, recognizing this principle; but whether from a real desire to protect and foster its own navigation and commerce, as was avowed, or to repress the spirit of commercial activity which, from the very earliest period, had characterized the United States, every obstacle that diplomacy could create, and every sophistry that ingenuity could supply, seemed interposed whenever the question was pressed upon the attention of the British cabinet.

How disastrous this restrictive policy proved to the commercial interests of both countries, and especially to those of the West India colonies, which naturally looked to the United States for the necessary supplies of subsistence, may be gathered from the tables already given. The increase of the total trade of the United States from this period may be shown as follows:

COMMERCE OF THE UNITED STATES.

	Exports.	Imports.
1830	$73,849,508	$70,876,920
1835	121,693,577	149,895,742
1840	132,085,946	107,141,519

The progress and almost incredible augmentation of this trade under the new arrangement may be seen from the following comparative statement of imports and exports:

Official Value of Imports and Exports of the United States to and from the British North American and West India Possessions for 1830 and 1840, respectively; showing, also, the increase of Tonnage during that Period.

COLONIES.	IMPORTS.		EXPORTS.	
	1830.	1840.	1830.	1840.
Brit. N. Amer. possessions...	$650,303	$2,007,767	$3,786,373	$6,093,250
Brit. W. Indies.	168,579	1,048,165	1,901	2,965,584

From the foregoing table it will be seen that the aggregate trade with the British American colonies increased during the period designated from $4,436,676 to $8,601,017, or nearly 100 per cent.; and the increase in the trade with the British West Indies in the same period was equal to 2400 per cent.

This vast increase in the value of the trade necessarily supposes a corresponding augmentation in the amount of tonnage. As illustrative of the elastic and enterprising spirit of American commerce when freed from the shackles of illiberal restrictions, and permitted a fair competition, on equal terms, in addition to the preceding table, the following statements, exhibiting the augmentation in tonnage under the new arrangement of 1830, will prove interesting.

The average tonnage which entered in the United States from the British, Swedish, and Danish West Indies during the years specified was as follows:

	Tons.
In 1828, 1829, and 1830	88,633
In 1832	114,651
Increase	26,018

The average tonnage which departed from the United States for the British, Danish, and Swedish West Indies, in the same years, was as follows:

	Tons.
In 1828, 1829, and 1830	91,435
In 1832	134,986
Increase	43,551

During the first period, viz., 1828, '29, '30, the principal trade to the British West Indies was indirect and circuitous; during the latter (1832), under the new arrangement, it was direct. Similar results followed the liberal policy of 1830, in the trade of the United States with the North American colonies; and, as we are now approaching a new era in the commercial intercourse between the United States and these colonies, the advent of which was announced by the repeal of the British navigation laws in 1849, the following tables are introduced for the purpose not only of exhibiting the augmentation in that trade during the two periods, but also of indicating its probable future increase under the beneficent effect of the late reciprocity treaty.

The average tonnage entered into the United States from the North American colonies during the years specified, is as follows:

	Tons.
In 1828, 1829, and 1830	96,304
In 1832	182,672
Increase	86,368

The average tonnage departing from the United States to North American possessions, the same years, was as follows:

	Tons.
In 1828, 1829, and 1830	103,370
In 1832	211,348
Increase	107,978

The following is a summary of the foregoing tables:

	Tons.
Increase of tonnage entered in 1832 from the W. Ind.	26,018
Increase of tonnage from North American possessions	86,368
Total	112,386

	Tons.
Increase of tonnage departed to the West Indies	43,551
Increase of tonnage departed to the N. Amer. pos	107,978
Total	151,529

It will have already been perceived, from the foregoing tables, that so soon as American commerce was liberated from the thralldom of oppressive and prohibitory restrictions, it at once challenged a competition with the flags of all nations in supplying the markets of the British West India and North American possessions, and in maintaining with them a profitable and an extensive trade.

Indeed the benefits resulting from the measures adopted in 1830, not only to the United States and Great Britain, but to the West India and other American possessions, became so manifest, in the vast increase of capital, tonnage, and the value of trade, and the commercial relations between the two nations had become, year by year, so closely united in the bonds of mutual interest and of a more enlightened policy, that it is not surprising that the British nation received with much favor the first advance, taken by Sir Robert Peel, toward the system of free trade, which now constitutes the basis of British commercial legislation, and, in its results upon the general prosperity and wealth of that nation, fully vindicates the wisdom and foresight of its distinguished author.

Prior to 1847, American exports to the British colonies were burdened with double duties—those imposed by the British Parliament, styled imperial duties, and those prescribed by the local legislatures of the different colonies. The revenue derived from the former was, at all times, inadequate to meet the expenses of the colonial system; and, in consequence, the British civil list was annually increased by large appropriations for colonial purposes. The embarrassed condition of the British finances at this period co-operated very opportunely with Sir Robert Peel's predilections in favor of free-trade policy, in inclining the British government to receive favorably his proposition to abandon all control over colonial tariffs, and throw their foreign possessions on their own resources. This measure was at once adopted; and in the season next succeeding, the Canadian Legislature abolished the discriminating and prohibitory duties on imports inland, thus placing the mother country in the same relative position as foreign nations. The abolition of the British corn-laws next succeeded in this liberal policy; and, in 1849, the crowning act of Sir Robert Peel's life—the repeal of the British navigation laws—consummated the system of measures introduced by that statesman, so far at least as that system affected the intercourse of foreign nations with British colonies throughout the world.

By these several acts of imperial legislation, the comprehensive principle was established of admitting into Great Briain, or into any British possession, goods of any sort, in a ship of any country, from any part of the world, subject only to such prohibitions and restrictions as were deemed necessary, either for the safety of the State, or for the protection of revenue and mercantile interests.

Under the class of absolute prohibitions, the following articles are included, viz.: gunpowder, ammunition, arms, or utensils of war, except from the United Kingdom or any British possession, and base or counterfeit coin. These are prohibited to be imported into the British possessions in America or the Mauritius. Other prohibitions and restrictions will be found especially set forth in Part II., *Com. Rel. U. S.*, 1857.

The only imposts to which the commerce of the United States with the colonies of Great Britain is now subject, are the colonial duties imposed by the local legislatures of the respective colonies; and these apply, with some few exceptions, which are noticed in their proper place, equally to British importations and British bottoms. These duties are generally very moderate, designed solely to meet the necessary expenses of the colonies, and are at least one third less than the duties levied in the United States, on similar descriptions of merchandise, by the tariff act of 1846.

We have noticed the wonderful progress and steady increase in the value and tonnage of American commerce with her colonial neighbors which followed the negotiation of 1830, and the subsequent acts and regulations of the British government. Each successive year brings its tribute of augmented returns and expanding commerce to illustrate the wisdom and the far-seeing sagacity of those statesmen, in both countries, who originated this liberal system.

The commercial intercourse of the United States with the West Indies and the eastern possessions of Great Britain remains unchanged since 1850. Although this intercourse is still dependent on the regulations of the mother country, as a general rule, the impost duties are equal on all bottoms, but slight discriminations existing even in favor of British vessels. With the North American provinces, however—that is, with "Canada, Newfoundland, New Brunswick, Nova Scotia, Prince Edward's Island, and the several islands thereunto adjacent"—a system of the most liberal and unrestricted character has been adopted, which, to a great extent, places commercial intercourse between the United States and those possessions, respectively, on the footing of an unfettered coasting trade. The Reciprocity Treaty of 1854 established a free trade between the colonies above named and the United States, in the principal raw staples of both countries, and concedes to the citizens of the latter among other privileges, "the right to navigate the River St. Lawrence, and the canals in Canada, used as a means of communicating between the great lakes and the Atlantic Ocean," as well as of "taking, curing, and drying fish of every kind on the sea-coast and shoals, and in the bays, harbors, and creeks of Canada, New Brunswick, Nova Scotia, Prince Edward's Island, and of the several islands thereunto adjacent, without being restricted to any distance from the shore, with permission to land upon the coasts and shores of those colonies and the islands thereof, and also upon the Magdalen Islands, for the purpose of drying their nets and curing their fish."

The third article of this treaty provides that the articles enumerated in the following schedule, being the growth and produce of the aforesaid British colonies or of the United States, shall be admitted into each country, respectively, free of duty:

Schedule.—Grain, flour, and breadstuffs of all kinds; animals of all kinds; fresh, smoked, and salted meats; cotton, wool, seeds, and vegetables; undried fruits, dried fruits; fish of all kinds; products of fish, and of all other creatures living in the water; poultry, eggs; hides, furs, skins, or tails, undressed; stone or marble in its crude or unwrought state; slate; butter, cheese, tallow; lard, horns, manure; ores of metals of all kinds; coal; pitch, tar, turpentine, ashes; timber and lumber of all kinds, round, hewed, and sawed, unmanufactured, in whole, or in part; fire-wood; plants, shrubs, and trees; pelts, wool; fish-oil; rice, broom-corn, and bark; gypsum, ground or unground; hewn or wrought or unwrought burr or grindstones; dye-stuffs; flax, hemp, and tow, unmanufactured; unmanufactured tobacco; rags.

Articles of manufacture, it will be perceived, are not embraced in the above schedule; indeed, these possessions, being abandoned by the British Treasury, by the act of 1847, already referred to, are now compelled to support themselves; and their tariff on manufactured articles is the principal source of revenue on which they must depend to meet their heavy loans and support their respective governments.

The same tonnage duties are payable upon ships or boats of the United States of America importing goods into Upper or Lower Canada, as are or may be payable at the same time in the United States of America on British craft entering the harbors of the State from which such goods shall have been imported. (17 and 18 Vict., chap. cxxii., sec. 173.)

The following comparative tables exhibit the value of trade between the United States and British North American possessions during the years 1851, '52, '53, '54, '55. A reference to tables already given will show how largely the totals since 1850 exceed those prior to that period. The figures are taken from the United States' Treasury reports on "Commerce and Navigation."

Exports from Canada in 1851........	$7,929,140	
Exports to other British American possessions..........................	4,085,783	
Total..................................		$12,014,923
Imports from Canada in 1851........	$4,956,471	
Imports from other British American possessions......................	1,736,651	
Total..................................		6,693,122
Balance of trade in favor of the United States in 1851................	$5,321,801	
Total trade between the United States and British North American possessions in 1851.......		$18,708,045
Exports to Canada in 1852...........	$6,717,060	
Exports to other British North American colonies......................	3,791,956	
Total..................................		10,509,016
Imports from Canada in 1852........	$4,589,969	
Imports from other North American possessions........................	1,520,330	
Total..................................		6,110,299
Balance of trade in favor of the United States in 1852................	$4,398,717	
Total trade between the United States and British North American possessions in 1852.......		$16,619,315
Exports to Canada in 1853..........	$7,829,099	
Exports to other British North American colonies......................	5,311,543	
Total..................................		13,140,642
Imports from Canada in 1853........	$5,278,116	
Imports from other British American colonies..........................	2,272,602	
Total..................................		7,550,716
Balance of trade in favor of the United States in 1853................	$5,589,924	
Total trade between the United States and British North American possessions in 1853.......		$20,691 360
Exports to Canada in 1854..........	$17,300,706	
Exports to other British American colonies..........................	7,266,154	
Total..................................		24,566,860
Imports from Canada in 1854.......	$6,721,539	
Imports from other British American colonies..........................	2,206,021	
Total..................................		8,937,560
Balance of trade in favor of the United States in 1854....	$15,639,300	
Total trade between the United States and British North American possessions in 1854......		$33,494,420
Exports to Canada in 1855..........	$18,720,344	
Exports to other British American colonies..........................	9,085,676	
Total..................................		27,806,020
Imports from Canada in 1855.......	$12,182,314	
Imports from other British North American possessions............	2,954,420	
Total..................................		15,136,734
Balance of trade in favor of the United States in 1855................	$12,669,286	
Total trade between the United States and British North American possessions in 1855.......		$42,942,754
Total trade in 1851..........................		18,708,045
" " in 1855..........................		42,942,754
Increase in total trade from 1851 to 1855........		$24,234,709

General Remarks on the Commercial Relations of the United States with the British Colonies.—Canada.—The following statement exhibits the condition of trade between the United States and Canada; the description, amount, and value of the principal imports and exports, the balance in favor of either country, etc., during the years 1851, 1852, and 1853, together with certain commercial regulations in force at the different ports in the province of Canada. The figures are taken from the Canadian official reports on "Trade and Navigation." The fact that the fiscal year in these reports ends in December, while that in the United States' Treasury reports ends in June, will account for the apparent discrepancy between this statement and the general one which has immediately preceded.

IMPORTS FROM CANADA IN 1851.

Produce of the mines	$60,373
Produce of the seas	43,784
Produce of the forest	1,283,380
Animals, and produce of animals	565,884
Vegetable food (including $1,617,000 for wheat and flour)	1,909,229
Other agricultural produce	35,788
Manufactures	45,064
Other articles	128,032
Total	$4,071,534

EXPORTS TO CANADA IN 1851.

Principal Articles.—Coffee, sugar, molasses, tea, tobacco (manufactured and unmanufactured), whisky, wine, and salt	1,983,458
Fruits (green and dried), spices	102,865
Horses, grains, cheese, salt meat, pork	49,800
Tanned leather, oil, paper, mess-pork, rice, candles, cotton and leather manufactures, manufactures of India-rubber, iron and hardware, machinery, and wool	4,198,040
Broom-corn, burr-stones, coals, hides, tallow, other articles	645,560
Books, cotton-wool, maize, philosophical apparatus, settlers' goods, wheat (and including $537,000 in bullion)	1,384,028
Total	$8,363,751
Total exports	$8,363,751
Total imports	4,071,534
Balance in favor of the United States	$4,292,217
Total of imports into Canada from Great Britain in 1851, in round numbers	12,000,000
The same from the United States	8,000,000
Difference against the United States	$4,000,000
Imports into Canada from all countries in 1851, in round numbers	21,000,000
Of which from the United States	8,000,000
Difference between the value of imports into Canada from the Untied States, and from all other countries	$13,000,000

From the foregoing it will be perceived that the imports into Canada from the United States, in 1851, were only one third less than those from Great Britain, and nearly two fifths of the whole imports from all other countries.

IMPORTS IN 1852.

Produce of the mines	$2,156
Produce of the seas	50,288
Produce of the forest	1,840,196
Animals, and their produce	966,200
Vegetable food	3,186,260
Flax, and other seed	94,836
Manufactures	60,376
Other articles	84,200
Total	$6,284,512

EXPORTS IN 1852.

Principal Articles.—Coffee, sugar, molasses, tea, tobacco (manufactured and unmanufactured), whisky, wine, and salt	$2,225,112
Fruits and spices	91,372
Horses, grains, cheese, etc	49,732
Fish, fur, glass, tanned leather, oil, paper, mess-pork, rice, candles, manufactures of cotton, leather, iron, wood, silk, India-rubber, iron and hardware, wood articles (unenumerated), and sundries	4,413,568
Broom-corn, burr-stones, coals, cotton-yarn, flax, hides, tallow, nitre, wool, sundries	$769,216
Books, cotton-wool, Indian corn, settlers' goods, wheat, other articles	864,692
Total	$8,413,692
Total exports	8,413,692
Total imports	6,284,512
Balance in favor of the United States	$2,129,180
Total value of imports into Canada from Great Britain in 1852, in round numbers	10,500,000
The same from the United States	8,500,000
Difference between the value of imports from Great Britain and from the United States	2,000,000
Imports into Canada from all nations in 1852, in round numbers	$20,000,000
Of which from the United States	8,500,000
Difference between the value of imports into Canada, from the United States, and from all other countries	11,500,000

The preceding tables will show, that in 1852 the United States almost equaled Great Britain in her exports to Canada, and furnished more than two fifths of the whole imports into that province.

IMPORTS IN 1853.

Produce of the mines	$75,596
Produce of the seas	73,424
Produce of the forest	2,610,176
Animals, and produce of animals	1,046,852
Vegetable food	4,879,444
Other agricultural produce	93,736
Manufactures	107,832
Other articles	49,320
Total	$8,936,380

EXPORTS IN 1853.

Description of merchandise the same as for 1851 and 1852—total value	$11,782,148
Total exports	$11,782,148
Total imports	8,936,380
Balance in favor of the U. States, in 1853	$2,845,768
Total value of imports into Canada from Great Britain, in 1853	18,489,120
Same from the United States	11,782,148
Difference	$6,706,972
Imports into Canada, from all nations, in 1853, in round numbers	32,000,000
Of which, from the United States	11,782,148
Difference	$20,217,852

Imports into Canada, in 1853, were unusually heavy, exceeding those of the preceding year $12,000,000. The tables will show that Great Britain supplied more than one half of the whole; while the exports from the United States, though exceeding those of the preceding year upward of $3,000,000, did not maintain, with respect to Great Britain, the ratio of 1852.

Imports from Canada up to 30th June, 1854 (according to the United States' Treasury report)	$6,721,539
Exports to same date	17,300,706
Exhibiting a balance in favor of the U. States of	$10,579,167

Before closing these remarks, it is proper to observe that the preceding tables and calculations have been prepared with much care, with a view to furnish accurate data in estimating the benefits secured to American commerce by the Reciprocity Treaty of 1854. The statement exhibiting the value of imports from, and exports to Canada, for 1855, when compared with these tables, will demonstrate the wisdom and policy of that measure.—*U. S. Com. Relations.*

Summary of the Regulations in Force at the Different Ports in Canada.—Merchandise shall not be unladen, except after due entry, at places designated for that purpose, under penalty of forfeiture.

Merchandise shall not be brought or imported into the province, whether by sea, land, coastwise, or by inland navigation, whether dutiable or not, except into some port or place at which a custom-house is, or may be established, under penalty of forfeiture of vessel and goods, if under the value of $1000; if above that sum, then the vessel and goods shall be retained as security for the payment of that amount. This applies, *mutatis mutandis*, to goods brought into the province, by land, in carriages or other vehicles.

Other regulations have reference, principally, to frontier smuggling, and to the duties and powers of the officers charged with its prevention. They convey no general commercial information, and are, therefore, omitted.

Most of the articles on which a discrimination in favor of importations from Great Britain exists, are embraced in the third article ("schedule") of the Reciprocity Treaty.

Foreign vessels are not permitted to carry goods or passengers from one port of any British possession in Asia, Africa, or America, to another port of the same possession; though by the act 17 Victoria, chap. 5, the coasting trade of the United Kingdom is opened to the vessels of all nations.

The foregoing regulations, etc., apply with some slight modifications, to all the other colonial possessions of Great Britain in North America. They will not, therefore, be again referred to.

COMMERCE OF THE UNITED STATES WITH THE BRITISH NORTH AMERICAN COLONIES, FROM OCTOBER 1, 1820, TO JULY 1, 1856; INCLUDING CANADA TO JUNE 30, 1848.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821........	$2,021,449	$2,812	$2,024,261	$491,628	....	$89,417	113,097	....
1822........	1,881,273	16,286	1,897,559	526,817	....	158,225	90,977	....
1823........	1,818,113	3,347	1,821,460	463,374	....	219,749	52,776	12,023
1824........	1,773,107	2,617	1,775,724	705,931	....	298,840	53,951	9,130
1825........	2,538,224	1,740	2,539,964	610,788	....	218,896	61,520	10,139
1826........	2,564,165	24,384	2,588,549	650,315	$462,250	221,994	76,191	10,108
1827........	2,797,014	33,660	2,830,674	445,118	1,021,291	154,507	60,378	11,145
1828........	1,618,288	56,386	1,674,674	447,669	126,772	179,944	63,801	10,658
1829........	2,724,104	40,805	2,764,909	577,542	626,253	241,237	93,645	10,569
1830........	3,650,031	136,342	3,786,373	650,303	128,821	252,279	117,171	14,267
Total....	$23,885,768	$318,379	$23,704,147	$5,569,485	$2,364,887	$2,035,088	783,507	88,039
Sept. 30, 1831........	$4,026,392	$35,446	$4,061,838	$864,909	$25,900	$277,197	79,364	94,776
1832........	3,569,302	45,083	3,614,385	1,229,526	16,961	542,745	65,056	146,292
1833........	4,390,081	81,003	4,471,084	1,793,393	14,704	817,880	219,403	245,779
1834........	3,477,709	57,567	3,535,276	1,548,733	400,500	652,253	195,989	323,120
1835........	3,900,545	147,343	4,047,888	1,435,108	638,783	197,400	363,532	415,406
1836........	2,456,415	194,851	2,651,266	2,427,571	32,288	546,474	291,931	428,191
1837........	2,922,474	296,512	3,218,986	2,359,263	160,000	448,602	382,234	440,002
1838........	2,484,987	238,504	2,723,491	1,555,570	430,208	450,712	261,286	383,156
1839........	3,418,770	144,684	3,563,454	2,155,146	15,306	431,782	385,506	373,772
1840........	5,889,215	204,035	6,093,250	2,007,767	11,500	780,171	357,073	401,805
Total....	$36,535,890	$1,445,028	$37,980,918	$17,377,046	$1,746,144	$5,145,216	2,601,374	3,252,299
Sept. 30, 1841........	$6,292,290	$364,273	$6,656,563	$1,968,187	$198,100	$475,891	404,472	447,936
1842........	5,950,143	240,166	6,190,309	1,762,001	59,076	765,069	323,315	417,409
9 mos. 1843........	2,617,005	107,417	2,724,422	857,696	86,334	403,545	202,607	283,692
June 30, 1844........	5,361,186	1,354,717	6,715,903	1,465,715	711,244	445,995	696,865	516,231
1845........	4,844,966	1,209,260	6,054,226	2,020,065	489,095	914,461	677,935	512,004
1846........	6,042,666	1,363,767	7,406,433	1,937,717	251,900	623,043	863,563	573,673
1847........	5,819,667	2,165,876	7,985,543	2,343,927	480,275	863,451	657,595	528,515
1848........	6,399,959	1,982,696	8,382,655	3,646,467	555,900	960,148	859,791	831,271
1849........	3,611,783	257,760	3,869,543	1,345,798	....	47,530	122,641	409,377
1850........	3,116,840	501,374	3,618,214	1,358,992	33,044	38,593	75,293	521,112
Total....	$50,056,505	$9,547,306	$59,603,811	$18,706,565	$2,864,968	$5,540,726	4,884,077	4,990,620
June 30, 1851........	$3,224,553	$861,230	$4,085,783	$1,786,651	$30	$44,677	103,235	592,507
1852........	2,650,184	1,131,822	3,791,956	1,520,330	112,558	56,895	122,809	544,518
1853........	3,398,575	1,912,968	5,311,543	2,272,602	200,521	88,940	266,431	583,465
1854........	4,693,771	2,572,383	7,266,154	2,206,021	48,975	68,148	295,781	537,309
1855........	5,855,878	3,229,798	9,085,676	2,954,420	64,212	18,413	276,633	498,822
1856........	7,519,909	626,199	8,146,108	3,822,224	4,000	33,807	326,647	471,871

British Provinces.—Under the impetus communicated by the Treaty of Reciprocity, the trade of the United States with the Canadas has greatly increased, notwithstanding the formidable diminution of nearly $6,000,000 in our exportation of foreign goods. The aggregates for the last two years we have arranged as follows, for purposes of comparison:

	1855.	1856.
Domestic produce exported to the Canadas................	$9,950,764	$15,194,788
Foreign goods....................	8,769,580	5,688,453
Domestic produce exported to the Lower Provinces	5,8[illegible]5,878	7,519,909
Foreign goods....................	3,229,798	626,199
Imports from the Canadas.......	12,182,314	17,488,197
Imports from the Lower Provinces	2,911,420	3,822,224
Total trade..................	$42,939,754	$50,339,770
Total trade with the Canadas.....	$30,909,658	$38,371,438
Total trade with the Lower Provinces..................	$12,037,069	$11,968,332

The total aggregates of trade during the last five years, are as follows:

1852..............................	$16,519,305
1853..............................	20,691,246
1854..............................	33,494,320
1855..............................	42,939,754
1856..............................	50,339,770

The chief articles of export and their values were for 1855 and 1856:

	1855.	1856.
Oil, soap, and candles...........	$217,000	$250,000
Fish............................	20,000	44,000
Manufactures of wood..........	300,000	230,000
Naval stores....................	100,000	157,000
Beef, pork, bacon, lard, tallow and hides..................	857,000	4,523,000
Horses..........................	48,000	103,000
Wheat, flour, and corn..........	1,568,000	1,769,000
Rice............................	45,000	52,000
Tobacco and snuff..............	423,000	516,000
Whisky.........................	137,000	296,000
Molasses.......................	87,000	140,000
Furniture.......................	182,000	328,000
Hats............................	100,000	116,000
Shoes and leather	282,000	564,000
Glass...........................	65,000	114,000
Books and paper...............	94,000	148,000
Salt............................	152,000	308,000
Manufactures of cotton.........	470,000	914,000
" iron.	960,000	1,517,000
Coal...........................	320,000	402,000

The most notable increase, it will be observed, has taken place in animal products. For more extended information about Great Britain, see ENGLAND, IRELAND, and SCOTLAND. Also COLONIES, COTTON, and FISHERIES.

Great Circle Sailing; the manner of conducting a ship in, or rather pretty near, the arc of a great circle that passes through the zenith of the two places, viz.: from whence she came, and to which she is bound.

Greece. The continent of Greece, including Albania and Macedonia, is nearly shut in on the north by a chain of mountains known anciently by the names of Rhodope, Scomius, and Orbelus; it is bounded on the west by the Adriatic and Ionian Seas, on the south by the Mediterranean, and on the east by the Ægean Sea, or Archipelago. It extends from 36° 10′ to 42° 40′ of north latitude; and from 19° 45′ to 24° 40′ of east longitude from London. Its length, from Cape Matapan to Mount Orbelus, or Argentaro, is 450 English miles; its greatest breadth from Durazzo to Cavale, at the foot of Mount Pangœus (a branch of Rhodope), 235 miles; and it embraces an area of 57,750 square miles, exclusive of all its islands except Eubœa. But, as our ideas of the extent of the country have always a reference to those ancient States which comprised but very minute portions of its surface, it is necessary that its dimensions should be described more in detail.

The country recognized as Greece before the rise of the Macedonian power, comprehended the Morea or Peloponnesus, Attica, Eubœa, Bœotia, Phocis, Doris, Ætolia, Acarnania, Thessaly, and Magnesia; and even several of the States included within these limits had little or no share in those splendid actions which have shed so much glory over the country. The surface of Peloponnesus, which included seven different States, is about 9000 English square miles; that of the countries just named, without the peninsula, including Eubœa, is 14,800; and both together amount to 23,800 square miles—an extent of surface not exceeding two fifths of England, or one fifth of the British Isles. If to this we add 16,000 square miles for Albania or Epiris (including the basin of the Drino), 18,000 for Macedonia, and 1000 for the Cyclades, the whole surface of Greece and its islands will be 58,800 square miles, which is almost exactly the area of England. While Greece preserved its independence, however, all these territories were never united into one body politic, nor was their confederated force ever applied to the prosecution of any common enterprise. The communities whose warlike achievements and brilliant career in arts and philosophy raised the Grecian name so high, occupied but very minute portions of the country; as the following table deduced from measurements will show:

	Eng. sq. miles.
Attica, including Megaris and Salamis, but not Eubœa.	1,190
Bœotia	1,530
Laconia (without Messenia)	1,720
Achaia (the twelve cities with their territories)	1,140

Attica, besides possessing at one period Eubœa, had many colonies in the Cyclades, Thrace, and other parts; and Sparta held Messenia long in subjection; but, in great struggles, these colonies and dependencies often shook off their allegiance, and the parent State was obliged to rely on its own resources. Such was the energy of these small communities, that Attica, which scarcely supports, at present, a population of 50,000 souls, sent out sometimes colonies of 10,000 men at once (*Diod. Sic.*, lib. ii.); and Sparta furnished 50,000 soldiers to fight the Persians at Platæa. The territories of Corinth, when she formed a separate State were much smaller than any of these; her wealth and power depending chiefly on commerce.

Greece forms a long and rather narrow peninsula, singularly indented on three sides by arms of the sea, and having a greater proportion of its surface occupied by mountains than any other country in Europe of equal extent, except Switzerland. It has been justly observed, that those physical features which distinguish Europe from the other quarters of the world belong, in a peculiar manner, to Greece, and distinguish it in the same proportion from the other parts of Europe. Of these arms of the sea, the most considerable are the Gulfs of Contessa, Salonica, Volo, Ægina, and Nauplia, on the east; those of Kolokythia and Coron on the South; and those of Lepanto and Arta on the west. Of the mountains, the first in order are those which pass along the northern frontier. Mount Argentaro, the ancient Orbelus, placed at the northern extremity of Greece, near the 43d degree of latitude, may be considered as the centre of the whole system of mountains in European Turkey.

Money.—The drachm, which is the unit of the currency, is about $8\frac{1}{2}$d. English money. It is divided into 100 equal parts called lepta. There are copper coins of 10, 5, 2, and 1 lepta, the only Greek money that circulates in the country. The silver coins of 50 and 25 lepta have been melted down or exported. Those of 1 drachm are very rare. Those of 5 drachms are now only to be found in Turkey. The gold pieces of 20 drachms, called othos, also have disappeared.

Weights and Measures.—A very complete scale of weights and measures was established by the government in 1836; but the people adhere for measure of length to the pique = 27 inches. Then for weight—the principal one known, even in the capital, is the oke, a Turkish weight equal to 2 lbs. 12 oz., which is divided into 400 dramia = $1\frac{3}{4}$ Eng. drams. The cantaar or quintal is generally 44 okes = 121 lbs. The kilo or quilot of corn is 22 okes, or 60 lbs. The land measure is the *strema* equal to about one fourth of an English acre.

Cultivated Land.—It appears that not half the surface is susceptible of cultivation; and at least two thirds of the cultivated, and four fifths of the uncultivated soil belong to the State. One great disadvantage to agriculture is the scanty supply of running water; but the peasants are very dexterous at taking advantage of the smallest rill to irrigate their tillage. Money rent is little known; the lands being farmed on the metayer system, according to which the landlord receives a certain proportion of the net produce—usually a third. He has frequently to furnish the seed, and sometimes the oxen for tillage, the cost of which, with high interest, is deducted from the profits before any division is made. On this system, there is little inducement for the proprietor to expend capital on improvements; still less is there for the metayer, who has no interest in the land beyond the season. Consequently, inclosure and drainage are scarcely thought of; and the stones having never been removed, lie so thick together that in some places it is scarcely credible that they can have accumulated naturally. The dwellings of the peasants are extremely poor, consisting of stones and fragments of tile and pottery held together by mud. Glass casements are rare even in provincial towns; and in the country cottages the light is most frequently admitted only by the door-way.

Productions.—The arable soil of Greece is devoted chiefly to the cultivation of corn, vines, mulberry-trees, and fruit trees. Wheat, rye, barley, and maize, succeed pretty well in the stony districts where the mold is but a few inches deep. Oats render but a middling crop, and the potato is quite unsuitable. But the leguminæ grow well, and rice might be raised on the wet soils. In many parts of the country cakes of maize flour form the staple article of food. (See *Ency. Brit.*) At the head of all the agricultural productions for exportation are the Corinth grapes, which we corruptly call currants, and which are cultivated from the isthmus to Arcadia, along almost all the northern and western shores of the Morea. This fruit is of a violet color, and hangs in long loose bunches. They are gathered at the same time as other grapes, dried in the sun, and packed. Very few of them are used in Greece, few anywhere except in England. The consequence of this is, that the effect of raising a large crop is merely to lower the price in the London market; whereas, if France, America, and Russia, used plum-puddings to the same extent as the English, Greece would have had in this one article an inexhaustible source of revenue. All kinds of grapes succeed well, and the best vintage is that of the island of Santorin, where above 60 varieties are reckoned. The Russians are very fond of Santorin wine, and import £20,000 worth yearly. The art of expressing and fermenting the juice of the grape is quite in its infancy; and unfortunately the Greeks have no wine-cellars, and very few casks. The wine is kept in skins, and rosin is put into it to keep it from spoiling. It is at first exceedingly disagreeable to the taste; but the natives prefer it to the choicest beverages of France and Spain; and even foreigners become reconciled to it with use.

Next to the vineyards as a source of revenue are the mulberry plantations. There is a demand for silk in every market in the world, and the climate of Greece affords facilities for an unlimited extension of this branch of industry. The south of the Morea generally, and all the islands of the Ægean Sea, are adapted for it, and here the house of almost every peasant is in part given up to the rearing of the worm. The spawn or eggs are nestled in the bosoms of the women; and the worms hatched in spring are abundantly supplied with the young mulberry leaves then shooting. The cocoons are placed in the sun, and the heat kills the worms. In 1836 some Greek merchants, who had resided in the silk districts of Italy, introduced Italian workmen with their families into the Morea, to improve the mode of winding; and a few years have greatly advanced this branch of industry and placed it on a firm and extensive basis, giving promise of a lucrative and increasing trade. Two silk-throwing manufactories have been established at Athens with great success. (For further particulars see *Ency. Brit.*) The *Moniteur* of Paris of 16th and 17th October, 1855, pays a high compliment to the quality of the Greek silk in the Paris Exhibition, which gained the first prize.

The olive next claims attention. Being indigenous, the trees are found in a wild state in every direction, and seem only to require grafting to yield excellent fruit. Grafted olive-trees are very numerous; and many people live all the year round on little but olives, indifferently pickled in brine. The oil is extracted in the rudest manner, after which it is either run into cisterns or jars. There is a large consumption of it in the country, nothing else being used for light, and a great deal being consumed in food and cookery; but still there remains a good quantity for exportation. Cotton succeeds well wherever it is sown, especially in the plain of Argos, and in the islands. It does not form an important item in the exports, owing to the large consumption of it in the country. Madder thrives well in the northern districts. Greek tobacco is said to be of good quality, and to have a delicious perfume. It is cultivated at little expense.

The cultivation of fruit trees might be a profitable branch of industry. The figs of Attica have not degenerated since the olden time; the apricots, the pomegranates, oranges, and lemons are delicious.

First among its natural productions may be mentioned valonia, the cup of the acorn of the *Quercus Ægilops*, an oak, of which considerable forests exist in the neighborhood of Marathonisi, Cape Papa, Arcadia; also in Attica, the island of Zéa and other places. The acorn is a powerful astringent, used in tanning and dyeing, and for this purpose is shipped for England and Italy. Another species of oak—the *Quercus coccifera*, commonly called galls—grows in great quantities on Mount Taygetus, and breeds the insect known as kermes. In the process of drying the insect assumes the appearance of a small brittle berry partly filled with powder, which, from time immemorial, has caused some to look upon it as the berry of the plant, while others considered it to be a swelling caused by the puncture of a particular kind of fly. It is used in dyeing the red Tunis caps both of the Greeks and Turks, and a good deal is exported to Tunis and Alexandria. The dried leaves of the lentisk, also, under the name of *Σχοινό φυγγον*, are used by the tanners in Greece and the Levant. Turpentine is obtained in large quantities from the pine forests of Mount Cithæron and other districts.

Notwithstanding the immense clearances made by the ravages of war and other causes, Greece contains 2,800,000 acres of forest, filled with timber trees of the best quality; yet wood is bought abroad for house and ship-building, as for want of roads these forests can not be worked. The shepherds make a practice of setting fire to the coppice woods, in order that their flocks may find some tender sprouts to crop in spring. It is not unusual in the neighborhood of Athens to find large black patches covering half a square league; and if an explanation be required, the answer is, "Only a shepherd who has been making pasturage for his sheep."

The principal places of trade are Syra, Patras, Piræus, Kalamata, and Nauplia. The trade of Patras is chiefly import; Hydra, Spezzia, and Galaxidi, come more properly under the denomination of ship-owning ports. The exports are chiefly the articles we have enumerated, with others of minor importance; the imports are chiefly iron-ware and woven fabrics; besides coffee, sugar, and spices.

The carrying trade is very considerable, especially among the islands. Some of the Greek vessels are between 600 and 700 tons register, and a good many from 300 to 400 tons; but the great majority of them are boats of six or seven tons, having a large hatch in mid-ships. (See *Ency. Brit.*) It is customary for a ship-owner to bargain with a captain and crew, taking up a certain sum at interest, generally secured on bottomry bond; with this money a carge is purchased on the ship's account, and the profit is divided between the vessel and the crew, the latter sharing among themselves according to their special agreements. In this way the Greeks carry on extensive speculations in corn whenever bad harvests or other circumstances present openings in the ports of Turkey, Italy, Spain, or France. Besides this, they export the various productions of Turkey, Greece, Egypt, Persia, and southern Russia, to London, Marseilles, and Trieste. The great advantage which the Greeks have over foreigners in prosecuting this trade is that of having relations and connections in the interior on whom they can rely for the collection of small parcels; and thus they avoid the impositions of agents and the profits of middlemen. The Greek trader despises nothing, and will gather a few bags of rags, or a ton or two of bones and horns, while he is chartering 50 vessels to load with corn and tallow. Then the same vessels supply Turkey, Persia, and Greece with the manufactures of England and Germany. The extensive Greek establishments at Manchester for purchasing, examining, and packing goods, attest the importance of this branch of commerce. They have almost quite superseded the English traders here, chiefly from their thorough knowledge of the countries to be supplied, and their readiness to execute the smallest as well as the largest commissions for the shopkeepers of the East. The Greek trader slips in everywhere, neglects no business, disdains no expedient, and changes his flag as often as he finds it his interest to do so.

The Greek government does nothing for maritime trade. There is but one light-house on the coasts; and, notwithstanding the shipwrecks that are recorded every winter, the ministers turn a deaf ear to the appeals of the mariners. A similar neglect is shown concerning the means of internal communication. There are only seven roads, amounting in all to a length of 30 leagues, and this is in a country where the State owns more than half the land, where evictions are easily effected, and where the peasants are willing to lend their hands for works of public utility. There is no highway from Athens to Sparta, or to Corinth, or to Patras, which, owing to the trade in currants, is becoming the commercial capital.

The banking and exchange operations form perhaps the most remarkable part of the commercial system. The national bank was founded at Athens in 1842, the capital being in the first instance fixed at 5,000,000 drachms. Branches have since been opened at Syra and Patras. The exchange operations throughout the country are ruled chiefly by the transactions at Athens, where bills on London, Paris, Marseilles, Trieste, etc., are negotiated with facility. The most serious hinderance to the progress of industry in Greece is the high rate of interest. The legal rate is 10 per cent. for ordinary loans, and 12 per cent. in commercial business. High as this is, most of the loans are effected at still higher rates; and the government can not suppress the usury. From a statement inserted in the *Spectateur de l'Orient* of Athens, it appears that the bank has paid interest to the shareholders, from 1849–54, at 8½ to 9½ per cent. per annum; that its capital amounts now to 6,000,000 drachms, and a reserve fund of 400,000 drachms to provide against emergencies.—E. B.

The manufactures of Greece are few and simple, the value of the raw material being little enhanced by the labor; yet the peasantry are entirely clothed in cotton and woolen fabrics of their own manufacture. The capotes, not only of the Greeks, but of the whole maritime population of the Mediterranean, are made of a woolen stuff, the peculiar manufacture of the Wallachs; and Kalamata is famous for a silk gauze, highly prized in the East for bed-curtains. Embroidery in gold, silver, silk, and cotton, is brought to great perfection; and marble-cutting and sculpturing have made great progress. At the great London Exhibition of 1851, the embroidered dresses in red and gold, and in blue and silver, were highly praised. The samples of marbles were not in a condition of manufacture to demand much notice as specimens of industry. Commendatory mention is made, in the report, of lithographic stones from Messina, samples of steatite (the French chalk of commerce), of a fine natural cement of puzzuolan, of varieties of flexible sponge, and some other objects. In the London Exhibition of 1851, only four medals were given for various productions of art and manufacture from Greece.

The following statistics show that the progress which the Greek nation has made is highly creditable, though at the same time showing that the productive powers of Greece are not fully developed.

Statistics of Greece.

1.—Cultivated Land in 1854.

	Stremata.		Stremata.
For Cereal........	3,649,870	For Mulberry-trees	240,000
" Olive-trees....	600,000	" Fig-trees......	150,000
" Vines........	1,000,000		
		Total........	5,659,870

Cattle.

Sheep and goats...	5,600,000	Mules.............	30,000
Oxen..............	160,000	Asses.............	7,000
Buffaloes..........	2,000		
Horses............	90,000	Total..........	5,889,000

Produce.

	Kilos.		Okes.
Wheat............	2,669,000	Oil...............	1,600,000
Barley........	1,223,600	Wine.............	16,200,000
Indian corn.......	2,830,000	Silk.	70,000
Maize.............	281,900	Currants.........	60,000,000
Oats & other kinds of cereal.........	1,258,000	Valonia..	14,000
		Wool............	1,500,000
Total..........	8,262,500	Total.........	79,384,000

Persons employed in Agriculture.

Proprietors.........	52,590	Other laborers and servants...........	35,089
Field laborers.......	111,330		
Shepherds..........	87,669		

2.—Statistics of Silk.

	Okes.	Drs.		Average price per oke. Drs.
1851..................	48,282	991,947	=	20·54
1852..................	60,771	1,999,970	=	32·91
1853..................	56,770	1,774,063	=	31·25
1854..................	....	1,353,018		
1855..................	70,000	....		

This proves not only an increase of production, but also an improvement in the quality; for, though the quantity has nearly doubled since 1851, instead of reducing the price, Greek silks are 50 per cent. dearer.

3.—Commercial Navy of Greece.

	Vessels.	Tons.		Vessels.	Tons.
1821..	440	61,449	1844..	3,414	146,703
1834..	2,891	....	1845..	3,584	161,103
1835..	3,370	....	1848..	3,933	255,233
1838..	3,269	88,502	1850..	4,016	266,201
1839..	3,345	89,642	1851..	4.327	257,093
1840..	3,384	110,690	1852..	4,230	247,661
1843..	3,469	137,558	1853..	4,143	247,991

We have no accounts of 1854; but there is no doubt it will show an increase on 1853, in consequence of the permission of the czar for the Greek flag to enter the Danube.

4.—Population.

1821............	675,000	1852..........	1,002,000
1832............	712,000	1853..........	1,041,000
1843............	863,000	1854..........	1,142,000

5.—Imports and Exports of Greece.

	Exports. Drs.		Imports. Drs.
1851.........	13,995,195	1851.........	....
1852.........	10,402,212	1852.........	24,982,151
1853.........	8,988,890	1853.........	20,209,960
1854.........	6,799,211	1854.........	21,270,182

The minister of finance states that the great decrease in exports for the last three years is owing principally to the failure in the currant crops, the result of the disease in the vine.

Of the 13,995,195 drs. exported in 1851, 8,359,196 drs. were of Corinthian currants alone. In 1852 the export of currants were 2,844,058 drs. only, or nearly 6,000,000 less than 1851; in 1853 there is no account of the currants exported inserted; and in 1854 only the small amount of 9046 drs. are included in the amount of 6,799,211 drs.

Countries Trading with Greece.

Countries.	Imports.	Exports.
	Drs.	Drs.
England........................	5,670,363	7,020,174
America........................	142,132	135.478
Austria.........................	4,310.124	2,950,235
France..........................	1,812,432	447,350
Turkey..........................	8,055,309	1,266,960
Russia..........................	819,497	300.935
Italy............................	455,141	365.538
Egypt and Candia.............	674,922	119,781
Ionian Isles....................	1,375,000	940,234
Other countries................	2,492,770	304,567
Value in drachmas.........	25,807,690	13,851,202

It will be seen from this exhibit, that England has the largest commerce with Greece of the countries enumerated. Turkey, however, ranking first in amount of imports.

The commercial relations of the United States with Greece are regulated by treaty of December 10, 1837. This treaty is based upon principles of entire reciprocity in navigation and commerce between the two countries. Its principal stipulations are, that the vessels of each nation, whether laden or in ballast, from whatever place they come, shall be treated, in the ports of the other, on their entrance, during their stay, and at their departure, upon the same footing as national vessels coming from the same place, with respect to the duties of tonnage, light-houses, pilotage, and port charges, as well as to the perquisites of public officers, and all other duties or charges levied in the name or to the profit of the government, the local authorities, or of any private establishment whatever. Whatever merchandise may be lawfully imported into either nation by its own vessels, may also be imported in the vessels of the other, from whatever place they may come, without paying other or higher duties or charges, of whatever kind or denomination, levied in the name or to the profit of the government, the local authorities, etc., than when imported in national vessels. Similar equality is stipulated with respect to exports. No prohibitions to be established in either nation upon the products of the soil or industry of the other, unless such prohibitions shall also apply to similar products, the growth of any other country. All privileges of transit, and all bounties and drawbacks allowed in either nation, shall immediately become common to the other.

Duties in each country, on cargoes imported in vessels of the other, shall be charged only on such portions thereof as may be landed, and erased from the manifest of the importing vessel; but all duties, imposts, or charges whatsoever, which are or may become chargeable upon the vessels themselves, must be paid at the first port where they shall break bulk, or unlade part of their cargoes. It is also stipulated that the vessels of each nation arriving in the ports of the other, provided with a bill of health, granted by an officer having competent power to that effect, at the port whence such vessels shall have sailed, shall be subjected to no other quarantine than such as may be necessary for the visit of the health-officer of the port where such vessels shall arrive; after which, said vessels shall be allowed immediately to enter and unload their cargoes, subject only to such casualties as may have occurred during the voyage. The other stipulations relate to consular privileges, etc. The treaty to continue in force 10 years, with the usual stipulation respecting its duration after that period.

Notwithstanding the liberal stipulations of the treaty, of which the preceding is a summary, the trade between the United States and Greece is very inconsiderable—few American vessels ever making the direct voyage to any port in that country. At the principal port of Greece (Piræus), no American vessel entered from the commencement of 1851 to the close of 1853. During the year first named, there entered that port from all countries, 355 vessels, measuring 42,159 tons; and there cleared 254 vessels, aggregating 30,148 tons; making a total of 609 vessels, with an aggregate of 72,307 tons. These vessels were mostly under the Greek, Turkish, English, or French flags—the latter two numbering, together, only 32 vessels entered and cleared. During the same year, 120 Austrian steam-vessels measuring an aggregate tonnage of 27,000 tons, entered the port of Piræus, viz., 72 from Trieste, and 48 from Turkey.

The value of imports at the port of Piræus in 1851 was $924,420; that of exports a little over $80,000. In 1852 there entered 322 vessels, measuring 44,166 tons; and cleared, 287 vessels, of 45,008 tons; making a total of 609 vessels, with an aggregate tonnage of 89,174 tons. These vessels were under the Greek, Turkish, English, or French flags, ranking in number in the order, respectively, to which they are named,

The imports of all kinds into Piræus in 1851 were $924,420, and in the year 1852, $757,020; showing a decrease in 1852 of $167,400.

The imports into Greece through this port, are, grains, sugar, coffee, yarn of cotton and wool, silks, iron and other metals, timber, cod and other salted fish, wines and spirits, paper, etc.

The countries usually participating in the foreign trade of the port of Piræus, are—

Turkey	(imports from, in 1852)	....	$268,956
Austria	" "	....	170,748
France	" "	....	106,904
England	" "	....	89,094
Tuscany	" "	....	19,716
Other places	" "	....	101,602
Total imports as shown above		....	$757,020

Though Austria holds but the second rank in the above table, she usually enjoys the largest share of the foreign commerce of this port. An average calculation for a series of 5 or 10 years would give the following result, without much variation:

	Per cent. of the whole.		Per cent. of the whole.
Austria..........	24·74	England..........	14·62
Turkey..........	22·61	Tuscany..........	7·84
France	19·87	Other countries..	10·32

The next port of importance in Greece, after the port of Athens, is Syra. This port is situated among the Cyclades, on the eastern shore of the Grecian archipelago. Its commerce is rapidly increasing, owing, in a great measure, to its being a principal station of the Mediterranean steamers going to and from Constantinople. The imports average annually about $3,500,000, and the exports about $1,500,000. The flags participating in the foreign trade of this port are Greek, English, Austrian, Turkish, and French, in the order, as to rank, in which they are named. The chief articles of import are, cottons, woolens, manufactures of iron, grains, cotton yarn, coffee, timber, sugar, hides and skins, provisions. Exports of domestic produce are inconsiderable, though an extensive trade is carried on in re-exporting to other ports of the archipelago the imports of foreign nations. The number of vessels entering and clearing at this port annually, is about 6775 measuring 379,000 tons. The merchant marine of Greece in 1853, was 4320 vessels, measuring an aggregate of 247,616 tons. Of these there were—

	Vessels.	Tons.
Under 30 tons....................	2,855	19,696
30 tons and over, of which 550 were from 200 to 500 tons..	1,375	227,965
Total as above..........	4,230	247,661

Port Charges.—In the ports of Syra, Nauplia, Piræus, Marathonensis, Pylos, Calamatu, Navarino, and Patras—

On vessels under 5 tons........	Free.
" of 20 "	9 liptas = 1½ cents.
" above 20 "	12 " = 2 "
In the other ports: on vessels under 5 tons......	Free.
" of 20 "	6 liptas = 1 cents.
" above 20 "	9 " = 1½ "
Permit of departure: On vessels of 5—20 tons	50 liptas = 8⅓ cents.
" 21—50 " ..	1 drachma = 16⅔ "
" 51—100 " ..	2 " = 33⅓ "

For all other charges, port regulations, etc., see Consular Return, "Athens, Greece, February 6th, 1855."—*Com. Relations, U. S.*

The average price at which currants are sold is $122 50 per 1000 pounds; and the average returns, or rather gross receipts, are annually about $700,000. The exportation of olive-oil is another leading source of revenue to the Ionian Islands. The following summary gives a fair average exhibit of exports annually:

	Export 1855.	In stores.	Local consumption.	Total.
	Barrels.	Barrels.	Barrels.	Barrels.
Zante........................	4,311	62,189	3,500	70,000
Corfu........................	8,900	188,100	3,000	200,000
Santa Maura, Ithaca, Cephalonia, and Paxo........	....	....	....	60,000
Total......	13,211	250,289	6,500	330,000

The average annual price is $9 50 per barrel, which would raise the amount derived from olive-oil, if the whole amount were sold, to $3,135,000 per annum. Great efforts have been made to promote the cultivation of tobacco in these islands, but with very doubtful success, owing to the want of soil adapted to the plant. Corfu, Cephalonia, and Santa Maura are the only islands on which it can be raised; but the quality is inferior, and even the quantity is so inconsiderable that cargoes of tobacco are regularly imported to supply the consumption of the islands. Among the articles of import, sugar and coffee are those in which American bottoms could, were the navigation dues equal, successfully compete with the European flags. In 1855

Holland alone imported 900 tons of sugar into the islands. The coffee is usually imported direct from Brazil. In 1855 the quantity imported reached 1,200,000 pounds.

The usual exports of the United States, which reach the Ionian republic, are coffee, rosin, segars, tobacco, and manufactured articles, such as furniture, cottons, etc., the annual value of which can not be accurately ascertained. In 1852, the value of coffee, rosin, segars, and furniture, exported from the United States to one of the Ionian ports (Zante), was $5,499 32, on which the Ionian treasury received, in duties, $766 84.

The exports from the same port to the United States were:

		Lbs.	Value.	Export duty.
1851..	Currants.....	870,412	$22,196	$3,903
1852..	"	471,746	16,076	2,721

Under a system of commercial equality with privileged nations, the United States' flag could successfully compete with the flags of all other nations in the importation of wheat, flour, Indian corn, rice, sea-bread, salted meat, and salted fish, tobacco, sugar, coffee, and timber. As regards the quantities of these staples, respectively, which might find a market in the Ionian ports, there are no data accessible upon which to base any calculation. These staples, however, are always in demand in the different ports of the Ionian republic; and an approximate estimate as to the quantities which might, with safety, be annually exported from the United States to these markets may be formed from an official return from one port (Zante), in the possession of the Department. This return gives the aggregate value of these staples annually consumed in that consular district at $1,539,528. Wheat, Indian corn, cured fish, coffee, rice, and timber occupy the first rank in these staples.

In 1853, there entered at the different ports of the Ionian Isles 1380 vessels, measuring, in the aggregate, 153,552 tons; and cleared 1383 vessels, with an aggregate of 152,768 tons; making a total movement of 2763 vessels, and 306,320 tons. An analysis of the trade in 1853, as compared with that of the preceding year, will show a decrease of, entered, 160 vessels, measuring an aggregate of 25,979 tons; and of cleared, 101 vessels, with an aggregate of 22,750 tons. The number of vessels under the British, Austrian, and Greek flags diminished; the latter showing the greatest diminution.

The value of imports in 1853 was as follows:

	Francs.
For consumption........................	17,070,580
Warehoused..............................	6,292,620
Total....................................	23,363,200

Value of exports:

	Francs.
Domestic products.......................	8,316,330
Foreign "	7,365,970
Total....................................	15,682,300

Compared with the trade of 1852, the imports of this year show an increase of 3,777,900 francs, and the exports an increase of 5,286,600 francs; or a total increase of 9,064,500 francs. Of this increase, cereals, sugars, and tissues of cotton and wool, all from England, bore the principal part. In exports, the increase fell almost exclusively on olive-oil and currants, if we except 1,695,300 francs, the value of various kinds of tissues re-exported from the different ports of the islands. The value of soap and wine, also products of the islands, show an increase of 356,000 francs. In remarking upon the chief products of the Ionian Islands, it is stated, in reference to the soap manufactured at Zante and Corfu, that, for some time past, they have used in its preparation a kind of chalk imported from England in the vessels of that kingdom. The use of this earth in the manufacture of soap deteriorates its quality, and will result, unquestionably, in throwing it altogether out of the foreign market. The trade of 1854 gives the total number of vessels entered and cleared at 2,778, measuring an aggregate of 309,387 tons. Compared with 1853, these figures show an increase of, entered and cleared, 15 vessels, with an aggregate increase of 3,067 tons. These all entered, with the exception of 1 vessel of 1,781 tons.

In 1854, the value of trade was:

		Francs.
IMPORTS.—	For consumption.............	19,528,000
	Warehoused..................	9,306,900
	Total........................	28,834,900

		Francs.
EXPORTS.—	Domestic products...........	9,339,175
	Foreign "	8,529,225
	Total........................	17,868,400

The total trade of 1854 was thus 46,703,300 francs. In comparing this with the figures for 1853, an increase is shown in imports of 5,471,700 francs, and of exports, 2,186,100 francs; making a total increase of 7,657,800 francs. In imports, about three fifths of the increase in value fell upon grains, though in quantity there was a decrease of 35,000 hectolitres* compared with 1853. This was occasioned by the high price of grain of all sorts. The remaining two fifths of the increase fell upon cattle, coffee, sugar, tissues of cotton, and miscellaneous articles. The nations that supplied the islands in 1854 were, chiefly, England, Germany, Greece, Turkey, and Russia. France sent crystals, hides, sugar, tissues, wines, and sundries, to an amount, in value, of about 2,000,000 francs. The sugars were shipped from the refineries of Marseilles, and were borne under the Greek flag to Corfu. In exports, olive-oil, soap, wine, and some other secondary products of the soil and industry of the islands, were the chief articles which exhibited an increase over the returns of 1853. Notwithstanding the bad yield of currants in 1854, over 6,000 hectolitres of wine were exported to Trieste, Venice, and Malta. See IONIAN ISLANDS.

The value of the commerce of Great Britain with these islands is thus given:

	Francs. 1853.	Francs. 1854.
Imports........................	2,896,000	2,531,000
Exports, British.............	2,914,000	3,224,000
" foreign & colonial.	669,000	447,000
Total..........................	6,479,000	6,202,000

The reader is referred to the subject TURKEY for the comparative statement of the commerce of the United States with Turkey, Levant, etc., exhibiting the value of exports to and imports from each country, and the tonnage of American and foreign vessels arriving from and departing to each country, during the period from 1821 to 1856; and embracing, in the aggregate, all returns given in the Treasury reports for the years designated under the various heads, in different years, of Turkey; Turkey, Levant, etc.; Turkey, Levant, and Egypt; Turkey in Europe and Turkey in Asia; and also of Egypt, Greece, Ionian Islands, and Ionian republic. The reader is also referred to the article TURKEY for an account of the consular relations of the United States with countries on the Mediterranean. See also CONSULS and UNITED STATES.

Green Bay, a large arm or bay on the west side of Lake Michigan, forming a part of the boundary between Wisconsin and the upper peninsula of Michigan. It is above 100 miles long, and from 15 to 35 broad. The epithet "Green" has been applied to it on account of the color of the water, which is said to exceed 500 feet in depth. At the head of the bay, on the right bank of the Neenah, or Fox River, is a thriving town of the same name. The bay and river afford a perfectly secure harbor, and the largest steamers of Lake Michigan stop here, making it the principal place of deposit and transit for the imports and exports of northern Wisconsin. Population (1853) about 2500.

---

* Each about 2¾ bushels.

Greenland, or **Groenland**, a very large island, or, probably, assemblage of islands, lying to the north-east of North America, and for the most part comprehended within the Arctic Circle. In early times it was supposed to form a part of the American continent; but the discoveries of modern navigators have proved, what indeed the very idea of a north-west passage from the Atlantic to the Pacific Ocean supposed, its insularity. And the latest discoveries have, moreover, shown, or all but proved, the entire separation of the lands on the west side of Baffin's Bay, or rather, what we would now venture to designate *Baffin's Sea*, from those of the opposite shores, so as to limit Greenland to the country on the eastern side of that great channel. From Cape Farewell, in lat. 59° 49′ N., it stretches on the west side in a north-north-westerly direction through Smith's Sound, and then more easterly into a high northern latitude. On the other side, the Greenland coast runs first north-north-easterly, then north-easterly, and finally (so far as yet traced), in a northerly direction, bending eastward in the 75th and 76th parallels of latitude. It expands from Cape Farewell, the southern point, up to latitude 70°, where it attains a width of about 600 miles, which is pretty evenly maintained to the northern extent of our researches on the eastern side. This side of Greenland has been denominated East or Old Greenland, the other West Greenland.

In general, the discoveries which have been effected in this quarter of the globe have resulted from attempts made to discover a north-west passage to India through the Arctic Sea. The existence of such a communication is a subject which from time to time has occupied the attention of the British government for the last three centuries; and although much valuable information had been obtained by means of these voyages, the great problem remained unsolved until the very recent researches after the fate of the lamented voyager Sir John Franklin, when Captain M'Clure, in his researches, *viâ* Behring's Strait, eastward, determined the fact of a sea communication between the Pacific and Atlantic Oceans. This he effected by sailing till within sight of Captain Parry's discoveries at Melville Island, and thence completing the personal transit by ice-traveling and voyaging to the shores whence he had departed. But beyond the determination of the geographical fact, it was found, as had been confidently predicted, that no practical use could be made of a channel so thickly encumbered with impenetrable, or all but impenetrable, ices.

Greenland was first discovered by an Icelander named Gunbiörn, who was driven by storm upon this coast, about the beginning of the 10th century, and carried back intelligence of its existence to Iceland. Toward the end of the same century—according to some writers in 983—an Icelandic chief named Eric Raude, or Eric the Red, having killed another powerful chief, and being obliged to quit the country, determined to follow up Gunbiörn's discovery. After having spent two or three years in exploring the country, he returned to Iceland, giving an exaggerated account of the freshness and verdure of the country, which he called Greenland. In consequence of this, a fleet of 25 sail was equipped and sent out, laden with persons of both sexes, cattle, and other necessaries for forming a settlement. Only about the half of the vessels reached their destination; but other adventurers setting out, not only from Iceland, but from Norway, the Orkneys, and other islands, in a few years a considerable colony was formed, and a regular trade established. The real position of these early adventures has been a subject of much learned investigation and no little controversy. But it seems highly probable that the original colony of Greenland began about the southern promontory, near Cape Farewell, and gradually extended itself along the coast in a north-westerly direction. Beyond this first settlement another proceeded further to the west. The former was called *Œstre Bygd*, or the eastern settlement, and the latter *Vestre Bygd*, or the western settlement. Christianity having been introduced about the beginning of the 11th century, numerous churches and convents were built, and the country was divided into regular parishes, to which monks and other spiritual instructors were attached. The colonists, although compelled to lead a life of severe privation and hardship, continued to increase, and to extend to the north. The zeal with which the early Scandinavians pushed their settlements to the northernmost parts of Greenland is strikingly attested by a curious monument which was discovered in 1824. It consists of a stone carved with Runic characters, which was found standing erect in the ground on the island of Kingiktorsoak, under the parallel of 73°.

For some centuries the commercial intercourse between Greenland and Norway was kept up; but about the beginning of the 15th century all intercourse ceased, and the unfortunate colonists were cut off from the rest of mankind. The Esquimaux, the natives of the country, whom in derision the Norwegians called Scrœllings, or Dwarfs, on account of their diminutive stature, attacked the western colony, which was compelled to seek assistance from that which lay to the south-east. There can be little doubt that the scanty population was reduced by these savage invaders; but it was more effectually thinned by that dreadful pestilence called the *black death*, which desolated Europe from the year 1402 to 1404, and which extended its ravages even to Greenland. Those who escaped the plague probably soon fell victims to the Esquimaux; at least, nothing is known of them after the commencement of the 15th century. The terms eastern and western being used in reference to the original settlements, naturally led to the belief that the eastern as well as the western side of Greenland had been colonized; and a notion very generally prevailed for a long time that the western settlement only had perished, the eastern one having escaped the calamity, but, from the vast accumulation of ice, had been secluded from all communication with the rest of the world. During the last century the court of Denmark repeatedly dispatched ships to ascertain if any settlers still remained on that part of the coast which is now called East or Old Greenland, but without success. A more recent boating expedition in 1829–30, under Captain W. A. Graah, of the Danish Royal Navy, has, however, in extent of research on the eastern side of Cape Farewell, yielded by far the most satisfactory information. He examined the coast as far north as 65° 45′, but found nothing to indicate that this coast had ever been colonized; and we are thus led to the conclusion that the notion of any of the Norwegians having settled on the eastern shores must be a mistake; a mistake arising from a misapprehension of the words *east* and *west*. In 1721 Hans Egede, a clergyman from Vaagen, in Norway, accompanied by his wife and family, left his native country to settle as a missionary in Greenland. He landed at Baals River in N. lat. 64°, and called the place Godthaab, or Good Hope. Since that time the Danes have established numerous settlements upon the western coast of Greenland, lying between 60° and 73′ N. lat. The whale fisheries have greatly contributed to the advancement of the colonies; and from the intimate intercourse which is now kept up with Europeans, their condition is at present more flourishing than at any former period. The seal fishery is also of great importance to Greenland—the flesh of the seal forming their common food; and from their skin is made their boats and clothing. See articles FISHERIES and SEALS.

There are, at present, 13 Danish colonies in Greenland, besides some smaller establishments termed factories. For administrative purposes, they are formed into two inspectorships, called respectively North and

South Greenland. South Greenland lies south of N. lat. 67°, and comprises six colonies as follows:

Colonies.	Founded.	Pop. 1845.	Of whom Danes.
Julianehaab, or Juliana's Hope	1775	2,336	41
Fredericshaab, or Frederic's Hope	1742	650	10
Fiskenæset, or Fish Point	1754	485	20
Godthaab, or Good Hope	1721	801	25
Lukkertoppen	1775	640	18
Holsteinborg	1759	744	10
Total		5,656	124

Julianehaab is the most southern as well as the most important of these. Its district extends to the most southern point of Greenland, Statenhuk, and beyond it for some distance along the east side. At Piskenæset the Danes carry on an extensive seal fishery by means of nets, etc. In its vicinity is the Moravian station of Lichtensels, founded in 1758. Godthaab is the residence of the inspector of South Greenland; and in the vicinity is the Moravian settlement of New Herrnhut. Lukkertoppen takes its name from three pointed hills in the vicinity, resembling sugar loaves, and has one of the best and safest harbors in the country. North Greenland lies north of N. lat. 67°, and comprises seven colonies as follows:

Colonies.	Founded.	Pop. 1845.	Of whom Danes.
Egedesminde, or Egede's Memory	1759	767	15
Christianshaab, or Christian's Hope	1734	420	14
Jacobshavn, or Jacob's Haven	1741	275	14
Rittenbenk	1725	435	11
Godhavn, or Good Haven	..	249	17
Omenak	1758	528	21
Upernivik	..	405	18
Total		3,079	110

Egedesminde, in Disco Bay, was founded by Captain Egede, and named in memory of his father, Hans Egede. It comprises a number of large and small islands, but the proper settlement is on the island of Ausiet. Between this and Fox Island (Rævoe) there is a very secure harbor. A great many seals are caught here, especially in nets; but the collecting of eider-down forms the most important branch of industry. Godhaven, or Good Haven, in the southern extremity of the island of Disco, N. lat. 69° 12′, is the seat of the inspector of North Greenland, and has a coal mine, which supplies the other settlements on Disco Bay with that article. Omenak is noted for its extensive seal fishery, which is carried on by the Greenlanders in their kaijaks or small boats, and upon the ice, and by the Danes with nets which are let down the openings between the ice. There are here coal mines which supply the colony. Upernivik is the most northern of these colonies, being in about N. lat. 73°, and though of recent formation, it is already one of the most important in North Greenland. The population of Greenland on the 31st of December, 1845, amounted to 8,735, being 8,501 natives, and 234 Danes; and in 1851, is given at 9,400, of whom 250 were Danes. This includes only those subject to the Danish crown; of those that may be scattered over the country, no conjecture can be formed.

We shall now give a brief outline of the discovery of the various sections of the coasts of Greenland, with occasional references to researches about proximate lands with which those on Greenland were more or less mixed up. This will lead us again to notice the enterprises of the 16th century in search of a passage by the north-west from the Atlantic into the Pacific Ocean.

During the reign of Queen Elizabeth, Frobisher, a distinguished English navigator, made several voyages to this quarter of the globe. In 1577 he discovered the straits which have been called after him. In the year 1585, Davis, another able seaman, came in sight of high land, which he called Mount Raleigh, supposed to lie somewhere on the west of the straits bearing the discoverer's name. In 1610 Hudson discovered the straits and the bay which are called after him, in which he experienced a disastrous termination to his useful career. To certain rocky islands lying about the 64th parallel, he gave the name of Isles of God's Mercy. He also discovered two capes, one of which was called Digge's Cape, and the other Willoughby Cape. In 1616 Baffin, one of the most distinguished of our English navigators, discovered the large expanse northward of the Strait of Davis, now known as Baffin's Bay. Sailing in a little vessel of only about 55 tons' burthen, he effected one of the most extraordinary voyages on record. Under the imperfect appliances of the age for navigation, Baffin, with one small vessel, circumnavigated to Smith's Sound, on the north of that bay or sea which, northward of "Hope Sanderson, the furthest land Master Davis reached, lying between 72 and 73 degrees," was an utterly unknown region; thus adding some 1,100 miles of discoveries, reckoned by the mere coasting-line, to the knowledge of these ice-encumbered shores. His exploration northward reached, it would appear from the brief but graphically-told story of his voyage, as given among the *Pilgrimages* of Purchas, as high as about 77° 47′ of latitude, where he obtained a clear view into Sir Thomas Smith's Sound, which he describes as running "to the north of 78°, and being the greatest and largest in all the bay."

For 200 years from the time of Baffin, the knowledge of this great inlet (excepting some limited and unpublished information obtained by occasional enterprises of the whalers) had not been advanced. In the year 1818, however, in consequence of information, we believe, communicated by Captain Scoresby to Sir Joseph Banks, the admiralty fitted out two expeditions; one of which, under the command of Captain Ross, was destined for the discovery of the north-west passage; and the other, at the head of which was Captain Buchan, had for its object to attempt a voyage across the pole. On the western side of Greenland, the first-named navigator discovered a high mountainous region to the north of Upernivik, to which, from national predilections, he gave the name of the Arctic Highlands. It is little else than a mass of rocks, intermingled with immense blocks of ice. He then proceeded toward the northern extremity of Baffin's Bay, which he explored as far as the ice would permit, looking from a distance into Smith's Sound. He surveyed the coast generally, ascertained the positions and the appearance of the land, the situation of the islands, and the general configuration of the great inlet, from the 78th down to the 65th parallel. The discoveries of Baffin, which some had disputed, were thus signally confirmed; for while the form of the bay, as given mainly from conjectural applications of Baffin's descriptions, was found to be thoroughly erroneous, the several deep inlets and other remarkable features of the coast-line, as noted by this admirable voyager, were not only easily recognized, but the latitudes and more striking particularities were found to be characteristically correct.

But the limited period of a mere summer's voyage having left several points in Ross's course defective and inconclusive, especially as to the supposed closing up of Lancaster Sound by continuous land, another expedition was sent out the year following under Captain Parry, who succeeded not only in passing through this famous inlet of Baffin, but in discovering a navigable channel among islands extending far westward, which was successfully pursued for about 30 degrees of longitude beyond Ross's furthest. But as these researches, with the general body of the discoveries since then made, fall beyond the limits of our present article, we must refer, for an abstract of them, to the general account of the ARCTIC OCEAN. The chief additions to our knowledge of western Greenland which remain to be noticed, consist of certain corrections of the coast-line incidentally made by the westerly exploring expeditions, and more accurate information of Smith's Sound and the coasts immediately beyond, resulting from Captain Inglefield's voyage in the summer of 1852, and from the very successful and interesting American exploration, still further north, under Dr. Kane, in 1853–5.

Captain Inglefield, in the *Isabel*, fitted out by Lady Franklin, having the advantage of an auxiliary steam power, made an advance northward of Baffin's furthest of about 50 miles, reaching within Smith's Sound to 78° 28′ N. lat., and obtaining the view of a sea expanding again considerably beyond.

The exploration of this new expanse into the main Arctic Ocean (with which the Greenland Sea in the east, and Behring's Strait in the west, communicated), by the second American search-expedition under Dr. Kane, completes our sketch of the progress of discovery on the western side of Greenland. This hardy and intelligent adventurer, in a little solitary vessel, the brig *Advance*, pushed his way through Smith's Sound in the month of August, 1853, and crawled along shore within a cram of dangerous ices which all but filled the passage, to a position higher in latitude (about 78° 40′) than had ever before been taken as a wintering station in these western regions by Europeans. In this position the brig was frozen in, early in September, and so remained throughout the succeeding summer, and with so little prospect of release as to occasion her abandonment, after a protracted adherence to her of above 20 months.

From this high position in latitude, explorations (furthered for a time by the effective aid of their Esquimaux dogs) were perseveringly made, and rewarded by results of the most interesting nature in geography, hydrography, and *glaciology*. The coast of Greenland, forming the *eastern* boundary of Smith's Sound, was traced northerly and easterly, until the exploration was diverted by a stupendous glacier of a vast extent, with a precipitous face about 500 feet in height abutting the sea. The geographical discoveries were pushed still further toward the pole, and new lands as high in latitude as 82° 30′ added to our charts. The lands on the two sides of this channel were found to be connected by apparently perpetual ices, having, at the time of the examination, an open sea beyond entirely free from visible encumbrance, whose waves were dashing with sublime action and force against the face of the icy barrier. Here an area of about 3000 square miles was seen entirely free from ice, the commencement and margin, as has been inferred, of an open *unfreezing* polar sea. On this question, however, which comes in more fitly for discussion in our article on the POLAR REGIONS, we here only remark, cautionarily, against a premature conclusion, that Captain Scoresby, in his account of the arctic regions, describes an open sea, which he himself once observed and navigated, to the northward of Spitzbergen, running about E.N.E. and W. S.W. for 300 miles within the latitudes of 80° and 81° 30′, and having an area of from 15,000 to 20,000 square miles, or from five to six times the extent of that traced by Dr. Kane; yet this apparently open polar ocean was found to be but a midglacial sea! Besides, the extreme lowness of the temperature in Dr. Kane's case—being the lowest, in the mean, ever observed on the face of the globe—afforded sufficient evidence that there could be no such sea remaining open to the pole, beyond an incidental lake.

It does not come within the scope of our present article to dwell on the particular facts, and incidents, and processes of this admirable research by Dr. Kane, except to notice the falling in with Esquimaux living in a region further north than any they had before met with. Agreeing, as these natives in their general characteristics do, with other Greenlanders, they were found to have incidental peculiarities in their habits and modes of living. They employ dog-sledges of great efficiency and speed, but have no boats or kaijaks. They surround themselves in *winter* with walls of moss, and, at that season, live mainly upon raw walrus flesh —habits of life which, for the season, Dr. Kane and his party found it expedient, and, after a little experience, not unpleasant, to imitate and adopt. Under this new dietary education, raw walrus flesh soon became palatable; and even tallow candles, when they could be *spared* for such a purpose, were pronounced by the chief of the expedition to be very good! Useful and friendly as these natives were in their intercourse with Dr. Kane and his party, they unfortunately possessed the infirmity (shall we call it?) too characteristic of the Esquimaux, of an insatiable habit of self-appropriation—stealing unscrupulously whatever they could manage to secrete, equally regardless of the damage to the owners, or of any possible use of the articles to themselves.

We may add that Dr. Kane, in the *Advance*, started on his expedition from New York on the 31st May, 1853, having along with him, in crew and associates, seventeen men. Three of this number, the cook, the carpenter, and a seaman, died in the arctic regions, and the remainder returned safe to port on the 11th of October, 1855. The party left their vessel still fast in the ice on the 20th of May, and traveled over the ice to the navigable waters of Baffin's Sea, whence by means of their boats they proceeded to the settlement of Upernivik. They there took passage in a Danish trader; and when, in the progress southward, they reached Lievely, in Disco Island, they met with the expedition of Lieutenat H. J. Hartstein, which had been sent out by Congress in search of them.

As to the *eastern side* of Greenland, all our *accurate* knowledge, except a few particulars referring to the coast near Cape Farewell, is of recent attainment. A coast-line, indeed, of the more southern parallels was to be found in our charts of the arctic regions, and in maps by Egede and Crantz, traced to a considerable extent, with an elaborateness of flexure that would indicate real and careful examination; but subsequent researches have by no means verified the supposed configurations.

Northward of the 70th parallel of latitude, all the geographical information we had of that coast previous to the voyage of Captain Scoresby (now the Rev. Dr. Scoresby) in 1822, consisted of the not very definite notification of certain points of land discovered by the adventurous Hudson in 1607, with a few touches on the coast, and notices of land being seen by whalers, chiefly Dutch, in 1654, 1665, and 1670. In 1822, however, Captain Scoresby, while engaged in the Greenland whale fishery, and successfully pursuing the commercial object of his voyage, penetrated the ice westward, as he had previously provided for attempting, to the coast of eastern Greenland. But the position of the coast, and its line of direction, were found to be widely different from those ascribed to them in the charts, whether English or Dutch; for the real place of the land in latitude 74° was found to be from 8° to 15° of longitude further west, and the line of direction from 69° to 74° 30′ N. by E., instead of N.E., or E.N.E., as formerly laid down.

The first land seen by Captain Scoresby, stretching from N.W. by N. to N., extended to about 74° 30′ N., the nearest headland being estimated at 50 miles' distance. This was on the 7th of June, and so early in the season as to prevent any near approach to the coast, from the intervention of a chain of heavy field ice northward of 73°. But after tracing a proximate outline of the more northern part of the coast, Captain Scoresby was gradually enabled to approach the shore as, with the advance of the season, he proceeded southward; and, in the course of the exploration, succeeded in landing on four or five different positions between the 70th and 73d parallels. The coast from 74° 30′ to 69° 10′ was generally surveyed, and names were given to the more particular headlands, islands, and inlets.

Two very remarkable inlets were observed and partially examined, one in latitude 72°, which was named *Davy's Sound*, and the other in 70° 15′, which received the name of *Scoresby's Sound*, on account of the first examination of it ever known to have been made having just been accomplished by the navigator's father. In this way, single-handed and without cost to the country, some 600 miles of new coast line (reckoning its various flexures and inlets) were added to our Greenland charts; and much novel information on the geography, hydrography, and natural history of those regions was communicated to the public in the *Journal of the Voyage*, which appeared in the succeeding spring. One circumstance of geographical interest it may be proper more particularly to notice, viz., the conviction conveyed to the mind of Captain Scoresby by his observations on the current setting into Davy's Sound and Scoresby's Sound, that these fine expanses of water, which, in certain westerly directions, were clear of ice or land to the utmost extent of vision, were actual channels of communication between the Sea of Greenland on the east, and that of Baffin's on the west. Hence the great probability of the supposition already noticed, that Greenland consists of an *assemblage* of islands.

In the year 1823, Captain Clavering, in command of the *Griper* sloop-of-war, under admiralty orders for pendulum experiments, advanced on the same coast as that first approached by Captain Scoresby; and, being about a month later in the season, was enabled to get close in shore, and to enter a considerable bay in lat. 74°, supposed to be that originally discovered by Gael Hamkes, a Dutch navigator, in 1654. The line of the more northerly part of the coast, as laid down by Scoresby, was now corrected, and new coast lines, including Shannon Island, with dottings of headlands reaching from 74° 30′ to 76°, added to our charts. Southward of Gael Hamkes's Bay the coast was traced pretty close along to Cape Parry of Scoresby, and then finally left. The general configuration of the coast, excepting some 10 or 15 leagues in the furthest north, seen by Captain Scoresby only in the distant horizon, was singularly verified by Captain Clavering's inshore researches. For though the first explorer was not able to approach the land between 73° 30′ and 74° 30′ N., nearer than from 40 to 45 geographical miles, the positions ascribed by the two navigators to the headlands of Gael Hamkes's Bay, and other leading points (with Jackson's Island, which had been first laid down at about 30 miles' distance), proved to be all but identical.

This coast presents many remarkable and interesting features. On the Liverpool coast of Scoresby there is a mountainous chain of 3000 to 4000 feet in height, forming precipitous cliffs, which terminate in numerous peaks, cones, pyramids, or series of perpendicular serrated points. In the interior were seen peaks supposed to be almost twice the elevation of the lofty coast. The coal formation of Jameson's Island, in Scoresby's Sound, was among the most interesting of the geographical particulars observed.

The final researches, which terminate our description of the eastern coast of Greenland, were those made by Captain Graah in the years 1829 and 1830, by order of the king of Denmark. The leading object was to search for the lost colonies, and trace the coast, if practicable, in boats, from Cape Farewell up to latitude 69° N., the southernmost point discovered by Captain Scoresby. The expedition consisted of two *women's boats* of the country, rowed by women, carrying the Danes of the party (Captain Graah and three others), and attended by five men in their kaijaks. From the southern island, Cape Farewell, up to latitude 65°, the coast was found to trend about N.N.E.; and from thence, for 60 to 80 miles (as far as they were able to trace it), the line was about N.E. The highest point on Captain Graah's chart extends to 65° 45′, leaving the interval of about 340 miles (in a north-easterly direction) yet uncertified and unknown. The pressing of the ice in close contact upon the land prevented the further navigation of these eastern shores.

Greenock, a sea-port town of Renfrewshire, Scotland, on the south bank of the Firth of Clyde, 22 miles below Glasgow, in N. lat. 55° 57′ 2″, W. long. 4° 45′ 30″. In front of the town there is a fine and extensive bay, formerly known by the name of the Bay of St. Lawrence, from a religious house that anciently stood there. Behind the town the land rises into a picturesque ridge of hills, about 800 feet high, between which and the bay Greenock stretches for upward of 2½ miles along the shore, but its breadth is inconsiderable. Its name is supposed to be derived from the compound Gaelic word *Grianaig—Grian* signifying sun, and *Aig* port or bay—the bay being directly opposite to the rising sun.

Various acts of Parliament having reference to successive enlargements and alterations of the harbors were from time to time procured as the increase of trade rendered such necessary, so that now of the original erections scarcely a vestige remains. In 1785 a dry dock was built in the western division of the old harbor, the expense of which was defrayed by subscription; and in 1818 the magistrates and council contracted for and built another, and greatly larger, entering from what is now known as the East India Harbor, and which was finished in 1824 at an expense of £20,000. On the 29th day of May, 1805, was laid the foundation-stone of the East India Harbor; and almost cotemporaneously with this large addition to the dock accommodation of Greenock, a general improvement and renovation of the quays and breasts of the older portions of the harbor were undertaken. These works, which were very extensive, and involved an expenditure of upward of £120,000, were not completed till September, 1819.

The steadily increasing trade of the port rendered a further extension of dock accommodation absolutely necessary; and in 1840 an act was procured for the construction of an entirely new harbor and dock. Six years subsequently the work was commenced on a site directly east of the East India Harbor, and on the 17th October, 1850, the new dock was formally opened under the designation of Victoria Harbor. It consists of a tidal basin, covering an area of about 6 acres, and exceeding 30 feet in depth. The east and west walls are each 563 feet long; and the outer quay wall, divided by the entranee, 150 feet wide, is 176 feet long on the west, and 60 on the east side. The average width of the quays on the east, west, and south, is upward of 85 feet, and on the north, toward the river, it is 70. The depth of water within the basin is 26 feet at high tide, and 14 feet at low water. The whole work, which is of the most substantial character, cost upward of £120,000; and, as a tidal harbor, has not, in respect of its size and depth, its equal in the world. On the east side a massive crane, capable of lifting from 70 to 80 tons, has been erected; and here many of those gigantic steam vessels, for which the Clyde has become universally famous, are fitted with their engines. A crane has also been erected at the East India Harbor capable of lifting 40 tons.

The old graving docks having become altogether inadequate, the harbor trustees have recently purchased, for upward of £30,000, several acres of ground adjoining Albert Quay, and here it is in contemplation to construct a new harbor, with the requisite dock accommodation for repairing the largest vessels. The following measurements show the extent of the existing dock and quay accommodation:

Albert quay and slip............	906	lineal feet.	
West harbor and quays.........	3.940	feet.	girthed.
Entrance to harbor.............	130	"	wide.
Custom-house quay.............	990	"	"
East India harbor and quays....	3,200	"	girthed.
Entrance to harbor.............	170	"	wide.
Victoria harbor and quays.......	2,200	"	girthed.
Entrance to harbor.............	150	"	wide.

The earliest trade seems to have been in herrings, and it is still continued, the amount cured annually averaging about 19,000 barrels. Trading in tobacco was also carried on at a very early period. It was first brought from the colonies, and then exported to the continent. The Greenland whale-fishing commenced as far back as 1752, but it never rose to be of any importance, and is now discontinued. The American war greatly interrupted the progress of Greenock, as the principal trade of the port was then with that country; but after the peace in 1783 it speedily revived, and within the seven following years the shipping trade was tripled in amount. At present the principal intercourse is with the East and West Indies, Australia, and North America. Newfoundland and South America have also employed a considerable quantity of shipping. The gradual increase of trade is shown by the following tables:

ACCOUNT OF THE GROSS RECEIPT OF CUSTOMS AT THE PORT OF GREENOCK DURING 1728, AND VARIOUS SUBSEQUENT YEARS.

1728	£15,231	1839	£315,084
1770	57,336	1846	324,477
1802	211,087	1848	407,083
1822	263,464	1851	410,206
1831	592,008	1852	429,535

The stationary state of the duties of late years is ascribed partly to their reduction, and partly to the improvements effected in the navigation of the Clyde, which enable vessels that formerly had to load and unload here or Port Glasgow, to ascend to Glasgow.

ACCOUNT OF THE NUMBER OF REGISTERED VESSELS BELONGING TO THE PORT OF GREENOCK DURING THE YEARS 1825, 1834, 1845, AND 1853.

	No.	Tons.
1825	241	29,054
1834	367	40,733
1845	428	82,744
1853	418	73,898

Of these last, 14 vessels, with an aggregate of 2012 tons, were steamers.

ACCOUNT OF THE NUMBER AND TONNAGE OF VESSELS THAT ENTERED AND CLEARED FROM AND TO FOREIGN PORTS IN VARIOUS YEARS SINCE 1784.

YEARS.	INWARD.				OUTWARD.			
	British.		Foreign.		British.		Foreign.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
1784	52	6,569	4	530	63	7,297	3	520
1804	165	30,802	25	5,120	155	31,896	20	5,965
1824	188	46,162	11	3,054	188	46,857	9	2,699
1834	277	69,843	10	2,073	284	71,698	8	2,140
1853	274	94,575	44	13,764	153	55,630	45	11,975

In 1830, 684 vessels, of 67,884 tons, entered, and 796 vessels, of 81,988 tons, cleared coastwise at the port. In 1853, 574 sailing vessels, of 38,328 tons, and 214 steam vessels, of 39,511 tons, entered, and 162 sailing vessels of 8662 tons, and 102 steam vessels of 10,752 tons cleared at the port. The opposition to the monopoly of the East India Company originated wtih the merchants of Greenock in 1812.—E. B.

Greenwich Hospital, Greenwich, England, is a royal foundation, erected by the munificence of William and Mary (originating, as is generally believed, with the queen), by letters patent of the 25th of October, 1694. The hospital occupies the site of the old palace, called *Greenwich House*, which was from very early times a residence of our sovereigns. Edward III. had a palace there. Henry IV. resided much at Greenwich, and his will is dated from his manor of Greenwich. It was granted by Henry V. to the youngest son of John of Gaunt, and reverted again to the crown on his death (25th Henry VI.). Edward IV. took great delight in the palace, and enlarged it at much cost. He granted it to his queen, Elizabeth. It afterward came into the possession of Henry VII., who enlarged and beautified it, and resided much there. Henry VIII. was at great expense to render the palace worthy of his sumptuous court. He called this his manor of pleasaunce, and held there many great banquets and royal ceremonies. Queen Elizabeth made many additions to the building, and resided much there. James I. laid the foundation of the *House of Delight*, which afterward became the residence of the governor of the hospital. Charles I. resided frequently at the palace; and his queen furnished, with extraordinary magnificence, the building begun by his predecessor. At his death it was taken possession of by the officers of the Commonwealth, who excepted it, for their own use, from the general ordinance passed July 16th, 1649, for the sale of the crown lands; but upon their subsequent necessities for the support of the navy, it was ordered by the House of Commons, November 27th, 1652, to be immediately sold for ready money. Preparations to give effect to this order were made, and some small part of the out-buildings was sold. The palace and park were, however (with other of the royal palaces), assigned by the House of Commons for the accommodation of the Lord Protector, and happily reverted to the crown on the restoration of Charles II., by whom the west wing of the present hospital buildings was added, as part of an extensive design. (HASTED'S *History of Kent*.) The palace remained in the unfinished state in which Charles II. left it, when it was assigned by the patent of William and Mary to certain of the great officers of the state, as commissioners for its conversion into a hospital for seamen. This was followed in the succeeding year by a patent, dated September 10th, 1695, which recited that the object of the institution was to make some competent provision that seamen who, by age, wounds, or other accidents, should become disabled for further service at sea, and should not be in a condition to maintain themselves comfortably, might not fall under hardships and miseries, but might be supported at the public charge; and that children of such disabled seamen, and the widows and children of such seamen as should happen to be slain in the king's service, might, in some reasonable manner, be provided for and educated. The patent appointed Prince George of Denmark, several of the great officers of state, nobility, bishops, and others, to be commissioners for these purposes; and required them to consider how they might be best carried out, and the palace best converted for the charitable object to which it was assigned, and also to frame for his majesty's approval a charter of foundation. The government of the hospital has been continued in similar commissions in subsequent reigns, and the most distinguished persons have been appointed commissioners. George III., by his charter of December 5th, 1775, incorporated the commissioners, vesting the goods and revenues of the hospital in them, and gave to them and their successors a perpetual succession.

The revenues of the hospital have been derived from several sources. William III., contributed by grant £2000 a year toward perfecting the work, and authorized the commissioners to receive voluntary gifts and subscriptions in aid. Above £50,000 had been expended, on Queen Anne's accession, upon the buildings, which though still very incomplete, were so far in a state of readiness that, in December, 1705, 100 disabled seamen were taken into the hospital. On the 1st of July, 1708, the number amounted to 350, and the income was estimated at £12,000 a year; half of which was applied to the maintenance of the seamen, and the other half to the completion of the buildings.

The revenue of the hospital in 1849 (for which year the latest accounts are printed), was—

Nett produce of the estates	£29,210
Rents in Greenwich	[illegible]
Interest on invested property	82,491
From consolidated fund, in lieu of merchant seamen's sixpences	20,000
Freightage of treasure	10,406
Other small contingent receipts, including sale of £3,000 stock to purchase river frontage	8,736
Total	£148,883

And the expenditure for the same year was—

Household and contingent expenses, comprising the maintenance. clothing and allowance to 2,710 pensioners and 97 nurses, with salaries and wages to the subordinate officers and servants, and all works and repairs	£112,375
Charge for the royal naval schools	18,684
Parochial and assessed taxes	1,341
Annuity pursuant to 28th Geo. III., chap. 68, to Lady Newburg	1,000
Purchase of river frontage and property for improvements	12,890
Other small charges	667
Total	£146,957

It is stated that under the arrangements made pursuant to the acts of 1829 and 1834, the hospital surrendered £42,000 a year of its revenues.—*Parl. Return*, 1850.

Greenwich Observatory. Built at the solicitation of Sir Jonas Moore and Sir Christopher Wren, by Charles II., on the summit of Flamstead-hill, so called from the great astronomer of that name, who was the first astonomer royal here. The English began to compute the longitude from the meridian of this place, 1675; some make the date 1679. This observatory contains a transept circle by Troughton; a transit instrument of 8 feet by Bird; 2 mural quadrants of 8 feet, and Bradley's zenith sector. The telescopes are 40 and 60 inch achromatics, and a 6 feet reflector; and among other fine instruments and objects is a famous camera obscura.

Grenade. A hollow ball of iron about 2½ inches in diameter, charged with gunpowder and furnished with a proper fuse; it is often called a hand-grenade, being thrown from the parapets of besieged places upon the invaders beneath.

Gresham, Sir Thomas, the founder of the Royal Exchange and of the college called by his name in London, was born in 1519. His father had amassed great wealth and attained great eminence as a merchant and bill-broker in the reign of Henry VIII., and resolved to train his son to succeed him in his business. After a thorough education at Caius College, Cambridge, young Gresham was apprenticed to his uncle, a knight and a distinguished member of the Merchants' Company. Under Edward VI., Gresham was employed on the same services as his father had performed for that king's father, and in the course of Edward's short reign he made no fewer than 40 voyages to Antwerp on the royal business. By his financial skill and foresight he rendered great service to the revenues of the English crown, which he rescued from the extortions of Dutch and Jewish capitalists, and introduced with great effect the practice of raising money from native money-lenders, in preference to foreigners, who exacted a ruinous rate of interest. Mary and Elizabeth continued him in his employment, and the latter knighted him in 1559. He had now amassed an immense fortune, and built himself a splendid house in Bishopsgate-street (which, after his wife's death, was used as Gresham College, and the site of which is now occupied by the excise office), where he lived in great state, and where, by command of Elizabeth, he often entertained the ambassadors and visitors of rank that thronged her court. To these circumstances Gresham owed his title of the "Royal Merchant."

During his repeated visits to Antwerp, Gresham had seen and fully appreciated the value of a general place of rendezvous for the merchants of the city. Anxious to introduce something of the kind into London, he offered to build a suitable house if the citizens would furnish a site. A piece of ground was accordingly bought, and a building on the model of the Bourse of Antwerp was erected and ready for use in 1569. In the following year it was opened in state by Elizabeth, who, by a trumpet and herald, proclaimed it "The Royal Exchange." This building was burned down in the great fire of London, but was afterward rebuilt on a larger scale and at a cost of nearly £59,000. In 1838 this edifice was destroyed, like its predecessor, by fire; but on the same site a new exchange, of far greater dimensions and more splendid in style, was opened in 1844 by the Queen, in state.—E. B.

Grindstones, flat circular stones of different diameters and thickness, mounted on spindles or axles, and made to revolve with different degrees of velocity, employed to polish steel articles, to give an edge to cutting instruments, etc. Grindstones not in constant use are commonly turned by winch handles; but at Sheffield and other places, where polished articles and cutlery are extensively manufactured, large numbers of grindstones, being mounted in buildings appropriated to that purpose, called grind or blade mills, are turned by straps, acting on their axles, the moving power being either water or steam. The stone best suited to form grindstones is what is called a sharp-grit, it being chosen finer or coarser-grained according to the purposes for which they are destined. The principal grindstone quarry in England is at Gateshead Fell, in the county of Durham, where they are produced in vast numbers, not only for home use, but for exportation to all parts of the world. But those principally in use at Sheffield are mostly quarried at Wickersley, in Yorkshire. They are classed in 8 different sizes called *foots*, according to their dimensions, as in the following table:

Denominations.	Diameter.	Thickness.	No. in a chaldron.
	Inches.	Inches.	
1 foot.	10	2	36
2 foots.	14	2½	27
3 "	20	4	18
4 "	28	4	9
5 "	35	5	5
6 "	42	6	3
7 "	50	6	1½
8 "	56	8	1

A grindstone foot is 8 inches; the size is found by adding the diameter and thickness together. Thus, a stone 56 inches diameter by 8 thick, making together 64 inches, is an 8-foot stone, of 8 inches each foot. Besides the above sizes, grindstones are made, when ordered, of any intermediate dimensions; many are made much larger than any of the above sizes; some as large as 76 inches diameter, and 14 or 15 inches thick, which are a great weight, a cubic foot weighing 1 cwt. 1. qr. 14 lbs.—REES's *Cyclopœdia; BAILEY's Survey of Durham*, p. 43. Grinding is an unhealthy and dangerous employment. For some purposes, the stones are made to revolve with an extreme degree of velocity, which makes them occasionally fly in pieces. But the greatest annoyance to which the grinder is exposed is from his inhaling the minute particles of stone, and of iron and steel, that are always flying about, particularly in the process termed dry grinding. Contrivances have been suggested for obviating this serious inconvenience; but whether it be owing to their unsuitableness, or to the carelessness of the workmen, none of them have succeeded in practice.—*Treatise on Iron and Steel*, LARDNER's *Cyclopœdia*, p. 293.

Grinnell Land, a tract of Terra Firma, in the Arctic Ocean, the south coast of which trends in a western, and finally a north-western direction, was discovered by the American Expedition, in search of Sir John Franklin, September 21st, 1850. Of this interesting discovery (which the British explorers in this region modestly claim, and call it "Albert Land"), Dr. Kane, the journalist of the American Expedition, thus speaks:

September, 21, 1850.—We have drifted still more to the northward and eastward. A reliable observation gave us lat. 75° 20′ 38″. Apparently we are not more than 7 miles from the shore, which is still of the characteristic limestone of the lower channel. Terraces of shingle are rising one above another in regular succession. They follow the curve-like sweep of the indentations. Estimated by eye, the height of the uppermost is about 40 feet above the water line; but I was of course unable at that distance to compare the levels of the successive ledges with those observed between Capes Spencer and Innes on the opposite side. About tea-time, we saw a set of hill-tops to the north by west, apparently of the same configuration with the hills around us. The coast of Cornwallis Island now receded to the westward, and an intermediate space, either of water or of very low beach, separates it from the new land to the north and east of us. Whether this be a cape from a northern Terra Incognita, or a new bend of the opposite shores of North Devon, I am not prepared to say. We took sextant bearings. From this date we may claim the discovery of that land, which we were able afterward to define satisfactorily. "Grinnell Land," as it was afterward named by our commander, was thus discovered nearly 8 months before it was delineated and named by Captain Penny in May, 1851.

September 22.—This day of rest (Sunday), which opened with clear, cold serenity, gave us an opportunity of seeing the unvisited shores of Wellington Channel. Our latitude by artificial horizon was now 75° 25′, or about 60 miles north of Cape Hotham. Cape Bowden on the eastern side had disappeared, and on the west a dark projecting cape from which we took our sextant angles, was seen bearing to the west of south. To the northward and westward low land was seen having the appearance of an island, although it may have been connected with the shore by an unseen strip. Its eastern termination was more elevated. The bend of the western shore was now clearly to the westward. It was rolling with the terraced shingle beaches before observed, and ended or apparently ended, abruptly. After and beyond these to the north, without visible land intervening, were the mountain tops which terminated our view. These were two in number, one higher than the other. A third summit, more distant than the others, was seen by me from the mast-head, but the bases of all these, as is often the case with distant mountains, could not be traced to the horizon. Without the aid of a known height, and in an atmosphere so deceptive, I could not venture to give their distance in miles. Lieutenant De Haven estimated the middle peak the nearest and most conspicuous, at 50 miles."

Here Dr. Kane is direct and positive. He is not compelled to resort to "a division of opinions," nor a "first idea," nor an "if." He is plain and outright. He says—"GRINNELL LAND, as it was afterward named by our commander, was thus discovered nearly 8 months before it was delineated and named by Captain Penny in May, 1851."

Lieutenant Griffin, commander of the *Rescue*, in his narrative of De Haven's voyage, is as clear and positive as De Haven and Kane, as to the discovery: A succession of southerly gales occurring, we were driven, with all the ice in sight, up Wellington Channel, until we reached the latitude 75° 25′. From that position much new land was seen. A range of high mountains very justly received the name of Grinnell. A channel leading to the north-west was named after the distinguished gentleman at the head of the National Observatory, Mr. Maury. Capes and islets never before seen, unless by the missing navigators, were named. By gazing on that which was entirely new to man, the spirit of enterprise became animated —we felt disposed even then to load the sledge, and toil slowly in the direction of the mountain range. Captain Penny, the following spring, without knowledge of our having been ahead of him, gave English names to the above land, calling Grinnell Land, Albert Land; Maury Channel, Victoria Channel, etc. The mistake, as soon as it is explained, I suppose will be corrected on the English charts.

Lieutenant Griffin erred in his supposition. The "mistake" was sufficiently explained before Penny's, or Arrowsmith's, or any other chart of the Arctic Discoveries in 1850, was published. The Lords of the Admiralty received officially an explanation of the "mistake," more than two months prior to the date of the Admiralty chart, of April 8th, 1852. Their "mistake" has not yet been corrected. They still adhere to the name of "Albert" land.—COLONEL FORCE'S *Pamphlet on Grinnell Land.*

Gripe. The fore part of a ship. *To gripe*, the tendency of a ship to bring her head up to the wind when carrying sail on the wind.

Groat, an old English silver coin, equal to fourpence. Other nations, as the Dutch, Poles, Saxons, Bohemians, and French, have likewise their groats, groots, groschen, gros, and the like. In England in the Saxon times, no silver coin larger than a penny was struck, nor after the Conquest till the reign of Edward III., who about the year 1351, coined grosses or great pieces, which went for fourpence each; and so the matter stood till the reign of Henry VIII., who, in 1504, first coined shillings.

Groats, oats deprived of the husks

Gross, the number of 12 dozen.

Gross Weight, in commerce, the weight of merchandise and goods with the dust and dross, as also of the bag, cask, chest, etc., in which they are contained; and out of this gross weight allowance is to be made for tare and tret.

Guadaloupe, or **Guadeloupe**, one of the leeward group of islands in the West Indies, and one of the most important colonies of France, and situated in north lat. 16° 20′, west long. 62°. It consists properly of two islands separated from each other by a narrow channel, about five miles in length, by from 30 to 100 yards wide, and with depth sufficient for vessels of 60 tons. This channel, called *La Rivière Salée*, or Salt River, runs nearly north and south, and has a large bay at each end, that on the north being called the *Grand Cul-de-Sac*, that on the south the *Petit Cul-de-Sac*. The western or larger island, called Guadaloupe proper, or *Basse Terre*, is 27 miles in length, by 15 in breadth; the eastern, or *Grande Terre* is nearly 30 miles long, by from 10 to 12 broad. Guadaloupe proper is of volcanic formation, and is traversed from north to south by a ridge of hills having a medium height of 2296 feet. Its principal peaks are *La Soufrière*, an active volcano 5108 feet high, and *Grosse-Montagne*, *Deux Mamelles*, and *Piton de Bouillante*, extinct volcanoes. It is copiously watered by numerous small streams, two of which, the *Goyade* and the *Lezarde*, are navigable for small craft. The soil is fertile, and the surface is agreeably diversified by hill and dale, wood and garden. The products, natural and cultivated, are those of the West Indies generally. The principal town, *Basse Terre*, stands on the south-west coast. It is the residence of the governor, and has some fine public buildings, fountains, and gardens, and has about 6000 inhabitants. *Grande Terre*, unlike Guadaloupe proper, is marshy, sterile, and flat, nowhere rising more than 115 feet above the sea. Its chief town, *St. Louis*, or *Point à Pitre*, the former capital of the island, is at the south entrance to the Salt River, and has an excellent harbor. It formerly contained about 15,000 inhabitants, but was almost entirely destroyed by an earthquake on 8th February, 1843, on which occasion 4000 of its inhabitants perished. The climate is humid, and hurricanes and earthquakes are frequent. The rainy season lasts from the middle of July to the middle of October. The chief exports are sugar, molasses, rum, cotton, coffee, dye-woods, and copper. The sugar crop amounts to about 60,000 hogsheads annually. A considerable quantity of fish is taken in the neighboring seas. The government consists of a governor, with a privy council of 6, and a colonial council of 30 members. The government of Guadaloupe comprises besides that island, those of *Marie-Galante*, *Desirade*, *Les Saintes*, and the northern portion of *St. Martin*. *Marie-Galante* lies 14 miles south south-east of Guadaloupe, and is about 12 miles in length by 8 in breadth. It is traversed from north to south by a range of hills running parallel to the east coast, where it presents a front of high and precipitous rocks. The west and north sides of the island are level; and parallel with the former is a narrow lagoon, 7 or 8 miles in length, separated from the sea by a low narrow tract of land. The island abounds in woods, particularly the wild cinnamon-tree. Its principal town, *Grandbourg*, or *Basse Terre*, stands near the south-west point. *Dessirade*, or *Deseada*, lies about 4 miles east from the south-east extremity of *Grand Terre*, and is about 8 miles long by 3 wide. It rises from the sea with a steep ascent, and then extends in a table-land, which consists of limestone rocks, in which many caverns occur, but it is without water. The soil in some places is of a deep black mold, and fertile; in others it is sandy and unproductive. The only anchorage is at the *Anse-Galet*, on the east side of the island. *Les Saintes* are a group of rocky islets 6 or 7 miles south of Guadaloupe, and consist of lofty and steep peaks, some of which are united by flat ground and ridges of inferior elevation. The two largest are called *Terre d'en Haut* and *Terre d'en Bas*. *St. Martin* is a small island immediately south of the British island of Anguilla, in north lat. 18° 5′, and west long. 63° 6′. Its form is nearly that of an equilateral triangle, each side being about 7 miles in length, and comprising an area of about 33 square miles. It is deeply indented with bays and lagoons, some of which afford good anchorage. The surface is generally hilly, the highest point being 1361 feet above the sea. It was colonized by the French and Dutch in 1638, but these were expelled by the Spaniards, who themselves abandoned the island in 1750, and the original settlers resumed possession. The southern portion of the island belonged to the Dutch. Guadaloupe was discovered by Columbus in 1493. In 1635, the French established a settlement upon the island, and retained possession of it till 1759, when it was taken by the English. It was subsequently, on several occasions, taken and retaken by these nations, and was finally ceded to France in 1814. Population (1854) 132,810. Slavery was abolished here by a decree of the French Republic in 1848, at which time about 100,000 persons were emancipated.

Guaiacum or **Lignum Vitæ** (Fr. *Gayac*, *Bois Saint;* Ger. *Pockholz;* It. *Guajaco;* Lat. *Guaiacum*, *Lignum vitæ;* Sp. *Guayaco*), the wood of a tree, a native of Jamaica, Hayti, and the warmer parts of America. It is a dark-looking evergreen, growing to from 40 to 50 feet in height, and from 14 to 18 inches in diameter. The bark is hard, smooth, and brittle; the wood is externally yellowish, and internally of a blackish-brown color. Lignum vitæ is the weightiest timber with which we are acquainted, its specific gravity being 1·333. It is exceedingly hard and difficult to work. It can hardly be split, but breaks into pieces like a stone, or crystallized metal. It is full of a resinous juice (*guaiac*), which prevents oil or water from working into it, and renders it proof against decay. Its weight and hardness make it the very best timber for stampers and mallets; and it is admirably adapted for the sheaves or pulleys of blocks, and for friction rollers or castors. It is extensively used by turners. The *guaiac*, or gum, spontaneously exudes from the tree, and concretes in very pure tears. It is imported in casks or mats; the former containing from one to four hundred weight, the latter generally less than one hundred weight each. Its color differs considerably, being partly brownish, partly reddish, and partly greenish; and it always becomes green when left exposed to the light in the open air. It has a certain degree of transparency, and breaks with a vitreous fracture. When pounded, it emits a pleasant balsamic smell, but has scarcely any taste, although when swallowed it excites a burning sensation in the throat. When heated, it melts, diffusing, at the same time, a pretty strong fragrant odor. Its specific gravity is 1·229. See *Vegt. Sub.*, *Lib. of Entert. Knowledge;* THOMSON'S *Chemistry*, etc.

Guano or **Huano** (the Peruvian term for manure), a substance used as a manure, found on certain small islands off the coast of Peru and Bolivia, and on parts of the shore of the main land. It is friable, and easily reduced to powder. Its color varies from a dull red to a dirty white, and it has a strong smell and a fat, unctuous feel. At an average, it may weigh from 50 to 60 lbs. a bushel. Humboldt was either the first, or one of the first, by whom this important substance was brought to Europe; but it was described at a much earlier date by Ulloa (*Voyage au Perou*, i. 481); and has been used as a manure by the Peruvians from the age of the Incas downward. Very different opinions have been entertained as to its nature and origin. Many have supposed that is was a peculiar mineral or earth. Ulloa, however, was clearly of opinion that it consisted of the excrements of the sea-birds which are found in prodigious swarms all along the Peruvian and Bolivian shores; and there is no longer any doubt that such is the case. The localities where the deposit is principally met with being within a rainless region, it is accumulated with a rapidity of which we have no idea. Guano is of very different qualities: some authorities give the preference to the whitish varieties, which are believed to be more recent, while others prefer the red. According to Klaproth, a quantity of guano represented by 100 contained, urate of ammonia, 16 parts; phosphate of lime, 10 do.; oxalate of lime, 12¾ do.; silica, 4 do.; common salt, ½ do.; sand, 28 do., and water, organic and combustible matter, 28¾ do.; but its composition is found to differ very materially. The best is that which contains the greatest proportion of ammoniacal salts.

Guano has not been long introduced; and there is a good deal of discrepancy in the statements that have been put forth as to its operation. There can, however, be no doubt that it is a most efficient manure, and that about 2 to 2½ cwt. per acre of average guano, mixed with about two thirds the annual quantity of farm-yard manure (which is required to keep the soil loose), will produce, when applied to land that is well drained, nearly double the ordinary quantity of potatoes. In turnip husbandry, splendid crops are produced by the agency of guano only; but in this case from 4 to 5 cwt. per acre should be applied. It has also a powerful influence in improving crops of corn and the pasture following such crops. The effect of guano is very materially increased by its being covered up to some considerable depth as soon as it is laid on the soil; and top-dressing is certainly the most wasteful way in which it can be applied.—(*Private information.*) It is, in fact, the most valuable of manures; and under such circumstances it becomes of importance to learn the probable supply of the deposit, and the price at which it may be imported and sold in Europe.

Unfortunately, however, our information on both these points is less complete than might be desired. Since it began to be largely exported to this and other foreign countries, an apprehension began to gain ground in Peru that the deposits would in no very long time be wholly exhausted; and as this would occasion the ruin of those estates along the coast of Peru, and the department of Arequipa, in which guano has long been extensively used as a manure, government has been called upon to avert this catastrophe by prohibiting its export. We are, however, well convinced that this apprehension is entirely groundless, and that the deposits are in fact all but inexhaustible. At present, guano is principally obtained from the Chincha

Islands, opposite to Pisco, in Lower Peru, in about lat. 13° 55′ S., and long. 76° 30′ W., and the Lobos Islands, opposite to Lambayeque, in Upper Peru, in lat. 6° to 7° S., and long. 81° W. It has been stated by Sir B. H. Wilson, late English consul at Peru, that though about 300 tons a year are supposed to have been carried for centuries from Chincha, the principal island of the group to which it gives its name, to the opposite coast, there is still upon it the enormous quantity of 17,000,000 tons; and, supposing this estimate to be tolerably accurate, we may safely reckon the entire mass of guano in this group at from 20 to 25 millions of tons! The stock of guano on the Lobos Islands, though not so extensive as that on the Chincha Islands, is yet very large. And, exclusive of these, there are other islands whence guano is shipped for Arequipa, etc. Deposits have also been discovered on the coast of the main land, especially near La Mar or Cobija; so that, making every allowance for exaggeration, the supply of guano may, for all practical purposes, be regarded as inexhaustible.

The islands where the guano is found being uninhabited except by those employed in its shipment, it would, but for the interference of government, cost nothing save the expense of putting it on board and the freight home. But the governments of Peru and Bolivia were either so little aware of the value of the article, and of their duty to their constituents, or so corrupt, that they sold, in 1839, to private parties (Messrs. Quiros, Allier, & Co. of Lima), for a mere trifle ($60,000), the sole right to ship guano for the term of nine years; so that these parties had it in their power to exact any price they pleased for the article. This contract was, however, too ruinous to be allowed to continue, and was canceled by the Peruvian government in 1841, on the ground of enormous public lesion, and of ignorance of the value of the privilege that had been conceded. For some time after this the trade was comparatively free, and large quantities of guano were imported in 1844 and 1845; but the monopoly system has been again revived.

There can not be a doubt that the Peruvian government would gain largely by throwing the trade in guano open under the condition suggested above. And we do not know that any thing could be devised that would be more likely to prove advantageous to our agriculture and shipping than the carrying out of such a plan. Perhaps the best way to effect an arrangement of the sort would be to purchase one or more of the guano islands from the Peruvian government. And if the latter should perversely decline to agree to such a sale, or to modify the present monopoly system, the question of her right to appropriate such valuable deposits, and to deprive others of any equitable participation in their advantages, will force itself on the public attention. Should such be the case, it will probably be found that the claim of the Peruvians to the exclusive possesion of the guano islands is of a very questionable description; and that in grasping at all they may not improbably lose all.

Lobos de Afuera is fully 50 miles from the nearest point of the main land. And it seems rather too much for a government like that of Peru, without any thing worthy of the name either of a mercantile or warlike fleet, to pretend to hinder others from carrying away the dung of wild birds from an unoccupied rock at so great a distance from its territories.

No guano has ever been imported equal to that from Peru. And unless it come from a rainless region it is worth comparatively little; for otherwise the ammoniacal salts, which are a most valuable portion, are either partially or wholly washed away by the rains.

Guano is found in the caves frequented by swallows, pigeons, bats, etc., in Java, Sumatra, and other places in the Eastern Archipelago. And not being exposed to the rain, it may very probably be of good quality.

The reader will, perhaps, be surprised to learn that large quantities of guano have, of late years, been imported into Spain. It is principally employed in manuring the *huertas*, or low rich grounds of Murcia and Valencia. Hitherto it has been mostly sent at second-hand from England. But very recently the Peruvians have begun to export it on their own account to Alicant, Valencia, etc., and have established agents in these towns for its sale.

LEGATION OF THE UNITED STATES,
LIMA, *April*, 18, 1856.

SIR: In reply to dispatch No. 45, dated the 18th ultimo, I have the honor to inform you that neither the governments of Spanish America nor their citizens have the privilege of purchasing guano from the Chinchas, or any other islands belonging to Peru, at a certain stipulated price, by treaty, through municipal regulations or sufferance. All the guano exported from Peru is shipped for account of the government and sold in foreign markets, under special contracts, by agents, who receive a commission for chartering vessels, and on the sale of the article. No exception is made in favor of any foreign nation, or its citizens. Peruvian citizens are permitted to take from the Chincha Islands and "Pabellon Pica" without charge a sufficient quantity for the agriculture of the country; but the government is very careful to prevent any portion of it being exported. The following is a translation of the provisions of the "commercial regulations" of Peru in relation to this subject. See Dispatch No. 98, April 18, 1852:

Chapter 1, Article 14th. "It is not permitted to anchor in any of the anchorages at the islands, the property of the Republic, without a written license from the government."

Art. 15. "Vessels which load with guano for abroad will do so only at the Islands of Chincha. Those loading it for the agriculture of the country will take it from 'Pabellon Pica' or from the said islands."

Chap. 14. "Exportation."

Art. 114. "Guano can only be exported in vessels chartered by the government or its agents."

Chap. 23. "Confiscations, fines, and other penalties."

Art. 213. "Vessels anchoring at the anchorages of the islands the property of the Republic, shall be confiscated; and if besides guano should be found on board, their captains and crew shall be delivered over to justice, to be tried as guilty of robbery."

See also the decree of Don Manuel Menendez, acting President of Peru, of the 21st of March, 1842, for the stringent formalities to be observed by Peruvian vessels going to the Chinchas or "Pabellon Pica" to load with guano for the agriculture of the country.—Documents to dispatch No. 114, dated October 25, 1852. A reference to my dispatches, Nos. 159, 164, 172, 187, 218, 240, and 255, will show still further that no favors are granted in the exportation of guano from Peru to other nations not enjoyed by the United States. You will perceive, therefore, that the representation made to the Department mentioned in dispatch No. 45 is entirely erroneous, and must have originated in mere rumor.

I inclose a copy of a letter from a gentleman in Arequipa to a friend in Lima, showing the manner of using guano in the agriculture of that district.

I have the honor to be, sir,
Your obedient servant,
J. RANDOLPH CLAY.

To Hon. WM. L. MARCY, Secretary of State.

AREQUIPA, *March* 20, 1856.

DEAR SIR: We here reply to your note of the 13th instant, asking for information relative to the manner of using guano in this district.

Guano brought from the Chincha Islands to Islay is there sold to the chacreros (farmers) round Arequipa at from four to six reals the fanega: the fanega weighs five arrobas, or about 125 lbs. The price varies from four to six reals; at present the latter price is asked. This would make the English ton worth about $13, or say £2 10s. in Islay.

It is applied to two crops only, maize (Indian corn) and potatoes, carefully by the hand. The maize, when the plant is about two months old and about three fourths vara high, one half a handful is applied near each root. A larger quantity is said to be prejudicial, by "burning the plant." The guano is then covered with earth, and a small quantity of water (by irrigation) is applied "to fix the guano." If the state of the soil does not absolutely require it, no more water is applied until after six or eight days.

The quantity required for each "topo" of 5000 varas (about 1⅛ acre) is four fanegas, or say 500 lbs. For potatoes the quantity required is the same and is applied much in the same manner as regards the age of the plant, and a small quantity of water "to fix the guano." The stalk of the potato is then about one fourth vara in height, and the earth heaped up in ridges the same as in Britain. A person inserts a spade in the top of the ridge beside each plant, while the woman follows pouring about half a handful of guano into the hole thus made, and covering it with earth, so that the ridge remains the same as before the application of the guano.

To wheat the application of guano is not approved, principally, we believe, on account of the rankness it produces in the stalk, thereby delaying the ripening of the grain—a point of great importance in lands where they count on obtaining two crops a year.

Thomas Reuncy.

The New Guano Islands.—The following gives the results of an analysis of guano from one of the islands of the American Guano Company:

I have analyzed four samples of guano for the American Guano Company, taken by myself from four parcels in a box opened in the presence of the Company. They yield as follows:

No. 1—Top Parcel.	
Sulphate of lime	69·51
Phosphate of lime	8·00
Carbonate of lime	1·00
Organic matter yielding ammonia	3·16
Chlorid of sodium	2·80
Oxyd of iron	1·22
Water with loss	14·31
Total	100·00

No. 2—Large Pieces.	
Phosphate of lime	81·24
Sulphate of lime	4·84
Chlorid of sodium	2·06
Oxyd of iron	·71
Organic matter yielding ammonia	6·10
Water	3·60
Silica and alumina	1·45
Total	100·00

No. 3—Dark Sample.	
Phosphate of lime	46·10
Sulphate of lime	19·42
Chlorid of sodium	2·12
Carbonate of lime	2·62
Organic matter yielding ammonia	11.44
Silica and alumina	1·14
Water with loss	17·16
Total	100·00

No. 4—Lowest Sample.	
Sulphate of lime	64·95
Phosphate of lime	5·20
Carbonate of lime	2·14
Organic matter yielding ammonia	4·25
Chlorid of sodium	3·86
Silica and alumina	3·49
Water with loss	16·11
Total	100·00

(Signed), James R. Chilton, Chemist.

New York, *Saturday, June* 7, 1856.

Birds Forming Guano.—M. A. Raimonde, Professor of Natural History at Lima, was sent, in 1853, by the Peruvian government, to the Chincha Islands, in order to ascertain the quantity of guano existing in these islands. During a sojourn of more than six weeks, he made observations on the origin of the guano deposit, and of the birds to which it owes its existence. In some places the guano deposit is 30 metres in depth. From the bodies of animals, as well as from various manufactured articles found in it, he concludes that the deposit belongs to the present epoch of the earth's history. The birds observed during his visit were—*Pelecanus majus*, Molin; *Carbo Gaimardii*, Lesson; *C. Albigula*, Brandt; *Sula variegata*, Tschudi; *Spheniscus Humboldtii*, Meyen; *Plotus anhing*, Lin.; *Rhyncops nigra*, Lin.; *Larus modestus*, Tschudi; *Puffinaria Garnottii*, Lesson; *Sterna inca*, Lesson. These species do not all live constantly on the islands: some of them only appear at the breeding season. The pelicans do not appear to produce much guano, as they almost always inhabit the cliffs, and their excrement falls into the ocean. The same may be said of the species of Carbo. The species of Sula contribute more to the deposit, their numbers being greater, and their habitations being more in the interior of the islands. The species of Plotus and Rhyncops are very rare; those of Larus more numerous. The Sternas only visit the islands to lay their eggs; but their numbers are so very great that they must contribute in a great measure to the formation of guano. The Spheniscus abounds in the southern island, which is inhabited. These birds, not being able to fly, hollow out habitations for themselves in the guano. The birds which produce the largest quantity of guano are the Puffinarias: their number is incalculable.—*Year Book of Facts*, 1857, p. 221.—*Edinb. Phil. Jour.*

The vast deposits of guano (called *huano*—a term of Indian origin—by the Peruvians) on the Chincha Islands, alluded to in the commencement of this article, form the chief basis of the foreign trade of Peru, especially with the United States. It has been deemed not inappropriate, therefore, to append, in detail, such official and other reliable information on this subject as is in the possession of the Government. According to a report made by a commission especially deputed by the Peruvian government in 1853 to survey the Chincha Islands, the quantity of guano in the deposits at these islands was 12,376,100 Peruvian tons, equal to 11,050,068 tons English; the northern island containing 4,189,477 tons, the middle island 2,505,948 tons, and the southern island 5,680,675 tons. This estimate, if correct, would, at the present rate of exportation—say about 300,000 tons per annum—afford to the markets of the world a supply of guano from the Chinchas for about forty years; after which period recourse might be had to the Lobos and other islands. In view of the fact now generally conceded, that land which has been once manured with Peruvian guano, will always require that stimulant, it may be interesting to ascertain what prospect there would be of procuring a permanent supply, sufficient to meet the agricultural wants of the world, at other deposits, or in other countries, supposing that the efforts of science may not succeed in discovering a substitute for that popular fertilizer. The facts bearing upon this inquiry are copied or condensed from official reports of the Peruvian government, or from official communications to the Department of State of the United States, and may, therefore, be viewed as generally correct.

Guano has been found along the coasts of Peru, Bolivia, and Chili; but the principal deposits are upon the three islands of Chincha, near Pisco, and the Lobos Islands, between Lambayeque and Paita, in Peru. The supply of guano at the Chincha Islands, alone, from whence only the exportation is permitted, can not be exhausted during the present century at least. The quantity existing at the Lobos is estimated, from a recent survey made by an American engineer, to be not less than 2,000,000 of tons, and of a quality equal to that of the Chincha Islands. Guano is also found in many spots along the coast of Bolivia. Pacquica, in the desert of Atacama, is the principal Bolivian port for shipping it. The guano is, however, so mixed with sand, or so buried and inaccessible, as to be nearly valueless. It is like mining to get it from under the sand, and costs from $11 to $12 per ton to put it on board. The first cargoes sent from there cost about $7 per ton; and only 24,794 tons have been shipped during the last five years, of which 5,916 tons was the quantity exported in 1847. It is becoming daily more scarce and expensive, and may be set down as of little importance, and not likely to interfere with the guano of Peru. The present British contractors with the Peruvian government have also an unexpired contract with Bolivia, under which they hold an exclusive privilege for the further shipment of about 10,000 tons. They pretend that, if the contract were completed, there would be none left. The late Bolivian government, however, endeavored to obtain a small loan on its guano, but no offer was made, upon any terms; thus showing the little esteem in which the article is held, and how little danger there is, for the moment, of competition with that of Peru. Guano, it may be said, does not exist in Chili; the small quantity of inferior quality that was found there, on the borders of the desert of Atacama, being exhausted.

Concerning the situation and character of the deposits of guano (*huaneras*) in the republic of Peru: nearly the whole coast of Peru, from the 6th to the 21st degree of south latitude—the point at which the River Loa empties its waters into the Pacific—affords deposits of guano of excellent quality, in prodigious abundance, and promising immense revenue. The formation of the islands and cliffs on which the guano is accumulated is generally primitive rocks, composed of granite, hornblende, gneiss, quartz, and feldspar. The guano is found in layers or strata, more or less thick, and in a horizontal direction, though sometimes they are so inclined as to become nearly vertical—a phenomenon which, as in the undulating layers, induces the belief that the foundation has undergone subterranean changes subsequent to the formation of the deposits. As it is observable in some of the deposits, that the guano lies under masses of alluvia from 2 to 3 yards in depth, containing impressions of marine shells, which, in their turn, are beneath superposed guano, also covered with sand, it is probable that they are of a date anterior to the deluge, or to the partial cataclysms and commotions that the globe has since experienced. The deposits are, for the most part, covered with a top-crust from 4 to 6 inches thick, though, occasionally, it is even 3 or 4 feet deep—called by naturalists "*caliche*," composed of salt and sand. No experiments have been made to try the effect of this substance upon vegetation, but it probably contains a great proportion of ammonia, and is so intimately connected with the guano, that, although this manure is found in the deposits without the crust, yet the *caliche* is invariably an indication of the existence of guano. The color of guano in the deposits varies from white to bright red, passing through the intermediate shades of light gray, dark gray, and brown; the last of which is mixed with excrement of the sea-lion, and is of little use to the agriculturist. The specific gravity of guano seems to be in direct proportion with its color and quantity, as the dark gray and reddish are the heaviest. For this reason, it is difficult to ascertain exactly the weight of a cubic vara of guano of different colors. The variation in the experiments having been from 1200 to 1600 pounds, it was determined to assign the weight of half a ton to the cubic vara of guano. To facilitate the examination of the guano deposits, it is proper to divide them into three grand sections; the *southern*, embracing the coast from the boundary of Bolivia to Arica; the *central*, comprising those between Arica and Callao; and, finally, the *northern*, including the remainder between Callao and Paita.

Southern Deposit.—Chipana.—The deposit bearing this name is situated in 21° 22′ S. lat., and consists of a table rock between 25 and 30 varas above the level of the sea. Its greatest length is 357 varas, by 131 varas in breadth, making a superficies of 46,767 square varas. The vara equals 38.384 English inches.

Huanillas.—This deposit lies in 21° 18′ S. lat. It contains four valleys, or *quebradas*, in which the guano is accumulated; the superficies is 158,242 square varas, or 3,825,010 cubic varas of guano.

Punta de Lobos.—A salient point in lat. 21° 6′ S. is called by this name. It is composed of mica and granite. The guano lies in the valleys, or *quebradas*, in layers, whose mean height is from 15 to 20 varas. The length of the deposit is about 1500 feet. The superficies is equal to 138,579 square varas, or 2,921,580 cubic varas of guano.

Pabellon de Pica.—The tent-shaped appearance and proximity of this hill to the village of Pica have given it this name. It is situated in lat. 20° 57′ S. The guano of this deposit is found in crevices of different depths, the superficies being 240,801 square varas, or 5,950,000 cubic varas.

Puerto Inglés (English Port) is at a little upward of a quarter of a mile from the Pabellon, on a small peninsula, the form of which indicates that it was an island in remote ages. The guano in this deposit forms an eminence upward of 500 varas long, by 250 to 300 varas in breadth, giving a superficies of 159,251 varas. Taking these data together, with the mean height of the bank, the quantity may be estimated at 2,585,020 cubic varas of guano.

Islands of Iquique and Patillos.—To the north of the Pabellon and Puerto Inglés, in lat. 20° 46′ south, lie the islands of Patillos and Iquique—the latter in the bay of that name. Both were important deposits in bygone ages, but they are now exhausted, and, as they contain only the small quantity daily left by the birds, it is all new. Notwithstanding the scarcity of the accumulation, the farmers of the neighborhood take all the guano away periodically; and, as the regeneration of the deposits, which, for more than two centuries, supplied the wants of a great part of the country, is thus prevented, it would be well to prohibit all access to these islands, and other islets similarly situated on the coast, so that the birds may resort to them without disturbance, and reserves of manure be created for time of need.

Punta Grande.—The promontory situated in latitude 20° 23′ south, at four leagues' distance from Iquique, is called "Punta Grande," and the guano in this deposit is found in several valleys facing the sea. The nucleus of the locality is composed of quartz, intersected by veins of feldspar, more or less compact, with a calcaerous superficies. Punta Grande, being in proximity to the Morro of Tarapacá, which is a kind of sandy mountain, the guano in the deposit is covered with heavy layers of sand, so that it would require considerable excavations to obtain it. For this reason, these are called "subterranean deposits;" and it is difficult, on that account, to estimate the quantity they contain. Nevertheless, in the opinion of experienced persons, the amount must be immense. There are many reasons, also, for believing that these deposits were used in the time of the Incas; and, notwithstanding the extensive excavations made up to the present time, there are many deposits still untouched. The quality of this guano is very *fair*, the dominant colors being reddish and ashy.

Other Deposits.—Besides those already described, there are smaller deposits of white, fresh guano, upon different rocks and points between Iquique and Punta Grande; and at Pisagua, a small landing-place to the north of the Punta, from which the manure is taken for the use of the coast. There are, also, localities belonging to individuals; but the quantity in them is so inconsiderable as not to merit particular mention. The total quantity of guano in the southern deposits, or *huaneras*, mentioned above, may be estimated at 15,842,814 cubic varas, or 7,921,407 tons of guano, as exhibited in the following table:

Deposits.	Cubic varas.	Tons.
Chipana	561,204	280,602
Huanillas	3,825,010	1,912,505
Punta de Lobos	2,921,580	1,460,790
Pabellon de Pica	5,950,000	2,975,000
Puerto Inglés	2,585,020	1,292,510
Total	15,842,814	7,922,407

Central Deposit.—The three magnificent deposits formed on the islands of Chincha, at 12° 32′ south latitude—that is to say, at the distance of 12 miles from Pisco—constitute in themselves the middle *huaneras;* for, although some manure is found on the cliffs of Corredas and Viejos, and on the small island of Ballesta, it is found upon points visibly inaccessible, and the entire quantity does not amount to 30,000 tons' weight. As no one is ignorant that the islands of Chincha form the riches of Peru, and that the guano sent to foreign markets is extracted from them, and that the quantity accumulated there is greater than in all the *huaneras* collectively, it is deemed admissible to enlarge somewhat upon the produce of these islands.

The Chincha Islands, when compared one with another, differ very little in their general character. They rise gradually from the sea to a point or ridge which is about 100 varas (or 300 feet) above the level of the ocean. Their geological structure consists of well characterized granite, and the guano is found deposited in parallel layers or strata, varying at times to undulating. The predominant colors are dark gray, light gray, ash colored, dirty white, and reddish brown. The color, however, does not appear to be indicative of the quality of the guano, as the same fecundating principle exists, whatever may be the color of the coating. Nevertheless, the lighter-colored guano contains the greater quantity of ammonia. Pure ammonia has been found at the Chinchas, which substance is nearly white.

Notwithstanding that nearly all the *huaneras* are covered with a mechanical crust called "*caliche*" (calculus), those at the Chinchas are an exception to the general rule, as the guano is pure, even at the superfices; and the thousands of birds which produced these veins of wealth built their nests in excavations made by them in the deposits. The deposits in question were measured in 1842, by Don José Villa, and also by Señor Rivero four years later. The former calculated the quantity at 50,000,000 tons; the latter reduced this estimate by two thirds; and to explain the cause of the enormous difference between their calculations, he says: "The mean height of the salient points of the island is 10 varas, and of the parts at the greatest distance from the shore, 20 varas; and it is only in the central parts that the depth of the guano is 40 varas. Señor Villa believed that the amount of the successive cuttings, up to the principal one, was 40 varas, whereas it did not exceed 15; and to this he added 40 more, for the principal cuttings. A grand mistake; for, admitting it as a probable term on which to base a calculation, it were required that this central cutting should extend in a uniform layer to the very shore, presenting a depth of 80 varas. And, not content with this hyperbole, he added that there were points still higher, where, according to his opinion, the guano must be 100 varas deep, or more, when the islands themselves are scarcely as high above the level of the ocean!"

After making these observations, and adding that he had excavated at the bottom of the deepest cutting only three varas before coming to the rock, Mr. Rivero gives the following as an approximate estimate of the quantity of guano contained in the three islands of Chincha:

	Cubic varas.		Tons.
Northern Island..........	15,200,000	or	7,600,000
Middle....................	12,900,000	"	6,450,000
Southern..................	8,400,000	"	4.200,000
Total..................	36,500,000	"	18,250,000

This statement, therefore, shows that the islands of Chincha contain, upon a reasonable admeasurement, at least 18,250,000 tons of guano.

Northern Deposits.—These are, without doubt, inferior to those already described, as they are, for the most part, upon small islands, very low, and constantly beaten by the winds from every quarter; and the layers of guano are usually not very deep, and are frequently mixed with sand. In their present state, the Northern Deposits would yield barely sufficient guano to supply the foreign demand for a very few years; but the quality is good and they have become the resort of the innumerable clouds of birds which, frightened from the south and centre by the increased commerce along the coast, have taken refuge in those solitary places. This part of the coast is destined to renew the sources of public wealth, when the springs which are used to-day shall be dried up and exhausted. The islands to the north may be divided into four heads, and the Lobos de Sierra are first in importance.

The Lobos de Sierra lie 25 miles south-west of Lambayeque, in latitude 5° 6′ 30″ south. The group consists of one large island, and three (rocky) small islets adjacent to it. The principal island is an immense oval, narrowing toward the centre and north. The rocks are only partially and very unequally covered with guano; the deposits being interrupted by points of rock and ravines. Estimating together all the manure found in different parts of the island, on the point called "Punta Corcobada," and the point opposite the islet "Felix Gonzales," the quantity is about 150,900 cubic varas, or 75,450 tons. A high promontory upon the island is called the "Punta Corcobada," from its peculiar shape. The superfices is extremely irregular, and contains a large quantity of whitish guano, apparently of recent formation; the stratum is not deep, but is of very fine quality. The structure of this locality is very favorable for the accumulation of guano; and as, in addition to this, it is protected from the winds, and as, moreover, the birds congregate to it in greater numbers than to any other place in the section now being described, there is every reason to hope that it will become, in time, a vein of great importance. The superficial extent of the Punta Corcobada is 113,940 square varas, or 224,760 cubic varas, equal to about 112,380 tons of guano.

Island of Bermeja.—At the distance of 300 yards to the west of the main island, and connected by reefs of rocks which are under water at high tide, lies the islet of Bermeja, in the form of a spatula. Its length is 495 varas; breadth, 220; height, 30 to 35 varas. It is covered with an abundant deposit of guano, of excellent quality, and has the crust of saltpetre, so common in the southern *huaneras.* The area of the Bermeja is 52,926 square varas; its greatest depth, 36 feet; and the quantity of guano found therein is about 317,556 cubic varas: equal to 158,778 tons.

The Islet of Felix Gonzales is one mile distant from the Punta Corcobada, to the south-west. It is 90 varas long, 70 broad, and 15 varas above the level of the ocean. The guano found on it is of the very best quality, from 4 to 5 varas in depth. The area is 6550 square varas, or 26,200 cubic varas, equal to 13,000 tons of guano.

Colorado Islet.—This islet is situated to the south-east of the main island, and is 336 varas long, 180 broad, and 25 to 30 varas above the level of the ocean. The rock is entirely covered with guano, to the depth of 39 feet. The color of the guano, as the name of the island indicates, is reddish; but toward the centre of it the layers are gray and ash-colored, with a strong odor of ammonia. Immense flocks of birds congregate at the island, to build their nests in the guano and in the caverns. The superficial measure of the guano is 31,510 square varas, or 236,300 cubic varas, equal to 118,115 tons.

The result of the admeasurement of the principal island, and the rocky islets lying near it, gives the following as the quantity of guano at the Lobos de Sierra:

	Cubic varas.		Tons.
Principal islands..............	150,900	or	75.450
Punta Corcobada..............	224,760	"	112,380
Isla Bermeja....................	317.556	"	158,778
Felix Gonzales..................	26,200	"	13,100
Islet Colorado..................	236,300	"	118,150
Total......................	955,716		477,858

Lobos de Fuera.—Two islands, lying in 7° 3′ south latitude, are known by the name of Lobos de Fuera. They are separated from each other by a channel not more than 130 feet in breadth, running north-east and south-west. The formation is slate; superficies very irregular. There is an abundance of guano, to all appearance mixed with the excrement of sea-lions, (lobos), which are very numerous. Immense flocks of birds (chiefly divers) frequent these islands. As the northern is not easily accessible, the public engineer could only survey the southern one. According to his estimate, the latter has an area of 292,380 square varas, and the body of guano it contains is 531,486 cubic varas, or 265,743 tons.

Islands of Guañape.—These two islands are situated in 8° 36′ south latitude, at about five miles from the coast. They are of granite, and rise out of the ocean to the height of 500 feet. The northern island contains guano; but being pyramidal in form, great quantities are blown off by the winds. Notwithstanding the periodical loss, there are still about 159,600 cubic varas of guano remaining, or an estimated quantity of 79,800 tons.

Island of Santa.—The island of Santa lies in 9° 11′ 5″ south, and contains only a few tons of guano of recent formation. Although it may not be interesting at present, it is probably destined to become of great importance. According to the reports made by the fishermen who visit this island, the superficies of the island was a bare rock, unfrequented by birds some 15 or 20 years ago. The aspect is different at present. The guano begins to accumulate; clouds of birds resort to the island; and its vast area, not long since silent and deserted, will, without doubt, become the centre of new deposits, prepared by Providence for future generations.

Island of Ferrol: situated in latitude 9° 7′ south, of a triangular form, and contains an area of 61,400 cubic varas.

In addition to the deposits above enumerated, guano is also found in small quantities on the island of Malabrigo, in latitude 7° 49′ south, San Martin, or Doña Maria, 11° 4′; Mazroque, 11° 25′; Pescadores, 11° 46′; Las Hormigas, 11° 56′; El Pelado, 11° 35′.

The quantities of guano contained in the northern deposits is shown by the following table:

Deposits.	Cubic varas.	Tons.
Lobos de Tierra	955,716	477,858
Lobos de Fuera, or de Afuera	531,486	265,743
Gua ape	159,600	79,800
Ferrol	61,400	30,700
Total	1,708,202	854,101

It may be added to the foregoing, that, according to the report of a new commission appointed to examine, survey, and report upon the guano deposits, it appears that there were not more than 8,000,000 tons of guano remaining at the Chinchas in 1854. [This estimate, it has been stated, was underrated designedly.] The Peruvian government has not yet officially published this report, but the information has been given in the Peruvian newspapers. If the statement be correct, the quantity accumulated at those islands would be only sufficient to supply the demands of the markets of the United States and England for about 20 years, at the present rate of exportation.

General Table of the Deposits of Guano.

Sections.	Deposits.	Tons.
Southern	Chipana	280,602
	Huanillas	1,912,505
	Punta de Lobos	1,460,790
	Pabellon de Pica	2,975,000
	Puerto Inglés	1,292,510
Central	North Island	7,600,000
	Middle "	6,450,000
	South "	4,200,000
Northern	Lobos de Tierra	477,858
	Lobos de Fuera	265,743
	Gua ape	79,800
	Ferrol	30,700
Total		27,025,548

The following passage, translated from an article in the "*Mensagero*," a newspaper published in Lima, affords interesting information on the subject of guano deposits, of later date:

"Mr. Rivero examined, scientifically, the principal deposits of guano known on the coast at that time; and his statement in other researches in which he has been engaged having proved correct, reliance may be placed on his report. Since then, other deposits of guano have been discovered, especially in 'Independence Bay,' beyond Pisco, where the quantity is said to equal that of the Chincha Islands. No regular survey has been made of this deposit, and it is surprising that the government should be so dilatory in obtaining minute information in a matter of such vital importance to its credit and—it may be said—to its very existence. Making allowance for any exaggerations in the reports, it can be safely asserted that the quantity of guano existing in the deposits on the coasts of Peru is sufficient to supply the demands of foreign markets for a century to come, particularly as it is probable that the day is not far distant when the researches of science may discover in other substances a fructifying principle, which will serve as a substitute for this singular product."

The guano from the islands of Lobos has been recently analyzed by Mr. Raymondi, an Italian chemist employed by the Peruvian government for the purpose. Annexed is a statement showing its composition as compared with that from the islands of Chincha, from Patagonia, and from Saldanha Bay. The strength and value of guano are estimated by the proportion of ammonia and phosphates it contains. That from the Lobos Islands, therefore, according to the analysis of the three samples, is more valuable for agricultural purposes than that of Patagonia or that from Saldhana Bay. It is the policy of the Peruvian government to discredit the Lobos guano, so that it may be kept out of the market until the deposits on the Chincha Islands shall have been exhausted. The samples employed for the analysis were, consequently, taken from near the top of the Lobos deposits, and are not a fair specimen of the product of the islands. The lower layers are, undoubtedly, of better quality; and although, doubtless, inferior to the best from the islands of Chincha, it is still more valuable than any other manure that can be furnished at the same price:

Analyses of Guano.

ELEMENTS.	FROM THE CHINCHAS.		FROM THE LOBOS.			FROM PATAGONIA.	FROM SALDANHA BAY.
	By Anderson.*	By Kensington Laboratories.	By Raymondi.†			By Anderson.	By Kensington Laboratories.
Water	13·78	9·30	12·50	16·50	13·35	24·36	14·47
Organic matter and ammoniacal salts	53·16	57·30	22·00	28·50	36·65	18·86	7·85
Phosphates	23·48	23·05	36·90	41·28	11·76	41·87	29·54
Alkaline salts	7·97	9·60	12·25	16·27	36·74	2·70	33·67
Sand	1·66	0·75	12·35	2·50	1·50	7·56	14·47
Lime	....	....	....	....	....	2·94	....
Sulphuric acid	....	....	....	....	....	2·21	....
Proportion of ammonia	17·00	18·87	4·26	4·35	6·42	2·69	0·47

* Chemist of the Royal Agricultural Society of Scotland.

† Chemist of Lima.

The following table exhibits the number of tons of Peruvian guano exported to and sold in the United States and Great Britain during the years 1851 and 1852, together with the expenses of agency, freight, etc., and the net proceeds to the Peruvian treasury:

SALES OF PERUVIAN GUANO DURING THE YEARS 1851 AND 1852.

	Tons.	Gross proceeds.	Expenses.	Net proceeds.
In 1851.				
United States..	22.023	$1,015,485	$472,019	$543,456
Great Britain..	88,368	3,974,590	2,126,685	1,847,905
Total.......	110,391	$4,990,075	$2,598,704	$2,391,371
In 1852.				
United States..	47,529	$2,152,961	$945,918	$1,207.043
Great Britain..	141,966	6,315,135	3,339,995	2,975,140
Total.......	189,495	$8,468,096	$4,285,913	$4,182,183

The total importation of guano, into the United States during the eight years ending June 30, 1855, was 495,047 tons. The largest importations were from Peru, and the smallest from Africa. In 1854, the importations of guano nearly quadrupled those of any preceding year, and exceeded those of 1855 by 1888 tons. The number of American vessels and their tonnage dispatched from the Chincha Islands each month in 1853, and each of the first six months of 1854, is stated as follows:

Months.	No. of vessels.	Tonnage.
January, 1853..................	5	2,265
February......................	4	2,005
March.........................	8	4,040
April.........................	18	10,878
May...........................	16	11,144
June..........................	18	10,850
Total in six months..........	69	41,182
July, 1853....................	19	14,424
August........................	17	10,596
September.....................	19	12,825
October.......................	30	22,681
November......................	28	15,474
December......................	26	19,953
Total in six months..........	139	95,953
Total for the year...........	208	137,135
January, 1854.................	28	15,967
February......................	22	16,156
March.........................	11	66,471
April.........................	11	10,004
May...........................	10	7,563
June..........................	9	4,552
Total in six months..........	91	120,713

The number and tonnage of foreign vessels from the Chincha Islands to the United States during the same periods, and the countries to which they belonged, is given as follows:

Countries.	No. of vessels.	Tonnage.	Countries.	No. of vessels.	Tonnage.
1853.			1854.		
British........	25	12,934	British	6	3,416
Dutch........	4	1,018	Swedish......	1	262
Chilian.......	2	1.003	Norwegian....	1	379
Swedish......	1	245	Peruvian......	2	840
Hamburg.....	1	400	Dutch........	1	545
Total for year	33	15,595	Total 6 mo's.	11	5,442

Sale, exportation, etc., of guano.—As the system of exportation and sale of guano is complicated, and not generally understood in the United States, it has been thought proper to condense, from reliable sources, chiefly official, all the facts relating to the subject which are in possession of the State Department.

The expense of loading guano at the Chincha Islands is about 2 dollars per ton, including the cost of bags for a ground tier in every vessel; but this cost may increase to a maximum of 3 dollars, perhaps, as the distance from the place of deposit to the vessel increases. The freights have been as high as 30 dollars per ton; but the increased navigation in the Pacific, consequent upon the acquisition of California by the United States, has reduced this sum to 20 and 15 dollars, and even to as low as 12 dollars.

The exportation of the article to England first commenced in 1826, but was tried merely as an experiment. It was not until more than 13 years subsequently that guano was considered an article of commerce; indeed, it would seem, that even at that period the great importance and value of this fertilizer were not well understood by the Peruvian government; for it appears that the Chincha Islands, and all the guano found upon them, were then sold for the sum of $60,000—a sale which, had it not been subsequently annulled by judicial proceedings, would have placed the agriculturists of the world at the mercy of an irresponsible monopoly of individual stock-jobbers. The first guano contract was then made with the Peruvian government by the same parties whose purchase of the islands had just been canceled; and in less than a year this contract was merged in another made in February, 1842, providing for a loan of $525,000, in consideration of the exclusive privilege of shipping 126,000 tons within 5 years. In July, 1847 (after the expiration of the first contract), another was made by the same parties, providing for a loan of $600,000 in cash and $100,000 in scrip (equal to $615,000 in cash)—in all, $700,000 good money—in consideration of the privilege of exporting only to Europe 40,000 tons within six months.

In December, of the same year, a third contract was entered into with the same parties who had negotiated the two former, by which, in consideration of the privilege of shipping 100,000 tons of guano, a new loan was effected of $850,000. The principal stipulations of this contract were as follows: The loan was to be paid—$400,000 in cash, and the balance in monthly payments of $50,000, the contractors were to enjoy the exclusive privilege of exporting to any or all parts of the world 100,000 tons, register measurement—equal to nearly 140,000 actual measurement. The time allowed for the shipment of the 100,000 tons was limited to 18 months from June, 1848, allowing an extension of the time (without exclusive privilege), in case a sufficient number of vessels could not be chartered to convey the whole quantity within that period. The guano was to be consigned directly to the contractors in England, or to their agents elsewhere. The guano was to be sold for account of the Peruvian government, the contractors being authorized to charge the usual commission and guaranty (about 4 per cent. on gross sales), and an interest of 5 per cent. upon all expenses, including freights advanced in England or elsewhere. The payment of the loan of $850,000 (the pound sterling being computed at $5), with interest at the rate of 1 per cent. per month, is provided for: first, from the balances of account existing in favor of the Peruvian government on the books of the contractors (that is, balances arising from the former contracts); and second, from the net proceeds of the sales of guano shipped under the contract; one fourth part of the net proceeds to be accounted for in the scrip of the government, at par value, with the interest added. This scrip, with the accruing interest added, cost the contractors, it is stated, about 10 cents to the dollar.

How much the contractors realized from this contract of December, 1847, can not well be known. The following estimate, however, has been made:

Gross sales of 130,000 tons of guano, at $50 per ton ($6,500,000), on which the commission, at 4 per cent., was..................................	$260,000
Estimated net proceeds, at $20 per ton, of which one fourth part was accounted for to the government in its own scrip, costing the contractors (with interest added) about 10 cents per dollar, leaving a profit of 90 per cent. on the whole amount—say $650,000.................	585,000
Probable gain in exchange (at $5 per pound sterling) at least 10 per cent. on total net proceeds—say on $2,600,000.........................	260,000
Total estimated profit......................	$1,105,000

It appears, then, that the total loans on guano, and the number of tons contracted for, up to the year 1848, were:

			Tons.
February, 1842.....	$525,000,	with privilege of	126,000
July, 1847..........	700,000	" "	40,000
December, 1847....	850,000	" "	100,000
Total loans.....	$2,075,000	Total guano..	266,000

Subsequently to the contract of December, 1847, another was made, by which the consignment of all guano shipped to England and the continent of Europe from December 18, 1849, to December 18, 1851, was conceded to the same parties; and a still later contract was entered into by the Peruvian minister in England, on behalf of his government, guarantying to the London house of Gibbs & Co. the consignments of all guano shipped to Great Britain and the continent of Europe, with the exception of France and Spain, from December 18, 1851, to December 18, 1855. By these latter contracts, loans were made, at different times, amounting, in the aggregate, to about $2,000,000; the last loan of $1,200,000 being at a reduced interest of 5 per cent. In both the last contracts, the London house of Gibbs and Co. were made the agents for the payment of the Peruvian bonds held in England, amounting in 1850, back interest, etc., to about $20,000,000. For the payment of this debt, one half the proceeds of the guano sold there is now appropriated. The consumption of guano in Great Britain and on the continent of Europe is estimated at about 90,000 tons annually.

The first shipment of guano to the United States was made, it is stated, in 1845. In 1846, the Peruvian government contracted for the building of a war steamer, and appropriated the proceeds of 5,000 tons to the payment thereof. In the contract with Gibbs & Co., of December 22, 1847, it will be remembered that the exclusive privilege of shipping guano to all parts of the world was conceded to that firm. This was the first contract by virtue of which guano was shipped to the United States. Upon its expiration (December 18, 1849), the Peruvian Congress, by an act of January 25, 1850, authorized the Executive to contract for a loan of $384,000, to be paid from the sales made in the United States, and the Minister of Finance advertised for proposals. Bids were immediately sent in from five American houses of undoubted responsibility. One of these bids proposed the purchase of 50,000 register tons of guano at the Chincha Islands, at $20 per ton, to be shipped within 5 years; advancing the loan of $384,000 at 6 per cent. interest, with the usual articles regulating the commissions, exclusive privilege, chartering vessels, etc. This proposal, guarantying to the Peruvian government $20 per ton (all previous contracts not yielding to the government more than $15 net), was the most advantageous that had been made so far; yet it was rejected, through the influence of European competitors, and the loan was advanced by the house of Gibbs & Co., at 6 per cent. interest, to be repaid out of the proceeds of sales in Great Britain.

There had been no formal cession, since the termination (December 18, 1849), of the contract of December 22, 1847, of the right of the market in the United States, until the contract made with Barreda and others. Special licenses have been, from time to time, granted by the Executive to Gibbs & Co.; and this firm have therefore continued, through their agents, to control the consignments as much as ever. The Peruvian government seems unwilling to enter into any arrangements either to sell at a fixed price at the islands, or that the article should be sold in the United States at a fixed price, and that a sufficient supply should be always in the market. The countries to which guano is exported from the islands, by virtue of these several contracts, are: the United States, Great Britain, France, Spain, the Mauritius, China, the West Indies, and Venezuela. In the United States, the agents are Barreda & Brother in Baltimore, and J. W. Riley in New York; Great Britain, Messrs. Gibbs & Co., who also have the agency in Belgium and Sardinia; for the Mauritius, Kendall & Co.; for Spain, Murrieta & Co. of London; for China, Sevilla & Co., of Lima. The agency of the West Indies is intrusted to Barreda & Brother; and that of Venezuela, under a recent contract, to Don Leocadio Guzman, the envoy of that republic in Lima. All these agents are paid commissions, varying from 6 to 7½ per cent., for selling guano, freighting vessels, etc. They are also allowed interest, at the rate of 6 per cent., upon all sums of money advanced to the government.

These contracts claim a general interest in the United States, as throwing light upon the complicated system which regulates the exportation and sale of guano; but the contract for supplying the United States themselves, possesses more immediate interest to the consumers in this country, and demands a brief additional notice—the facts and statements being copied or condensed from reliable sources.

The contract between the Peruvian government and Messrs. Barreda & Brothers, for the exclusive export and sale of guano in the United States during 5 years, was concluded on the 22d of August, 1851. According to its stipulations, the agents are entitled to charge 6½ per cent. commission upon the gross product of the sales, in full for all their services as agents in selling the substance, chartering vessels, guaranties, etc. They are allowed six months to render an account of the different sales made by them; which term is absolute, unless good cause can be shown for delay. They are also authorized to charge 6 per cent. upon all money advanced to the government.

The consumers in the United States have complained that the enormous profits which accrue to those interested in the contracts with the Peruvian government for the sale of guano, have combined with other causes in keeping up the high price of the article. The chief ground of these complaints seems to be, that large profits *beyond* those legitimately incident to these contracts are realized in the shape of interest, premiums, etc., which are paid in the first instance by the Peruvian government, but finally fall upon the consumer of guano. These extra commissions amount annually to a heavy charge upon American shipping, and must necessarily tend to keep up the cost of guano to the consumer. In 1853, for instance, the amount of Peruvian guano exported to the United States, as stated from Peruvian returns* was 137,135 tons register, or about 164,562 tons' weight. The freight on this, at $17 per ton, amounted to $2,797,554. Five per cent. on this would be $139,877 70. This added to about $16,000 commissions, or port agency in Peru, would make a total of $155,887 70 levied as extra commissions, not authorized by the contract, as is complained.

These facts bear materially upon the consumption and sale of this useful fertilizer in the United States. The interest felt upon the subject has been evinced, as is well known, by large and respectable conventions of citizens concerned in agriculture, which have been held in various sections of the country, and by propositions introduced into Congress, having for their object such legislation as would lead to special negotiations with the government of Peru respecting the mode of exportation and sale of her great staple.†

---

* The United States' Treasury Report on Commerce and Navigation for 1853, gives only 25,852 tons; but for 1854, makes the number of tons 163,662.

† As one of the results of these movements, may be named an act of Congress, approved August 18th, 1856, "to authorize protection to be given to citizens of the United States who may discover deposits of guano."

No deposits of guano, which will at all compare with those of Peru, seem as yet to have been discovered, although most extensive explorations have been prosecuted; nor does science seem yet to have succeeded, though inventive skill has been tasked to the utmost, in manufacturing a substitute which would supersede the use or lower the price of the Peruvian fertilizer. Indeed, the very latest reports exhibit rather an appreciation in its price, and a large increase in its consumption.—*Com. Rel.*, *U. S.*

Guaranty, in law, an obligation undertaken by one party that another shall pay or perform that for which he is or may become liable to a third party. In mercantile transactions in Scotland it may be constituted in any way by which the consent of the guaranty obligant is truly and freely given; but it can only be proved by his oath or writing. The evidence of witnesses is inadmissible, unless the obligation was undertaken as an integral part of a transaction relative to moveables, provable by witnesses, or that something followed on the faith of it, with the knowledge of the guaranty obligant, by which the rights of parties were materially affected. In England it is enacted by statute, that "No action shall be brought whereby to charge the defendant upon any special promise to answer for the debt, etc., of another person, unless the agreement on which such action shall be brought, or note thereof, shall be in writing, and signed by the party to be charged therewith, or some other person thereunto by him lawfully authorized." The construction of all such obligations is never extended beyond their obvious meaning, and they are only understood to apply to future, unless they expressly include past transactions. All their conditions and limitations must be carefully regarded, otherwise they become void. If so expressed or intended, however, such obligations may be of the most unqualified character; they may be unlimited in amount, and indefinite as to time. When the guaranty obligant is compelled to pay, he has an action of relief against the principal debtor; but that party, being primarily liable, must first be sued by the creditor; and whatever he does toward the extinction of the claim of the creditor, or whatever the creditor recovers from him or his estate, goes so far to relieve the guaranty obligant, who can also plead against the creditor any defense which could be competently pleaded by the principal debtor. Where more persons than one are bound together in a guaranty obligation, any of them seeking relief from the others of a share of his loss must communicate to them a share of any security which he may hold over the estate of the principal debtor, or of any abatement he may have obtained from the creditor. A guaranty obligation may be extinguished by the extreme neglect of the creditor; as, for example, by his failing to take advantage of a security in his power, omitting to negotiate a bill, inadvertently giving up funds of the principal debtor over which he had a right of lien or retention, or renouncing any security over his estate. In like manner, if he compound with, or discharge the principal debtor, without the concurrence of the guaranty obligant, the guaranty is at an end; excepting under a commission of bankruptcy in England, or a sequestration in Scotland, where the creditor may, by acquiescence, allow the principal debtor to be discharged, and may accept a composition, without discharging the guaranty, provided the guaranty obligant has previously been duly warned and called on to satisfy the debt.

Guatimala, or **Gautemala**, one of the republics of Central America, occupies most of the table-land of Gautimala, with the mountainous district between it and the Gulf of Honduras, besides a portion of the table-land of Yucatan. Its extreme latitudes are 13° 29′ and 18° 12′ N., and longitudes 88° 10′ and 93° 22′ W. It is bounded on the north by the Mexican State of Yucatan, on the west by Chiapa, on the south by the Pacific Ocean, south-east by the republic of Salvador, east by Honduras, and north-east by the Gulf of Honduras, and the British Honduras, or Belize. The total area of Gautimala is about 49,000 square miles. It is divided into 17 Departments, and contained, according to the returns of 1852, a population of 972,000, distributed as follows:

Departments.	Populations.	Departments.	Populations.
Guatimala	89,500	Totonicapán	84,700
Sacatepec	44,500	Gueguetenango	64,800
Chimaltenango	56,400	Quesaltenango	66,800
Sanmarco	89,100	Chiquimula	78,000
Suchiltepec	36,300	Vera Paz	6,200
Escuintla	15,300	Salamá	109,900
Amatitlan	33,000	Isabel	9,000
Santa Rosa	36,000		
Mita	72,300	Total	972,000
Solola	84,200		

The surface of Guatimala is wholly mountainous, the main chain of the continuation of the Andes traversing it from south-east to north-west at an inconsiderable distance from the Pacific shore, and branching off in various ramifications toward the Atlantic; forming many valleys, but inclosing few plains. Along the main chain occur numerous volcanoes, all near the Pacific. The culminating point of the surface is in N. lat. 15° 30′, between the towns of Totonicapáan and Gueguetenango. The eastern border of the plateau descending to the Gulf of Honduras is cut by deep valleys, which extend to a great distance, and in some places advance to the very shores. The country lying to the west and the north-west of the Golfo Dulce is a low plain, while all between the plateau and the Bay of Honduras is a succession of ridges and valleys. In many places the shore is rocky, with rocky barriers lying off it.

Numerous streams drain this State. The most important are, the Lacantun, forming part of the Mexican boundary; the Motagua and the Polochic, which fall through the Dulce into the Bay of Honduras. The most important lakes are, the Dulce, advantageous for foreign trading vessels; the Amatitlan, 18 miles south-east of Guatimala, is 9 miles by 3, of great depth, and is much resorted to as a bathing-place by the inhabitants of Guatimala, from February till April; near it there are several mineral and hot springs; the Atitlan, 80 miles north-west of the city of Guatimala, is about 20 miles long by 9 broad, surrounded by lofty heights, including the volcano of Atitlan, and is remarkable for its very great depth, and being without outlet, though several small rivers enter it; the Paten, near the frontiers with Yucatan, about 30 miles long, and 9 broad.

The climate of the table-land is that of perennial spring, the thermometer scarcely varying throughout the year, and it resembles very much the climate of Valencia in Spain in almost every particular. In the northern part of the State, in what is called *Los Altos*, the highlands, the average is lower than any other part of the country. Snow sometimes falls in the vicinity of Quesaltenango, the capital of this Department, but soon disappears, the thermometer seldom remaining at the freezing point for any considerable time. In the vicinity of the city of Guatimala, the range of the thermometer is from 55° to 80°, averaging about 72° of Fah. Vera Paz, the north-eastern Department of Guatimala, and embracing the coast below Yucatan to the Gulf of Dulce, is nearly 10 degrees warmer. This coast from Belize downward to Isabel and San Tome is hot and unhealthy. From May till October is the rainy season. Thunder prevails in June, and terrific storms from the south-west sweep along the Pacific coast in August and September. Earthquakes are very frequent.

The soil is generally very fertile, producing excellent rice, and all the cereals in great variety and abundance. Agriculture, however, is in a very backward state from the want of enterprise and the ignorance of the people, as well as from the want of roads. As articles of commerce, the most important products are cochineal and indigo. Cotton, cacao, sugar, vanilla, tobacco, and coffee, are grown in considerable quantities. The table-land is almost destitute of trees and even bushes, except on the declivities of the hilly ranges which so extensively traverse it. Trees of very large size form extensive forests on the lower lands along the Pacific. These are a source of great natural wealth. Among the trees the most valuable are the cedar, mahogany, Brazil, Santa Maria, pimento, guaiacum, etc.; and abundance of medicinal plants are also found and turned to some account. The vegetation is luxurious and vigorous along the low tract by the Bay of Honduras. Sheep are reared in considerable numbers, especially over the northern districts, and their wool is used for native manufactures. The horse is small, hardy, and handsome; and mules are numerous, being the chief beasts of burden. Pigs and poultry are very abundant, and of excellent quality.

Salt is manufactured along the coast of the Pacific. Jasper, marble, and brimstone, are obtained in considerable quantity in the vicinity of some of the volcanoes. Lead is worked by the Indians in Totonicapán. The manufactures are mostly limited to those for domestic use. The cotton manufacture, once extensive, is now confined to the Departments of Guatimala and Sacatepec. Coarse woolen cloth is now more manufactured, especially *gerga*, which is made into a peculiar black called *poncho*, in which much taste is displayed.—E. B.

Since 1847, Guatimala has been an independent republic, and in 1851 a new constitution was adopted, by virtue of which the President is elected every four years; to whom, in conjunction with an Assembly General, composed of 59 members, the powers of the government are confided. It is divided into 17 Departments, and its capital is Nueva Guatimala. The great commercial staple of the republic is cochineal, of which upward of 20,000 bales are annually produced. In addition to these articles, considerable attention has been given of late to the cultivation of tobacco, sugar, coffee, cotton, vanilla, and indigo. Gold, silver, and other minerals have been found in several sections of the State. The exports consist of cochineal, indigo, segars, sarsaparilla, mahogany, cocoa, hides, dyewoods, and some silver. The total value of exports amounts, annually, to about $1,880,000, and the imports to about $2,000,000.

The commercial relations between the United States and Guatimala are regulated by the treaty of March 3, 1849, and by the local legislation of that republic. The treaty is one of peace, amity, commerce and navigation, and stipulates for perfect equality and entire reciprocity of commerce and navigation. Each nation extends the same privileges to the vessels of the other that are applicable to its own. The right of residence, commerce, and trade is extended to citizens of each in the territories of the other, with the same rights, privileges, exemptions, and restrictions, which apply to native citizens—the coasting trade excepted, which is reserved to the parties, respectively, according to their own separate laws. The high contracting parties moreover adopt, with respect to each other, the principle that free ships make free goods. The treaty is to continue in force during 12 years, and contains the usual provision of one year's notice after the expiration of that period. The local regulations of Guatimala are altered from time to time by decree, sanctioned by the executive officers, and promulgated under authority of the President of the republic. The latest decree of this character, of which our Government is in possession, modifies the tariff of 1837, so far as it relates to tonnage duties. It bears date May 6, 1852, and subjoined is a translation of its provisions:

Article 1. Every vessel which shall anchor in the ports of the republic, no matter whence it may come, shall pay a tonnage duty of two reals (25 cents) for each ton of measurement. This measurement shall be ascertained from the register, the certificate of nationality, the patent or clearance under which it sails.

Article 2. Shall be free of tonnage duty—1st. Small vessels engaged in transporting merchandise from one port to another of the republic; 2d. Vessels which anchor in ballast to take in water, provisions, or fruits of the country, provided they discharge no cargoes; 3d. Vessels of war, and regular mail or steam-packets, provided they do not discharge merchandise over 20 tons; 4th. Merchant vessels which, exceeding 150 tons of registered measurement, discharge not exceeding 20 tons of merchandise; 5th. Vessels which receive on board, for exportation, produce of the country, excepting cochineal, as provided for in decree of March 31, 1849.

Article 3. This decree shall take effect from and after the first day of July, ensuing.

Guatimala, la Antigua, a city of Central America, in the republican State of Guatimala, and about 27 miles W.S.W. from Guatimala la Nueva. It stands in a wide and fertile valley, at an elevatien of 5820 feet above the sea-level. The place was abandoned after the earthquake of 1773, which partly destroyed it; but it now contains a population of nearly 20,000. There is collected here a considerable quantity of cochineal; and there are some insignificant manufactories. The city is regularly laid out, but a great part of it is still in ruins. Prior to the earthquake the population amounted to about 60,000.

Guatimala la Nueva, the capital of the republic of Guatimala, in Central America. Its situation is in N. lat. 14° 36′, and W. long. 90° 30′, at the extremity of a plain 22 miles in length by 7 in breadth, with a deep ravine on three sides, and elevated above the sea 4970 feet. The form of the town is quadrangular; and the streets are wide, straight, and clean. On account of the frequency of earthquakes the houses are only one story in height. The Plaza or Great Square measures about 150 yards on each side, and is surrounded on three sides by colonnades. Here are the principal buildings in the town—the cathedral, the archbishop's palace, the old royal palace, the *College des Infantes*, and the various government offices. In the centre stands a large and elegant fountain. The town is well supplied with water brought by pipes from the mountains upward of two leagues distant. Beside the cathedral, there are 26 other churches and chapels; and, beside the Plaza, several other squares, each with a fountain in the centre. At the south side of the city there has recently been erected a fort mounting 20 guns. There are several private schools in Guatimala; and several printing establishments, whence two weekly newspapers are issued.

Thompson, in his *Official Visit to Guatimala*, states that "the mean heat" of the city of Guatimala "during the day, from the first of January to the first of July, is 75° of Fahr.; at night, 63°. In the summer months the average may be taken at 10 degrees higher." Fruits, vegetables, provisions, and all articles of ordinary consumption are abundant, at moderate prices, while many descriptions of British manufacture are as cheap as in Britain. The manufactures are muslins, gauze, cottons, earthenware, porcelain, jewelry, segars, etc.

The inhabitants are courteous and hospitable to strangers, but live very much apart from each other, their only recreation being their incessant religious processions. The suburbs are occupied mostly by ladinos (mulattoes) and Indians. The buildings of this city were begun in 1776, three years after the fearful earthquake of 1773, which completely destroyed Old Guatimala, the former capital. The population is variously estimated from 35,000 to 50,000.

Guava, the fruit of the *Pisidium pyriferum* and *P. pomiferum*, nat. ord. Myrtaceæ, the pulp of which is made into a jelly of a peculiarly delicious flavor. This sweetmeat is imported in considerable quantities from the West Indies.

Guayaquil, a city and port of Columbia, on the western coast of South America, lat. 2° 11′ 21″ south, long. 79° 43′ west. Population 20,000. The town is situated on the banks of the river of the same name, about six or seven leagues from the Isla Verde, or nine leagues from the Isla Puña, in the Gulf of Guayaquil, opposite to the mouth of the river. Ships bound for Guayaquil generally call at the Isla Puña, where expert pilots may be had, who carry them up to the town by night or by day, according to the state of the tides. The town is old; but as the houses are of wood, and it has frequently suffered from fires, much of it is comparatively modern, and has a good appearance. There is a dry dock on the south bank of the river, where several ships of a superior construction have been built. The district in which Guayaquil is situated has for a considerable period formed a part of the republic of Ecuador or Æquator. Like the other South American States, it has been subjected to perpetually-recurring revolutions; but Guayaquil has, notwithstanding, continued to enjoy considerable commerce. Its principal article of export is cocoa, of which large quantities are shipped; and next to it are straw hats, timber, tobacco, hides, bark, etc. The principal articles of import are manufactured cottons and hardware, silks, wine, flour, etc. The following tables show the commerce and navigation of Guayaquil:

ACCOUNT OF THE QUANTITIES AND VALUES OF THE PRINCIPAL ARTICLES OF PRODUCE EXPORTED FROM GUAYAQUIL, IN 1849, 1850, AND 1851.

Articles.	1849.		1850.		1851.	
	Quantities.	Values.	Quantities.	Values.	Quantities.	Values.
Cocoa....................lbs.	14,020,446	£139,408	11,171,318	£111,713	9,567,068	£100,000
Straw hats...............doz.	21,101	73,856	26,336	95,800	35,354	107,700
Tanned hides...........sides	22,367	5,871	26,400	8,400	17,113	5,100
Tobacco.............quintals	2,123	9,289	1,522	8,300	2,808	12,400
Timber.................logs	3,243	1,418	7,571	8,510	16,244	16,300
Mangles................poles	1,419	62	3,458		10,027	700
Flax.....................lbs.	17,156	563	7,558	200	860	50
Orchilla.............quintals	706	1,235	1,240	2,100	1,138	2,000
Tamarinds........... "	180	229	175	200	367	600
Bark .... "	714	1,499	1,045	6,500	2,688	14,000
Total value.............	....	£284,020	....	£278,625	....	£287,800

ACCOUNT OF THE NUMBER, TONNAGE, CREWS, AND VALUES OF THE CARGOES OF THE VESSELS OF EACH NATION ENTERED AND CLEARED AT THE PORT OF GUAYAQUIL, IN 1851.

FLAGS.	ENTERED.				CLEARED.			
	Vessels.	Tons.	Crews.	Value of cargoes	Vessels.	Tons.	Crews.	Value of cargoes
British..................	7	2,026	107	£38,000	7	2,026	107	£41,900
Ecuadorean.............	51	2,060	350	33,100	51	2,060	350	26,500
Peruvian	83	3,700	380	20,000	83	3,700	380	22,000
Chilian..................	8	1,265	70	25,100	8	1,265	70	19,000
New Granadian.........	2	140	11	1,200	2	140	11	6,200
Mexican.................	3	350	28	2,000	3	350	28	3,200
Spanish..................	10	3,100	170	65,000	10	3,100	170	82,000
American...............	9	1,800	80	36,300	9	1,800	80	40,000
French..................	4	900	66	20,000	4	900	66	18,000
Hanseatic...............	2	350	24	16,000	2	350	24	17,000
Danish..................	2	360	25	18,000	2	360	25	13,000
Total.........	181	16,051	1,311	£274,700	181	16,051	1,311	£287,800

The Guayaquil River is the principal in western Ecuador. It is formed by the union of numerous streams from the Andes, and becomes navigable for commercial purposes at Baybahoyo or Caracol, 70 or 80 miles from its mouth—river boats ascending to one or other of these places according to the season. Below Guayaquil the channel is impeded by numerous rocks and small islands, while at its mouth is the larger island of Pana. Where the river falls into the Pacific it is known as the Gulf of Guayaquil, the extreme points of which are 70 miles apart.

Guaymas, a sea-port town of Mexico. See MEXICO.

Guayra, La, the principal sea-port town of the republic of Venezuela, province of, and 11 miles north north-west of Caracas. It is an unhealthy situation, and is closely surrounded by high mountains and rocks. The chain of mountains which separates it from the high valley of Caracas descends almost directly into the sea; and the houses of the town are backed by a wall of steep rocks, leaving scarcely 100 or 140 fathoms' breadth of flat ground between this wall and the sea. The town is poorly built, and contains no edifice worthy of notice. The port is unsheltered, but has good anchorage in from six to thirty fathoms, and is well defended by land batteries. Its chief exports are coffee, cocoa, indigo, and hides, with some cotton and sugar. Population about 8000.

Guiana, Guyana, or **Guayana,** an extensive territory in the north-eastern part of South America, comprehending in its widest acceptation all that extent of country lying between the Rivers Amazon and Orinoco, between lat. 3° 30′ south, and 8° 40′ north, and long. 50° 22′ and 68° 10′ west. It is bounded on the north by the Orinoco and the Atlantic, east by the Atlantic, south by the Amazon and the Rio Negro, and west by the Orinoco and the Cassiquiare. Its greatest length from east to west is about 1200 miles, and its greatest breadth about 850 miles; estimated area 700,000 square miles. This vast territory is divided into Brazilian (formerly Portuguese) Guiana, Venezuelan (formerly Spanish) Guiana, and Colonial Guiana. The two former, comprising about five sixths of the entire region, are now included within the limits of their respective countries; while Colonial Guiana is that to which the general term of Guiana is now commonly applied. It is subdivided into British, Dutch, and French Guiana.

Guiana, British, the most westerly of the three colonies, is bounded on the north and north-east by the Atlantic, east by Dutch Guiana, from which it is separated by the River Corentyn, south by Brazil, and west by Venezuela. It lies between north lat. 0° 40′ and 8° 40′, and west long. 57° and 61°, and has an estimated area of 76,000 square miles; but the possession of much of this has been disputed by Brazil and Venezuela. It is divided into three counties, Demerara, Essequibo, and Berbice, so named from the three principal rivers which drain them. Demerara, situated between the other two, occupies the centre of the seaboard for nearly 90 miles. To the north-west the county of Essequibo stretches along the coast toward the swamps and forests of the western frontier; and to the south-east lies the county of Berbice.

The entire coast of British Guiana is low, and generally bordered with a sandy flat extending far out to sea, so that vessels drawing more than 12 feet of water can not approach within three or four miles of land. The rivers, too, deposit at their mouths large quantities of mud and sand, and are thus inaccessible to vessels of large size. Extending from low-water mark to a distance of five or six miles inland, is a tract of rich alluvial soil of recent formation. This is succeeded by a flat narrow reef of sand running exactly parallel with the present line of coast. Here remains of stranded vessels and anchors eaten through with rust have been found, indicating that within a comparatively recent period it had been washed by the waves of the Atlantic. Running parallel to this reef, at irregular distances, varying from 10 to 20 miles, is a second and higher range, composed of coarse white sand; and which, at a period more remote, probably formed the sea limit. In the wet seasons the intermediate tract between these two reefs becomes the bed of extensive savannahs; for the creeks being then unable to carry off the torrents of rain which fall, overflow their level banks, and inundate the surrounding country to the depth of five or six feet. On the return of dry weather the waters gradually subside, leaving behind them a thick layer of decayed grasses and aquatic plants which had floated and flourished on their surface, and these in time produce a vegetable mold of considerable thickness. Beyond the second reef are swampy plains, intersected by sand-reefs, and extending to the mountainous regions of the interior. The high land does not rise immediately from the plain to a great elevation, but begins with a range of sand hills of from 50 to 200 feet above the plain. Behind these the high land stretches out in level or undulating plains, rising here and there into eminences. About north lat. 5°, a mountain chain, an offset of the Orinoco Mountains, and composed of granite, gneiss, and other primitive rocks, runs from west to east through this territory, forming large cataracts where it is crossed by the rivers, and rising frequently to the height of 1000 feet above the sea. About a degree further south is the Pacaraima chain, which, in like manner, runs from west to east, and is of primitive formation. Its highest point, called by the natives Roraima, in north lat. 5° 9′ 30″, west long. 60° 47′, is 7500 feet above the level of the sea. The plains south of this range are in general level, and form extensive savannahs, covered with grasses and plants. The Sierra Acarai is a densely wooded chain of mountains forming the southern boundary of Guiana, and the water-shed between the basins of the Amazon and the Essequibo. This chain rises to the height of 4000 feet. The Conocou, or Cannucu Mountains, running south-east and north-west, connect the Pacaraima with the Sierra Acarai.

The principal river of British Guiana is the Essequibo, which rises in the Sierra Acarai, and after a course of at least 600 miles discharges itself into the ocean by an estuary 20 miles in width, in north lat. 7°, west long. 58° 40′. In the estuary of the Essequibo are a group of beautiful islands partially cultivated, the principal of which are Varken, or Hog Island about 21 miles in length by 3 in breadth, Wakenaam and Leguan, each about 12 miles by 3, and Tiger Island, about half that size. The entrance is difficult and dangerous, even for vessels of small size, on account of the banks of mud and sand. Its course lies through forests of the most gigantic vegetation. In north lat. 3° 14′ 35″, it forms a great cataract, named by Schomburgk, King William's Cataract. In north lat. 3° 57′ 30″, and west long. 58° 3′, it receives the Rupunoony, which has a course of about 220 miles. At various points of its course it forms rapids and cataracts which impede its navigation. About 60 miles from its mouth occur the last of these, the Falls of Etabally, after which it pursues its course through the low alluvial plain. In this part of its course it receives the united waters of the Cuyuni and the Massaroony. The Demerara, or Demerary rises probably near north lat. 5°, and after a northward course nearly parallel with the Essequibo, of more than 200 miles, it enters the Atlantic near north lat. 6° 50′, west long. 58° 20′. It is navigable for 85 miles, and at its mouth at Georgetown it is more than a mile and a half across. Further east runs the Berbice, whose source is probably about north lat. 3° 40′. It joins the Atlantic by an estuary five miles in width, 10 miles north of New Amsterdam, and in north lat. 6° 21′, west long. 57° 12′. It is navigable for 165 miles from the sea, by vessels drawing seven feet water. The Corentyn which forms the eastern boundary of British Guiana, and probably has its source in the Sierra Acarai, flows generally northward and falls into the Atlantic in north lat. 6°, west long. 57°. It is navigable for boats for 150 miles. The mineral productions of Guiana are necessarily but imperfectly known. Clays of various kinds, including excellent pipe-clay, are found near the coast. The chief rocks are granite, porphyry, gneiss, clay-slate, sandstone, etc. Traces of iron are found in various parts; and gold has been recently (in 1852) discovered in considerable quantities on the upper Essequibo.

The climate of Guiana is more healthy than that of most places in the West Indies. Its salubrity has been much increased since the occupation of the country by Europeans, the gradual clearing and cultivation of the surface having done much to mitigate those diseases so fatal in a low, marshy, and hot region. The hurricanes so destructive in the West Indies are unknown here, and gales are unfrequent. Thunderstorms occur only during the rainy seasons; but, like the few occasional shocks of earthquakes, are not attended with danger. The year is divided into two wet and two dry seasons. The long rainy season sets in about the middle of April, when light showers begin to fall. The rain increases till the middle of June, when it falls in torrents; in the beginning of July these heavy rains begin to decrease, and in August the long dry season begins, and continues till November. December and January constitute the short rainy season, and February and March the short dry season. The winds during the rains are generally westerly; in the dry season they blow mostly from the ocean, loaded with moisture, and thus render the heat less oppressive than it would otherwise be. The thermometer seldom rises above 90°, and rarely falls below 75° Fah. The mean annual temperature at Georgetown is 81° 2′; the total annual fall of rain averages about 100 inches.

The vegetation of Guiana is most luxuriant. The interior is thickly wooded with valuable timber, with the exception of the swamps of Berbice and the savannahs. The trees are of great size, and many of them are valuable for their timber, or their fruits, or as dye-woods. Medicinal plants, including quassia, gentian, the castor-oil plant, and many others, are abundant. Arnotto, so extensively used in the coloring of cheese, grows wild in profusion on the banks of the upper Corentyn. The largest of the water-lilies, the *Victoria Regia*, was first discovered here by Mr. Schomburgk on the banks of the Berbice. The *hai-arry*, an indigenous plant deserving of notice, is a papilinaceous vine, the root of which contains a powerful narcotic, and is commonly used by the Indians in poisoning the waters to take the fish, which are not thereby deteriorated. The domestic animals are the same as those in England, and the wild animals are those common to tropical South America generally. Black cattle here attain a larger size than in Europe, but their flesh is not so tender nor so fine flavored. The wool of the sheep is converted into hair. Game, chiefly deer, range the upper savannahs. Tigers, little inferior in size to those of Asia, but different in character, being rarely known to attack man, abound; as do also jaguars, which prey upon the herds of wild cattle and horses that graze on the extensive plains among the mountains. Among the other animals are the tapir, armadillo, agouti, ant-bear, sloth, and a great variety of monkeys. Lizards, snakes, and alligators are numerous. There are several kinds of parrots, macaws, and humming-birds; also the flamingo, muscovy duck, toucan, spoonbill, and vampire bat. Troublesome insects are numerous, as might be expected from the swampy nature of the coast districts. The rivers and coast abound with a great variety of fish.

The cultivated portion of British Guiana is merely a narrow strip along the sea-coast, and for a few miles up the rivers, including a portion of the islands of Essequibo. The whole surface of the coast lands being on a level with high-water mark, when these lands are drained and cultivated they consolidate and become fully a foot below it, so that the estates require to be protected from inundation by dams and sluices. Each estate has, therefore, a strong dam or embankment in front; while a similar erection at the back or inland boundary, as well as on each side, is requisite to keep off the immense body of water accumulated on the savannahs during the wet seasons, and which, if not repelled, would rush down to the sea carrying every thing before it. The state of his dams, therefore, requires the planter's unremitting attention; not the slightest hole or leakage is allowed to exist in them, and by law their willful injury is considered felony. One inundation destroys a sugar estate for eighteen months, and a coffee one for six years. "The original cost of damming and cultivating is fully paid by the first crop, and the duration of the crops is from 30 to 50 years; so that though great capital is required for the first outlay, the comparative expense of cultivation is a mere trifle compared with that of the West India Islands, notwithstanding that the expense of works, buildings, and machinery, may be treble or quadruple, being built on an adequate scale for half a century of certain production."—*Geog. Jour.*, vol. iv., 323. Inside, and at the foot of these dams, are trenches 12 to 18 feet wide, and 5 feet deep, running round the whole plantation, and into these, smaller trenches and open drains convey the water that falls upon the land. These large trenches discharge their contents into the sea through one or more sluices, which are opened as the tide ebbs, and shut against the returning flood.

The staple productions of the colony are sugar, coffee, and cotton. From an official table of the exports of British Guiana from 1826 to 1851, we find that in 1827, 15,904 bales of cotton were exported, but from that period this cultivation gradually gave place to sugar, and in 1844 ceases to appear in the table as an article of export. Since 1851, however, it seems to have received more attention, for among the exports from British Guiana into the United Kingdom in 1854 we find 1093 cwt. of cotton. Coffee, from upward of 9,500,000 lbs. in 1830, gradually fell off to only 3198 lbs. in 1851. As to sugar, making a due allowance for the difference of seasons, the quantity exported remained pretty steady from 1826 to 1837, the year preceding the termination of apprenticeships—averaging about 66,000 hhds.; but in the year following that event it fell down to nearly half its former average, being in 1839 only 38,270 hhds. In 1846 it had sunk as low as 26,201 hhds., owing in a great measure to a protracted drought through a great part of that season. In 1851 43,034 hhds. were exported. In proportion to the sugar obtained the quantity of molasses is large, owing partly to the defects of the common process of preparation, but chiefly to the fact that the soil is so rich an alluvium, and so abundant in alkaline and earthy saline matter. Little of the molasses is boiled down into sugar in the colony; it is chiefly made into rum, or sold to the refiners, by whom it is much prized. In 1851 the quantity of molasses exported was 9530 puncheons. Although the rum produced in this colony does not equal in character that of Jamaica, it yet occupies a respectable place in the market. The quantity exported in 1851 was 15,848 puncheons. With respect to the cultivation of the sugar cane, by reason of the lowness of the land and the plan of drainage in use—namely, that known as the open-drain and round-bed method—the system of cultivation remains exactly as in the times of slavery, every part of the operations of culture being performed by manual labor. The following statistics have been compiled from official sources:

COMMERCE OF THE UNITED STATES WITH BRITISH GUIANA, FROM OCTOBER 1, 1833. TO JULY 1, 1856.

Years ending.	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1834	$105,214	....	$105,214	$31,424	....	$460	....	....
1835........	64,243	....	64,243	5,595	....	193	3,933	530
1836........	105,075	....	105,075	92,019	....	1,110	5,611	749
1837	42,885	....	42,885	6,244	....	5,033	4,113	493
1838........	145,532	$522	146,054	36,043	....	21,200	6,992	1,763
1839........	34,906	218	35,124	14,215	....	3,715	4,392	278
1840........	118,896	538	119,434	10,973	....	10,100	6,349	1,233
Total....	$616,751	$1,278	$618,029	$196,513	....	$41,811	31,390	5,046
Sept. 30, 1841........	$381,332	$1,269	$382,601	$18,228	....	$10,767	8,827	1,613
1842........	115,991	2,462	118,453	15,004	....	12,205	5,334	3,945
9 mos 1843........	116,145	695	116,840	43,042	....	41,316	6,145	2,094
June 30, 1844........	307,052	2,184	309,236	9,385	....	7,503	10,470	2,868
1845........	416,867	1,881	418,748	7,957	$2,800	4,900	12,325	2,801
1846........	551,668	1,634	553,302	12,561	....	1,475	17,701	3,564
1847........	621,903	1,816	623,719	19,125	....	13,025	13,492	1,843
1848........	595,114	1,365	596,479	24,254	....	12,208	16,141	1,225
1849........	662,315	3,759	666,074	25,520	....	4,679	15,054	1,578
1850........	502,776	22,663	525,439	14,591	20,000	500	11,642	2,537
Total....	$4,271,163	$39,728	$4,310,891	$189,667	$22,800	$108,578	117,181	24,068
June 30, 1851........	$540,554	$3,734	$544,288	$44,213	....	$24,324	12,001	4,220
1852........	742,286	18,381	760,667	43,943	$54,770	28,000	12,123	8,712
1853........	798,841	38,863	837,704	64,533	32,500	....	14,426	3,181
1854........	718,096	1,153	719,249	47,489	....	1,974	12,131	3,161
1855........	824,119	813	824,932	107,180	....	58,477	13,511	1,932
1856........	871,766	3,497	875,263	151,574	....	2,000	13,571	3,328

An export duty is charged in the ports of these colonies on their staple productions. Both in Honduras and British Guiana, American vessels enjoy all the privileges extended to the vessels of the most favored nation; and, as the following tables for 1854 and 1853 will show, American commerce is generally on the increase. In 1854 the United States imported from Honduras: Indigo (41,339 pounds), valued at $34,842; mahogany, $83,459; dye-wood, $11,678; hides, $6706; black pepper, $1055. A total of $137,740, or nearly one half of the entire imports from this colony for that year. From British Guiana, the leading imports in

1854 were old and scrap iron, copper, brass, hides, sugar, and rum, amounting to nearly $40,000, of which copper alone reached $15,615. Demerara contains a population of 74,922 whites and free blacks. Berbice contains a population of 21,580, of whom 21,000 are free blacks.

The following comparative statement exhibits the trade between the United States and the two colonies, Demerara and Berbice, of which British Guiana is composed:

	1853.	1854.	1855.
Imports from the U States	$837,704	$719,249	$824,932
Exports to the U. States...	64,533	47,489	107,180
Balance in favor of the United States.......	$773,171	$671,760	$717,752
Total trade between the U. S. & Brit. Guiana	$902,237	$766,738	$932,112

The following table will show the comparative importance of the trade of the three Guianas with the United States during the year ending June 30, 1856:

	ENTERED INTO U. S.		CLEARED FROM U. S.	
	Vessels.	Tons.	Vessels.	Tons.
British Guiana.........	9	1,246	23	3,328
Dutch "	4	702	3	665
French "	1	192	..	....

Dutch Guiana.—Dutch, or Surinam, lies between British and French Guiana, being separated from the former on the west by the River Corentyn, and from the latter on the east by the Maroni; on the north it has the Atlantic, and on the south Brazil. It lies between latitude 1° 30′ and 6° north, and longitude 53° 30′ and 57° 30′ west, being about 300 miles in length, from north to south, and 260 in extreme breadth. Area, about 38,500 square miles. In physical geography, climate, productions, etc., it differs but little from British Guiana. The principal river is the Surinam, which flows northward through the centre of the territory, and falls into the Atlantic after a course of nearly 300 miles. It is navigable for large ships for about four leagues from its mouth. Along the coast, and on the banks of the river, are many settlements and plantations; and the higher parts of the country are occupied chiefly by the Maroons, the descendants of runaway negroes. In the last century they were very troublesome to the colonists, but they have now adopted more settled habits. Slavery has been recently abolished here by the Dutch government, but in lieu of compensation, the slaves remain apprenticed, and work without wages to their proprietors for 12 years. The colony is ruled by a governor appointed by the crown, and a council elected by the freeholders. Justice is administered by a supreme court, courts of minor jurisdiction, and a court of inheritance and orphans. The receipts in 1850 amounted to £89,485; the expenditure to £85,564. On 273 plantations, consisting of 366,548 acres, 48,815 acres were under cultivation. The chief productions are sugar, rum, molasses, coffee, cacao, and cotton. Its chief trade is with Holland. Imports, in 1851, £171,395; exports, £236,162. At the close of 1850, the colony numbered 61,080 inhabitants—of whom 12,401 were Europeans and creoles, 8000 bush negroes, 1000 Indians, and 39,679 slaves. Of the religious sects, the Moravians amounted to 17,933, and the Jews to about 680. The live stock consisted of 168 horses, 59 mules, 5564 cattle, 3155 sheep, 454 goats, and 4664 hogs. The army consists of 610 men of all arms; and the navy of 11 vessels, chiefly small. Paramaribo, the capital, is situated on the right bank of the Surinam, about 10 miles from its mouth. It is built in the Dutch style, with wide and straight streets, planted with orange-trees; and the houses are generally two stories in height, and built of wood. Population about 20,000. A little north of the town is the fort of Zeelandia, where the governor resides, and where are also most of the government establishments.

Surinam was declared a free port by proclamation dated May 1, 1848. Accounts are kept in dollars of 8 reals, or 50 stivers (100 cents), and in pounds sterling. Exchange on London, $4 80 to $4 85 per pound sterling. Aves island, one of the leeward group of the West Indies, between 15° and 16° north latitude, belongs to the Dutch government. In the year 1854 extensive deposits of guano were discovered on the island of Aves, by two American ship captains, but we do not as yet learn that any shipments have been made from it. Coffee, the product of a possession of the Netherlands direct from such possessions, or from the Netherlands, imported into the United States in a vessel of the Netherlands, is admitted free of duty, under the treaty of August 26, 1852.

COMMERCE OF THE UNITED STATES WITH DUTCH GUIANA, FROM OCTOBER 1, 1832, TO JULY 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1833........	$92,515	....	$92,515	$49,326	....	$1,744	....	....
1834........	27,228	....	27,228	67,579	....	1,236	....	....
1835........	30,205	....	30,205	31,420	....	....	8,384	....
1836........	59,315	$2,360	61,675	83,471	....	....	10,106	....
1837........	54,518	1,595	56,113	44,976	....	....	6,378	2,177
1838........	68,775	2,073	70,848	54,354	....	200	4,718	76
1839........	58,863	2,803	61,666	49,008	....	....	6,637	....
1840........	52,118	....	52,118	37,766	....	....	5,729	....
Total....	$443,537	$8,831	$452,368	$367,900	....	$3,180	41,952	2,253
Sept. 30, 1841........	$37,900	....	$37,900	$35,793	....	$400	5,496	117
1842........	101,055	....	101,055	74,764	....	2,578	5,454	....
9 mos. 1843........	24,680	....	24,680	32,533	....	275	3,066	....
June 30, 1844........	66,980	$4,792	71,772	49,144	....	....	7,363	....
1845........	47,737	1,872	49,609	41,347	....	....	6,740	....
1846........	66,845	1,139	67,984	33,674	....	....	4,510	....
1847........	43,840	388	44,228	59,855	....	....	4,381	....
1848........	115,501	1,517	117,018	51,297	....	....	5,958	317
1849........	104,013	52	104,065	58,281	....	416	5,369	1,000
1850........	97,014	5,425	102,439	71,043	....	2,418	4,932	364
Total....	$705,565	$15,185	$720,750	$507,231	....	$6,087	53,269	1,798
June 30, 1851........	$85,491	$5,582	$91,073	$89,673	....	....	4,927	524
1852........	83,952	7,282	91,234	86,738	....	....	6,262	944
1853........	108,389	17,694	126,083	130,681	....	....	6,228	402
1854........	53,745	7,678	61,423	104,236	....	$18,096	2,927	130
1855........	237,963	10,643	248,606	206,633	....	22,145	6,114	....
1856........	313,661	7,855	321,516	252,793	$12,000	3,162	5,510	665

This colonial territory of Holland comprises an area of 10,400 square miles, and contains a population of nearly 65,000 souls. Its chief products are sugar, coffee, cotton, cocoa, rice, capara, fine woods, gums, drugs, timber, and molasses; the last ranks next to sugar in value as an export. The quantity of sugar annually exported is stated at about 25,000,000 pounds, and of coffee at about 4,000,000 pounds.

The annual average production of the leading staples of this colony are thus given: Sugar, 28,012,163 lbs.; coffee, 1,355,376 lbs.; cocoa, 151,250 lbs.; cotton, 765,323 lbs.; rum, 92,183 gals.; dram (a kind of brandy), 227,965 gals.; molasses, 1,210,463 gals. Annual average value of leading staples, $1,500,000.

The value of imports into Dutch Guiana in 1853 amounted to $816,474, showing an increase over the imports of the preceding year of $71,473. Of the total amount, there were from the Netherlands, $460,482; from the United States, $179,236; and from other countries, $176,756. The exports amounted to $1,312,118; showing $101,253 increase over the exports for 1852. Of this sum, $844,103 were sent to the Netherlands, $201,794 to the United States, and $266,221 to other countries. The principal articles imported into Surinam from the United States are salted fish, amounting, in 1853, to $58,892; salted and smoked meat, about $50,000 per annum. The imports into the United States from Surinam are sugar ($131,052 in amount in 1852), molasses ($53,833), and cocoa ($32,026 in 1853). In 1853, there arrived 201 vessels, measuring 36,858 tons. Of these, 56, of 18,960 tons, were under the Dutch flag; and 21, of 8196 tons, American. In the same year there cleared 190 vessels, measuring in the aggregate, 36,858 tons; of which 55, of 17,847 tons, were Dutch; 31, of 15,150 tons, American; and the others under the English and other flags. An analysis of the trade of Dutch Guiana shows that the United States has about one fourth of the whole commerce of the colony.

French Guiana is the smallest and most eastern of the three colonies, known as English Guiana, Dutch Guiana, and French Guiana. It lies between 2° and 6° N. lat., and 51° 30′ and 54° 30′ W. long., being bounded on the north and north-east by the Atlantic, east and south by Brazil, and west by Dutch Guiana. It is about 250 miles in length, from north to south, and varies in breadth from 100 to 150 miles. Area, 27,560 square miles. It has a coast line of 200 miles, extending from the Maroni to the Oyapoc. The low alluvial tract along the coast is of great fertility. The mountain chains run east and west, and are almost wholly of granite, but do not attain a great elevation. The country is abundantly watered, and the coast-lands appear to be less unhealthy than in British Guiana. The vegetation of Guiana is very luxuriant, and the interior is thickly wooded with trees valuable for their timber, fruits, and dye-woods. Medicinal plants, including quassia, gentian, the castor-oil plant, and arnotto, used in coloring cheese, are all abundant.

The island of Cayenne, at the mouth of the Oyak, is about 30 miles in circumference, and is separated from the continent by a narrow channel. The roadstead at the mouth of the Oyak, though small, is the best on the coast, having everywhere from 12 to 13 feet of water. The capital, Cayenne, is situated on the northern side of this island, and contains 5,220 inhabitants. The new town is well built, and has good streets; the government house is in the old town. The harbor is protected by a fort and several batteries. The colony is divided into two districts, Cayenne and Sinnamary, and 14 communes. The government is vested in a governor, a privy council, and a colonial council, composed of 16 members, elected by the colonists. The cultivated lands are estimated to be about one eightieth of the whole territory. Besides the staples of British and Dutch Guiana, its productions comprise pepper (including Cayenne, which is so called from the island of that name), cloves, cinnamon, and nutmegs. Trade is chiefly with France and its colonies. In 1854, the official value of the imports into France from French Guiana was £20,000; exports, £192,000. The French first settled in Cayenne in 1604; the British and Portuguese captured the colony in 1809, but restored it to the French in 1814, in whose possession it still remains. It has recently been made a place of banishment for French political offenders; and, in 1852, 2,500 of these were sent out. Population about 22,000, of whom about 15,000 are emancipated slaves.

Cayenne, sea-port, town, and capital of French Guiana, on the north-west extremity of the island of that name, in lat. 4° 56′ N., long. 52° 15′ W. It contains about 500 houses, mostly of wood, and is divided into the old and new towns, the latter clean and well built. It is the seat of a court of assize, and has a handsome church, Jesuit college, government house, and several large warehouses. The harbor is shallow, has two quays, and is protected by a fort and several batteries. Population about 6,000.

French vessels from Cayenne in French Guiana are admitted into the ports of the United States on equal terms, as to duty and tonnage, with vessels belonging to the United States, when direct from Guiana, either in ballast or with articles the growth or manufacture of that country.

COMMERCE OF THE UNITED STATES WITH FRENCH GUIANA, FROM OCTOBER 1, 1832, TO JULY 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Export.	Import.	American.	Foreign.
Sept. 30, 1833	$4,693	....	$4,693	....	....	....	....	....
1834	2,488	....	2,488	....	....	....	....	....
1835	....	....	....	....	....	....	....	....
1836	3,483	....	3,483	....	....	....	3,121	....
1837	....	....	....	....	....	....	2,500	....
1838	....	....	....	$5,302	....	$938	1,906	....
1839	1,643	....	1,643	....	....	....	2,305	....
1840	....	$100	100	....	....	....	1,925	....
Total	$12,307	$100	$12,407	$5,302	....	$938	11,757	....
Sept. 30. 1841	$45,958	$340	$46,298	$55,416	....	$23,692	1,657	....
1842	44,063	1,030	45,093	50,172	....	13,797	1,512	259
9 mos. 1843	45,374	....	45,374	44,411	....	8,700	737	....
June 30, 1844	56,006	1,033	57,039	28,233	....	2,167	2,322	....
1845	57,052	444	57,496	59,306	....	5,600	1,547	....
1846	39,270	2,131	41,401	71,296	....	8,000	1,390	....
1847	58,287	1,990	60,277	47,775	....	7,400	1,808	....
1848	48,737	1,684	50,421	63,988	....	29,741	1,717	....
1849	46,161	....	46,161	23,417	....	3,720	1,461	89
1850	43,405	1,382	44,787	12,551	....	....	1,334	98
Total	$484,313	$10,034	$494,347	$452,565	....	$102,817	15,485	396
June 30, 1851	$45,693	$615	$46,344	....	....	$11,000	....	....
1852	64,747	1,278	66,025	32,422	....	7,435	1,788	....
1853	64,335	1,104	65,439	17,717	....	7,100	1,275	....
1854	100,148	685	100,833	29,618	....	....	2,234	....
1855	78,652	1,966	80,618	8,546	....	2,500	2,715	....
1856	148,093	....	148,093	27,147	....	16,191	2,101	....

A decree of the French government, issued in 1822, and continued by a decree of the governor of the colony, dated the 23d of December, 1833, gives an advantage to French goods shipped directly from French ports in French vessels, and to French goods and products of French colonies brought in French vessels, over the foreign trade, in the rate of duties they impose. The products of the colony carried to France, in French vessels, have also an advantage over products carried to other countries in foreign vessels. The only duties paid by French or foreign vessels remaining in port over 72 hours, without putting out or taking in any cargo, are pilotage and fees to the custom-house guards.

Cayenne is the most easterly of the three colonies. It extends along the coast from the River Maroni to the Ozapoh, the boundary of Brazil. It lies between 2° and 6° N. lat. Its length, from north to south, is 250 miles, and the breadth varies from 100 to 190 miles, comprising an area of 27,560 square miles, and containing a population of 5,056 whites, and 16,592 blacks. The coast is an alluvial tract of great fertility, and the uplands are also very fertile. There are upward of twenty rivers of tolerable size, which are navigable, from 30 to 60 miles, for small craft. About one eighth part of the surface is occupied; the remainder is left to Indians and wild beasts. The articles cultivated are the sugar-cane, coffee, cotton, cocoa, cloves, annatto, pepper, cinnamon, nutmegs, corn, etc. There are about 40 large establishments for the manufacture of sugar, and about 50 sugar-mills, most of which are worked by steam. The imports are chiefly from France, being about 2,675,000 francs in value. The imports from other countries amount to about 550,000 francs. The exports are of the value of 3,128,000 francs, and are nearly all shipped to France. About 40 French vessels, of the aggregate burden of 7000 tons, usually enter, and about the same number clear from Guiana every year. Some 20 or 30 foreign vessels enter and depart each year. These statistics are not exact, but probably approximate nearly enough for practical legislation in reference to them.

Guild (from the Saxon *guildan*, to pay), signifies a fraternity or company, because every one was *gildare*, that is, had to pay something toward the charge and support of the company. As to the origin of guilds or companies in Britain, it was a law among the Saxons that every freeman of fourteen years of age should find sureties to keep the peace, or be committed. This led to the formation, among neighbors, of associations, each consisting of ten families, which became bound for one another, either to produce him who committed an offense, or to make satisfaction to the injured party; and that they might the better do this, they raised a sum of money among themselves, which they put into a common stock, and when one of their pledges had committed an offense, and fled, then the other nine made satisfaction out of this stock, by payment of money, according to the offense. Because this association consisted of ten families, it was called a *decenary;* and hence arose other kinds of fraternities. But as to the precise time when these guilds had their origin in England there is nothing certain to be found; since they were in use long before any formal license was granted to them for such meetings. It seems to have been about the close of the 11th century, according to Anderson (*History of Commerce*, vol. i., p. 70), that merchant-guilds, or fraternities, which were afterward styled corporations, came first into general use in many parts of Europe. Madox (*Firma Burgi*, chap. i., sect. 9) thinks they were hardly known to our Saxon progenitors, and that they might probably have been brought into England by the Normans, although they do not seem to have been very numerous in those days. The French and Normans might perhaps have borrowed them from the free cities of Italy, where trade and manufactures flourished at a much earlier period, and where such communities appear to have been first in use. These guilds are now companies or associations having laws and orders made by themselves, in virtue of authority from the prince to that effect. See Gild.

Guild in the royal burghs of Scotland, is still used for a company of merchants, who are freemen of the burgh. Every royal burgh has a dean of guild, who is the next magistrate below the provost.

Guild, *Gild*, or *Geld*, is also used by ancient writers to signify a compensation or mulct for an offense.

Guinea, a gold coin formerly struck and current in Britain, and so denominated because the gold of which the first specimens were struck (*temp.* Car. II.) was brought from the coast of Guinea; and for a like reason it originally bore the impression of an elephant. The value of the guinea varied greatly at different periods, but latterly it was worth 21 shillings. Its weight was 5 dwts. 9·4125 grs. On the introduction of the *sovereign*—first coined in 1817—the old guinea coinage was gradually superseded.

Guinea, the name assigned to a large tract of country on the west coast of Africa, commencing at Cape Verga, in about 10° N. lat., and terminating with the Cameroon Mountains in the Gulf of Biafra. These are the limits more commonly given to what is called Guinea; by some they are greatly extended, so as to comprise the whole of the Portuguese settlements south of the equator, under the name of Southern Guinea, while the coast north of the equator is called Northern Guinea.

The term Guinea is not of African origin, or at least not among those to whom it is applied. There is, according to Barbot, a district of country north of the Senegal known by the name of *Genahoa*, the inhabitants of which were the first blacks that the Portuguese encountered in their explorations along the coast in the 15th century; and they applied this name indiscriminately afterward to all the black nations which they found further south. In the two succeeding centuries it was applied in a more restricted sense to that portion of the coast which is now better known as the Gold and Slave Coasts; owing to the fact, perhaps, that this region for a time offered a larger number of slaves for the foreign market than any other part of the country. The natives here acknowledge this term as applied to themselves, but it was undoubtedly borrowed in the first instance from the Portuguese.

The physical aspect of the country, as might be inferred from the large extent we have under consideration, is very variable, but is characterized everywhere by excessive richness of natural scenery. In the region of Sierra Leone, Cape Mount, and Cape Mesurado, the eye rests on bold headlands and high promontories covered with the richest tropical verdure. In the vicinity of Cape Palmas there are extended plains, slightly undulating, and covered with almost every variety of the palm and palmetto. On the coast of Drewiss the country rises into table-lands of vast extent, and apparently of great fertility. The Gold Coast presents every variety of hill and dale; and as we approach the equatorial region we are saluted by mountain scenery of unrivaled beauty and surpassing magnificence.

The inhabitants consist chiefly of the following tribes:—The Vais, the Manou or Kru, the Kovakeras or Avekroom, the Inta, the Dahomey, Ashanti, and the Benin. There are no large or extended political organizations, with the exception, perhaps, of the kingdoms of Ashanti and Dahomey, and neither of these has a larger population or greater extent of territory than the smaller kingdoms of Europe. For the most part, the people live together in independent communities, of not more than 8 or 10 villages, and with an aggregate population of from 2000 to 25,000 or 30,000. In these different communities they have no written forms of law, but are governed for the most part by certain traditional usages that have been handed down from generation to generation. Nominally, monarchy is the only form of government acknowledged among them; but, when closely scrutinized, their systems show much more of the popular and patriarchal than of the monarchical element. They are essentially a pagan people; but in their religious notions and idolatrous worship they differ very much from each other. There are many decided traces of the Jewish origin. Among these may be specified the rite of circumcision, which, with the exception of the Kru or Manou family, is, we believe, universal; the division of the tribes into families, and in some cases into the number of 12; bloody sacrifices, with the sprinkling of blood upon their altars and door-posts; the observance of new moons; a formal and specified time for mourning for the dead, during which period they shave their head and wear tattered clothes; demoniacal possessions, purifications, and various other usages of probable Jewish origin.

Respecting the natural products and trading capabilities of the country, the articles exported consist chiefly of ginger, gum, mendobi (Guinea grains, a species of seed), palm-oil, some ivory, a wood used for dyeing, called camwood, and which is worth in England about £15 sterling a ton. Vessels visiting that coast take on board—at Sierra Leone, or on the coast of Malagueta, between Cape Mesurado and Cape Palmas—some black sailors, called krumen, who are of great use in doing the heavy work on board, and for boat service; thus saving the European seamen from exposing themselves too much to the sun's rays, etc. The services of these krumen are recompensed with two or three pieces of cotton cloth per month each. Their chief food is rice, which may be purchased at a very cheap rate on the coast of Malagueta; the price of a "kru" (a measure of capacity weighing about 30 lbs.), being a fathom and a half of cotton cloth, or any other article of proportionate value.

On the coast of Malagueta (Grain Coast), the articles received principally in barter are rice and millet; also ivory, palm-oil, and camwood, especially at Monrovia, the capital of Liberia. At Sierra Leone, the pepper-tree (called malagueta), is cultivated on an extensive scale, and its fruit—Guinea pepper—after being dried, is purchased in large quantities by the Americans, and imported into the United States.

English muskets, gunpowder, rum, and tobacco, are the principal articles of traffic on the whole of the coast as far as Onim at the bottom of the Bight of Benin.

At Jaque Lahoo and Jaque Jaque, two considerable towns, situated at the extremity of the bight formed by Cape Palmas and Cape Three Points, commences the trade in gold-dust; here also a considerable quantity of palm-oil and some ivory are found. After passing these towns, the European settlements commence. The first are Great Bassam and Assine, belonging to France, and situated at the mouths of the rivers of the same names. Five leagues to the west of Cape Three Points, is the small Dutch fort of Axem; and on the other side of the same cape is the English port of Dick's Cove. From Cape Lahoo to Acora, and to all the European settlements on the coast, the monetary standard is the "ake" (ackie) of gold-dust, which weighs half a dram English, and is worth nearly 5s. The kru on this part of the coast is almost double that assigned to it on the coast of Malagueta—averaging £50, more or less.

Between Dick's Cove and the castle of St. George of the Mine (S. Jorge da Mina), are situated the small forts of Serunde, Sanca, and Commendo; after which we come to the first large European settlement, viz., the castle of St. George of the Mine, belonging to Holland. The castle is a Portuguese structure, and was formerly the most important of the Portuguese colonies on this coast. Next to it is Cape Coast Castle, belonging to England, and situated in sight of the former. The next place is Annamaboo, a small English fort, formerly abandoned, but where for some years past trade has been again in some degree developed. To this fort succeed others in ruins, as Winebah and Assam. Millet is found in abundance at these places, as well as palm-oil and gold-dust. Proceeding along the coast, we come to the great English settlement of Acora, where there are at present two fortresses. The first, that of St. James, was built by them many years since; the second, that of Christianburg, was purchased from Denmark, together with all its possessions on that coast, in the year 1850. Then follow the small settlements of Ningo; after passing which, Cape St. Paul, a little to the east of Rio da Volta ("Return River"), is doubled.

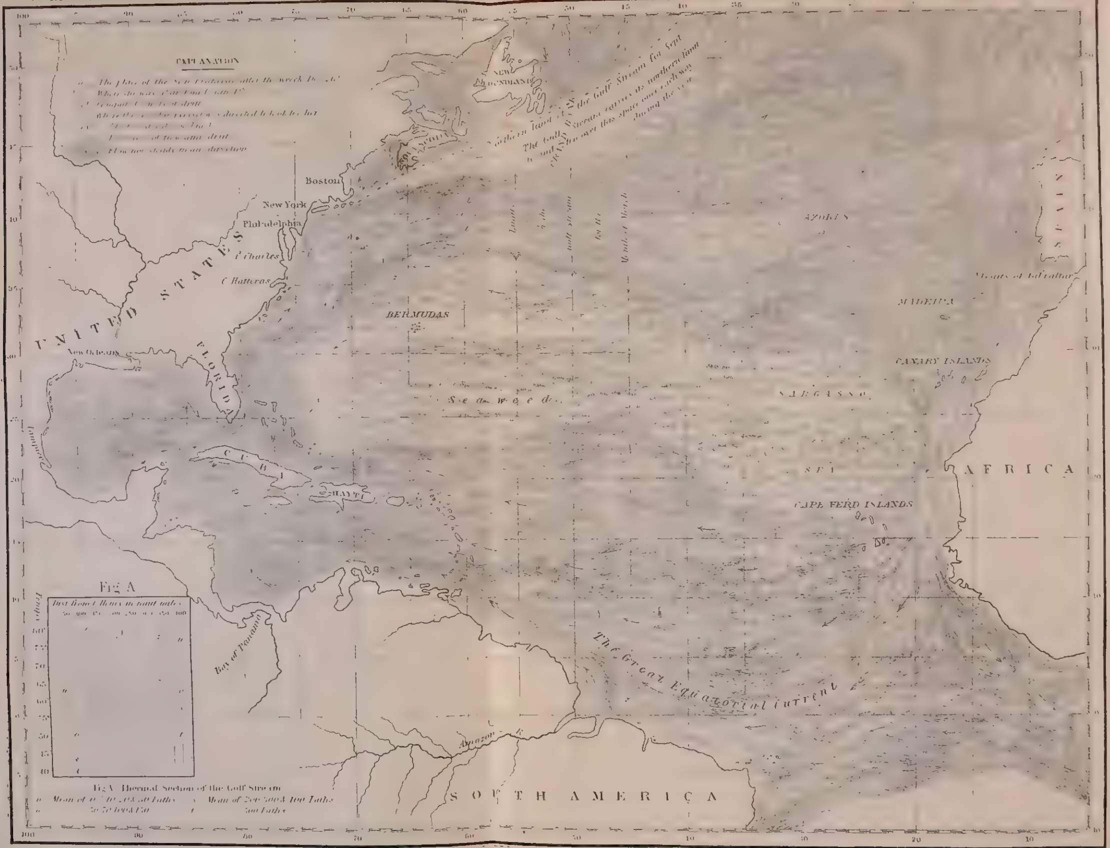
From Cape St. Paul to Onim or Lagos, many negro towns or villages are met with stationed along the coast. These communicate with each other by means of the lake situated at no great distance inland from the beach; and then the ford converges to the principal points, which are Quita, Popo-pequeño, Ajuda, Porto Novo, and Onim. The trade which formerly flourished at all these places was that in slaves; but for some years past that in palm-oil, or *den-den*, has greatly developed itself, the quantity produced amounting annually to more than 7000 tons, which are shipped to England, America, and France. On this section of the coast there are no European establishments, properly so called; but at Ajuda, Porto Novo, and Onim, there are factories; and Europeans are also resident in the country, and traffic with vessels, as they do at those establishments. The trade of the Benin, Brass, Bonny, Calabar, and Cameroon Rivers, is all in palm-oil, and carried on exclusively by the English.

Gulf of Guinea. The Gulf of Guinea forms a caldron and a furnace, and spreads out over the South Atlantic an air-chamber for heating up in winter and keeping warm the extra-tropical regions of South America. Every traveler has remarked upon the mild climate of Patagonia and the Falkland Islands. "Temperature in high southern latitudes," says a very close observer, who is co-operating with me in collecting materials, "differs greatly from the temperature in northern. In southern latitudes there seem to be no extremes of heat and cold, as at the north. Newport, Rhode Island, for instance, latitude 41° north, longitude 71° west, and Rio Negro, latitude 41° south, and longitude 63° west, as a comparison: in the former, cattle have to be stabled and fed during the winter, not being able to get a living in the fields on account of snow and ice. In the latter, the cattle feed in the fields all winter, there being plenty of vegetation and no use of hay. On the Falkland Islands (latitude 51–52° south), thousands of bullocks, sheep, and horses are running wild over the country, gathering a living all through the winter." The water in the equatorial caldron of Guinea can not escape north —the shore-line will not permit it. It must, therefore, overflow to the south, as that of St. Roque does to the north, carrying to Patagonia and the Falkland Islands, beyond 50° south, the winter climate of Charleston, South Carolina, on our side of the North Atlantic, or of the "Emerald Island" on the other.—MAURY'S *Phys. Geog.*

Gulf of Mexico, a large indentation on the east coast of North America, washing the shores of the United States and Mexico, measuring about 1000 miles from east to west, and 800 miles from north to south; estimated area, 800,000 square miles. It is partly formed by the projection toward each other of the peninsulas of Florida and Yucatan, nearly in a line between which lies the island of Cuba, leaving a communication on its north with the Atlantic, through the Flor-

GULF STREAM AND DRIFT by LIEUT. MAURY U.S.N.

Plate II.



ida Channel and on its south with the Caribbean Sea, through the Channel of Yucatan. The Gulf is free from banks, and contains only a few small rocky islands on the coast of Yucatan, with the Florida Reef near its eastern extremity. The shores are low, and generally lined with flat sandy islands, not far from the land, and numerous lagoons. There are few harbors; and the rivers which fall into it are obstructed by bars at their mouth, which render them all, except the Mississippi, nearly inaccessible for vessels of large draught. A current of water entering the Gulf from the Caribbean Sea is soon divided into two portions, the one running east along the coast of Cuba, the other west, in a curved line through the middle of the Gulf, round toward the Florida Channel, where it meets the other current, and the two united form the Gulf Stream (see Atlantic). The temperature of the Gulf of Mexico is 86° in summer, and 6° higher than that of the ocean in the same parallel. At high tide, the Pacific rises several feet above the level of the Gulf, and at low water it falls as far below it.

The depth of the marine basin which holds the waters of the Gulf of Mexico is, in the deepest part, about three quarters of a mile. The officers of the United States' ship *Albany* ran a line of deep sea-soundings from west to east across the Gulf; the greatest depth they reported was about 6000 feet. Subsequent experiments, however, induce the belief that the depth is not quite so great. We should therefore have, by stopping up the channels between the Gulf and the Atlantic, not a sea-level in the Gulf, but we should have a mean level between evaporation and precipitation. If the former were in access, the level of the Gulf waters would sink down until the surface exposed to the air would be just sufficient to return to the atmosphere, as vapor, the amount of water discharged by the rivers—the Mississippi and others—into the Gulf. As the waters were lowered, the extent of evaporating surface would grow less and less, until Nature should establish the proper ratio between the ability of the air to take up and the capacity of the clouds to let down. Thus we might have a sea whose level would be much further below the water-level of the ocean than is the Dead Sea.—Maury's *Phys. Geog.*

Gulf Stream. There is a river in the ocean. In the severest droughts it never fails, and in the mightiest floods it never overflows. Its banks and its bottom are of cold water, while its current is of warm. The Gulf of Mexico is its fountain, and its mouth is in the Arctic Seas. It is the Gulf Stream. There is in the world no such majestic flow of waters. Its current is more rapid than the Mississippi or the Amazon.

Its waters, as far out from the Gulf as the Carolina coasts, are of an indigo-blue. They are so distinctly marked that their line of junction with the common sea-water may be traced by the eye. Often one half of the vessel may be perceived floating in Gulf Stream water, while the other half is in the common water of the sea; so sharp is the line, and such the want of affinity between those waters, and the reluctance on the part of the Gulf Stream to mingle with the common water of the sea.—Maury's *Phys. Geography.*

Various causes of the Gulf Stream have been assigned. At one period, the Mississippi River; but this hypothesis was soon exploded, for it is estimated that it would take 1000 such rivers, as the velocities of the river and Gulf Stream are about equal. The most plausible hypothesis yet advanced, and the one which seems to be entertained now as true, is, that the motive power is due to the difference of temperature between the equatorial and northern parts of the ocean. This difference would give a cause commensurate with such an effect as the Gulf Stream, and is the only one yet advanced where the cause and effect approach equality. It is probable, however, that this is but one of the many forces brought to bear. The forces varying from the potent one mentioned, to others "light as the zephyr." And, in many cases, forces produced by the Gulf Stream react upon it; as, from the difference of temperature of the north and south, *aided* by the Gulf Stream in some cases, are produced the trade winds, so these trade winds have no slight effect upon the Gulf Stream.

To form some idea of the magnitude of the stream, we can take a cross section at Cape Hatteras; approximately, it may be given as 75 miles wide and 700 feet in depth, with a velocity of three knots an hour. The stream becomes smaller in its progress north, yielding portions of its heat on its way, and so allowing portions of the stream to assimilate with the rest of the ocean.

As the Gulf Stream is but a current of water of high temperature from the south to the north, it would be natural to suppose its course would be from south to north. This would be the case were it not for the rotation of the earth to the east, for a current starting from the equator, having a velocity of 1000 miles an hour eastward in common with the earth, when its current reaches latitude 60°, where the velocity of the earth is only 250 miles an hour, it will be so many degrees of longitude east as the difference of velocities would force it, minus the retardations. This would be sufficient to explain why the course should be north-east, independent of the effect of the contour of the continent.

The course and dimensions of the Gulf Stream may be readily seen from the accompanying chart of Maury's. (See Plate II.)

The amount of water forming the Gulf Stream, and going north, must be returned into the fountain-head, the seas near the equator—and so we have streams or oceanic currents going south equally as important in their effect, and giving as interesting phenomena, but not as readily observed, because they are *under*-currents, and not as appreciated because they most affect other parts of the world. The water from the north flows to the south in many comparatively small under-currents, and rises to the surface at various points, taking for their general course the African shore, and making a circle uniting with the Gulf Stream in the Caribbean Sea. For the same reason that the course of the Gulf Stream is north-east the returning currents are south-west.

One large returning current crosses the Gulf Stream near the Banks of Newfoundland, bringing icebergs which melt in contact with the warm stream. The deposits have formed, and are forming, the Banks of Newfoundland.

The influence of the Gulf Stream, like the distance of the fixed stars, can be conjectured, but we fall as much short in one conjecture as in the other.

Our complaints of a variable climate would not be without foundation were it not for the beneficial influence of streams of water from the tropics, giving us warmth and moisture; making the climate of New York in winter equal to a place in a latitude 10° south, and in summer giving the health of a place as many degrees north. Maury says:

"No part of the world affords a more difficult or dangerous navigation than the approaches of our northern coasts in winter. Before the warmth of the Gulf Stream was known, a voyage at this season from Europe to New England, New York, and even to the capes of the Delaware, or Chesapeake, was many times more trying, difficult, and dangerous than it is now. In making this part of the coast, vessels are frequently met by snow-storms and gales which mock the seaman's strength, and set at naught his skill. In a little while his bark becomes a mass of ice, with her crew frosted and helpless; she remains obedient to her helm, and is kept away for the Gulf Stream. After a few hours' run, she reaches the edge, and almost at the next bound passes from the midst of winter into summer heat. Now the ice disappears from her; the sailor bathes his stiffened limbs in tepid waters; feeling himself invigorated and refreshed with the genial warmth about him, he realizes out there at sea the fable of Antæus and his mother Earth. He rises up and attempts to make his port again." And though he may fail again, he always has the same resource. Nor is this all; it affords an excellent water "landmark," an outside shore of the country, against which no ship is lost; but giving definite longitude to the storm-tossed mariner, and warning him that land is near, saves him often. Commerce itself, defining it as the interchange of commodities, is but an imitation of the Gulf Stream. The Gulf Stream, taking the heat of the tropics to the shivering northmen, and the icebergs of the north to the feverish native of the torrid zone—giving heat to some, food to others, and in some way affecting all.

Gums, Resins, Gum-resins. In commerce, the term gum is not only applied to gums properly so called, but also to resins, and gum-resins. But though these substances have many properties in common, they are yet sufficiently distinct.

I. *Gum* is a thick, transparent fluid, that issues spontaneously from certain species of plants, particularly such as produce stone-fruit, as plum and cherry-trees. It is very adhesive, and gradually hardens by exposure to the atmosphere. It is usually obtained in small pieces, like tears, moderately hard and somewhat brittle while cold; so that it can be reduced by pounding to a fine powder. When pure, it is colorless; but it has commonly a yellowish tinge; it is not destitute of lustre; it has no smell; its taste is insipid; its specific gravity varies from 1·3161 to 1·4317; it readily dissolves in water, but is insoluble in alcohol. Gum is extensively used in the arts, particularly in calico-printing, to give consistence to the colors, and to hinder them from spreading. It is also used in painting, in the manufacture of ink, in medicine, etc.

The only important gums in a commercial point of view, are gum Arabic and gum Senegal; but lac is popularly, though improperly, ranked among the gums.

1. *Gum Arabic* (Fr. *Gomme Arabique;* It. *Gomma Arabica;* Ger. *Arabische gummi;* Arab. *Tolh*), the produce of the *Acacia vera*, a tree growing in Arabia, and in many parts of Africa. The gum exudes naturally from the trunk and branches, and hardens by exposure to the air. "The more sickly the tree appears, the more gum it yields; and the hotter the weather the more prolific it is. A wet winter and a cool or mild summer are unfavorable to gum."—JACKSON'S *Morocco*, p. 84. It is in irregularly-shaped pieces, hard, brittle, and semi-transparent. When pure it is almost colorless, or of a pale, yellowish hue; being insipid, inodorous, and dissolving completely in the mouth. Specific gravity 1·31 to 1·43. It is often mixed with gum Senegal. East India gum Arabic is, though a useful, a spurious article, not being the produce of the *acacia vera*, but of other species of plants. The best gum is either imported direct from Alexandria, Smyrna, Tripoli, Mogadore, Tangiers, etc., or at second-hand from them through Gibraltar, Malta, and other Italian ports. The price depends principally on its whiteness and solubility, increasing and diminishing from £1 15s. to £8 or £9 per cwt., according as the article has more or less of these qualities.—THOMSON'S *Dispensatory and Private Information.*

The *Egyptian Gum Arabic tree* (*Acacia vera*) which affords the finest gum Arabic of commerce, is a native of the sandy deserts of Arabia, Egypt, and the western part of Asia; it also grows abundantly in Barbary and other parts of Africa, particularly in the Atlas Mountains. In Morocco, or Barbary, where the tree is called *Atteleh*, it rises to a height of several feet, having a crooked stem, covered with a smooth, gray bark, while that of the branches is of a yellowish-green, or purplish tinge. At the base of the leaves, there are two opposite awl-shaped spines, growing nearly erect, and having a slight, glandular swelling below. The wood is hard, and takes a good polish. Its seeds, which grow in a hard coriaceous pod, resemble those of the lupine, yield a reddish dye, and are used by tanners in the preparation of leather.

The gum exudes spontaneously from the bark of the trunk and branches of the tree, in a soft or nearly fluid state, and hardens by exposure to the air, or to the heat of the sun. The more sickly the tree, the more gum it yields; and the hotter the weather, the more prolific it is. A wet winter and a cool or mild summer are unfavorable to the crop. It begins to flow in December, immediately after the rainy season, near the time of the flowering of the tree. Afterward, as the weather becomes hotter, incisions are made through the bark, to assist the exudation of the juice. The gum, when new, emits a faint smell, and when stowed in the warehouse, it may be heard to crack spontaneously for several weeks; and this cracking is the surest criterion of new gum, as it never does so when old. Several kinds of gum, yielded by different trees, are occasionally to be met with, but that which is commonly substituted for it is brought from the Island of Senegal, on the coast of Africa, and is called "Gum Senegal."

The *Mastic tree* (*Pistacia lentiscus*), is a native of the south of Europe, the Levant, and the west of Asia, and probably could be cultivated with success in California, and perhaps in some parts of the South. This tree, which seldom exceeds 12 feet in height, with a trunk 10 inches in diameter, is covered with a smooth, brownish bark, and produces the resin known in commerce under the name of "mastic." It is cultivated in various parts of continental Europe, particularly in Italy and Portugal.

2. *Gum British.*—An excellent artificial gum is now largely made for the use of calico-printers and others, and is sold under the name of British Gum, or *dextrine.* It is made by roasting starch, and the manufacture is very skillfully conducted; starch has hence risen in manufacturing importance, while gum Arabic (a much more expensive article) has been to some extent superseded. Not only has starch become thus applied to new purposes, but the starch itself is obtained from a greater variety of sources than heretofore. The old customary mode has been to obtain starch from wheat or other grain, by a process of fermentation, which is not applicable to rice; but excellent starch is now obtained from rice and from sago, by improved chemical methods, and the starch is bleached to a degree of great purity.

3. *Gum Senegal*, principally brought from the island of that name on the coast of Africa, is obtained from various trees, but chiefly from two, one called *Vereck*, which yields a white gum; the other called *Nebuel*, which yields a red gum; varieties of the *acacia gummifera.* Gum Arabic is very often mixed with gum Senegal. The latter is nearly as pure as the former, but it is usually in larger masses, of a darker color, and more clammy and tenacious. It is the sort of gum principally employed by calico-printers.—THOMSON'S *Chemistry*, THOMSON'S *Dispensatory*, AINSLIE'S *Materia Indica*, etc. The trade in gum Senegal is principally in the hands of the French.

II. *Resins*, for the most part, exude spontaneously from trees, though they are often obtained by artificial wounds, and are not uncommonly, at first, combined with volatile oil, from which they are separated by distillation. They are solid substances, naturally brittle; have a certain degree of transparency, and a color most commonly inclining to yellow. Their taste is more or less acrid, and not unlike that of volatile oils; but they have no smell, unless they happen to contain some foreign body. They are all heavier than water, their specific gravity varying from 1·0182 1.1862. They differ from gums in being insoluble in water, whether cold or hot; while they are, with a few exceptions, soluble in alcohol, especially when assisted by heat. When heated, they melt; and if the heat be increased, they take fire, burning with a strong yellow flame, and emitting a vast quantity of smoke. Common *rosin* furnishes a very perfect example of a resin, and it is from this substance that the whole genus have derived their name. Rosin is, indeed, frequently denominated resin. The principal resins are *Animi*, *Elemi*, *Copal*, *Lac*, *Labdanum*, *Mastic*, *Rosin*, *Sandarach*, *Tacamahac*, etc.; which see, under their respective names.—THOMSON'S *Chemistry*.

III. *Gum-resins*, a class of vegetable substances consisting of gum and resin. They differ from resins in this, that they never exude spontaneously from the plant, being obtained either by bruising the parts containing them, and expressing the juice, which is always in a state of emulsion, generally white, but sometimes of a different color, or by making incisions in the plant, from which the juice flows. The juice, being exposed to the action of the sun, is condensed and inspissated, till it forms the gum resin of commerce. Gum-resins are usually opaque, or, at least, their transparency is inferior to that of resins. They are always solid, and most commonly brittle, and have, sometimes, a fatty appearance. When heated, they do not melt as resins do, neither are they so combustible. Heat, however, commonly softens them, and causes them to swell. They burn with a flame. They have almost always a strong smell, which, in several instances, is alliaceous. Their taste, also, is often acrid, and always much stronger than that of resins. They are usually heavier than resins. They are partially soluble in water, but the solution is always opaque, and usually milky. Alcohol partially dissolves them, the solution being transparent.

The most common gum-resins are, *Aloes*, *Ammonia*, *Euphorbium*, *Galbanum*, *Gamboge*, *Myrrh*, *Olibanum*, *Sagapenum*, *Scammony*, etc.; which see, under their respective names.—LOUDON'S *Ency. of Agriculture*; THOMSON'S *Chemistry*.

Gum-tree (*Nyssa biflora*), or Twin-flowered Nyssa—known also as the Tupelo-tree, yellow gum-tree, sour gum-tree, Peperidge-tree, wild pear-tree—in an uncultivated state, seldom rises above 40 or 50 feet, with a trunk 15 or 20 inches in diameter. The *Nyssa biflora* begins to appear in the lower part of New Hampshire, where the climate is tempered by the ocean; and, in progressing southward, it is found most abundantly in the easterly parts of New York, New Jersey, and Pennsylvania. But in Virginia and Carolina, it is more sparingly produced, and, as in the north, it always occurs in moist ground or in watery places.

The *Nyssa biflora* holds a middle rank between soft and hard-wooded trees. When perfectly seasoned, the sap-wood is of a slight reddish tint, and the heart-wood is of a deep brown. Of trees exceeding 15 or 18 inches in diameter, frequently more than half of the trunk is hollow. The ligneous fibres which compose the body of most other trees are closely united, and usually ascend in a perpendicular direction. But, on the contrary, the trees of this genus exhibit a constant peculiarity of organization—the fibres being united in bundles, and are interwoven like a braided cord. This property gives it a decided superiority for certain uses. In the parts of the country where it abounds, it is employed for the naves of wheels destined for heavy burdens. It is also employed for the heads of the shafts of wind-mills; and, sawn into boards, it is used for lining carts. Wooden bowls are made of it, which are heavier than those made of the tulip-tree (*Liriodendron*), and are less liable to split. From the irregularity of the fibre, the "gum-tree" is not admitted as evidence in the courts of Pennsylvania, in establishing boundaries to lands, etc., from the number of years which have elapsed since the trees have been blazed. As fuel, this wood burns slowly, and diffuses a great heat.—BROWNE'S *Trees of America*.

Gun-cotton. Cotton is one of the numerous forms of lignine, a compound of carbon, oxygen, and hydrogen; but when it is subjected to the action of nitric acid, nitrogen, which exists in most explosive bodies, enters into its composition. The action of nitric acid on lignine had long attracted the attention of chemists; but the nearest approach to the formation of gun-cotton was made by Pelouze, who, in 1838, writes in the *Comptes Rendus* of the properties of a substance named *Xyloidine*, from *ξυλον*, wood, discovered by Braconnet in 1833: "It is very combustible, taking fire at 356° Fahr., burning with great rapidity, and almost without residue. This property has led me to an experiment, which I think susceptible of some application, especially in artillery. By plunging paper in nitric acid of sp. gr. 1·5, leaving it there the requisite time for the acid to permeate the paper, which is usually accomplished in two or three minutes, then withdrawing it, and lastly, washing it in water, we obtain a kind of parchment impermeable to moisture, and extremely combustible. "In 1846, Schönbein exhibited to the British Association at Southampton specimens of cotton, which appeared to be as explosive as gunpowder; but it was not till April, 1847, on the enrolment of the patent, that the method of preparing this cotton was known, although, in the interval, Otto of Brunswick, Morel of Paris, and Böttger of Frankfort, published recipes for making explosive cotton. Schönbein's method consisted in mixing three parts of sulphuric acid, sp. gr. 1·85, with one part of nitric acid, sp. gr. 1·45 to 1·50; and when the mixture had cooled down to between 50° and 60° Fahr., clean rough cotton, in as open a state as possible, was immersed in the acid; when well soaked, the excess of acid was drawn or poured off, and the cotton pressed lightly in order to separate the principal portion of the acid. The cotton was then covered over and left for half an hour, when it was pressed and thoroughly washed in running water to get rid of all free acid. After being partially dried by pressure, it was washed in an alkaline solution made by dissolving one ounce of carbonate of potash in a gallon of water. The free acid being thus got rid of, it was put into a press, the excess of alkaline solution was expelled, and the cotton left nearly dry. It was then washed in a solution of pure nitrate of potash, one ounce to the gallon, and being again pressed, was dried at a temperature of from 150° to 170°. It was stated, that three parts of the gun-cotton thus prepared were equal in force to eight parts of Tower-proof gunpowder.

Gun-cotton has also been employed in blasting, especially on the Manchester and Huddersfield railway in Standedge tunnel, and on the works in the Stour Valley, near Birmingham. It has been stated that gun-cotton produces a much greater effect, weight for weight, than gunpowder, in the proportion of five to one. This seems an exaggeration; but the disruptive effect really seems to be greater from gun-cotton; and as it gives no smoke, in confined situations the workmen are enabled sooner to resume their work.

Cotton gains considerably in weight by the above treatment, but is scarcely changed in color or in general appearance, if the process has been carefully conducted; it is, however, harsh to the touch, and gives a crepitating sound when pressed by the hand. It differs from common cotton by its electric excitability, the slightest degree of friction causing it to be powerfully attracted and repelled by other bodies; and also by its action on a ray of polarized light, which it does not depolarize like ordinary cotton. It explodes at a temperature of from 350° to 400°, with such rapidity as to interfere with its practical application, for, if applied to the purposes of artillery, it may burst the gun before it has time to move the shot, and some of the products of its combustion make it also objectionable for fire-arms. Among these products water may be mentioned, and, should not the cotton have been well washed, nitrous acid. Another great impediment to the use of gun-cotton is its hygrometric condition, for if exposed to a damp atmosphere, it will in an hour or two absorb a considerable portion of moisture. Many attempts have been made to apply it to mining purposes on account of its enormous force, and the small quantity of smoke which it produces; but the objections to its use are numerous, the most fatal objection being its liability to spontaneous ignition.

Nevertheless, gun-cotton continues to be an object of great interest, on account of its application to the beautiful art of photography. When the cotton is prepared in such a way as to burn slowly, it is not liable to spontaneous ignition, and in this state it is perfectly soluble in sulphuric ether, which the more explosive cotton is not. If the etherial solution called *collodion*, be poured on the surface of cold water, a paper is produced which is prepared for the use of the photographer. This paper is a very active electric, and is perfectly soluble in ether. *Collodion* has also been made use of in surgery, by applying the ethereal solution to a wound, when a thin delicate artificial skin is formed by it, which perfectly excludes the air.

In the preparation of gun-cotton, nitric acid is the active agent in the formation of xyloidine; the sulphuric acid has no direct action on the lignine, its use being to retain the water abstracted from the cotton, and prevent the solution of the compound which takes place to a greater or less extent in nitric acid alone. The purity and exact strength of the acids are matters of great importance. Mr. Hadow found that the best mixture for producing collodion wool is obtained by mixing 89 parts by weight of nitric acid, sp. gr. 1·424, with 104 parts by weight of sulphuric acid, sp. gr. 1·833.

On trying the effects of various re-agents on gun-cotton, Mr. Hadow found that it could be perfectly restored to the original cotton, without loss of form, by means of an alcoholic solution of hydro-sulphuret of potassium. On this, and other points connected with the chemistry of gun-cotton, we must refer to Mr. Hadow's paper, published in the *Transactions of the Chemical Society*.—E. B.

Gunpowder (Ger. *Pulver*, *Schiesspulver;* Du. *Bushruid;* Da. *Krudt*, *Pulver;* Sw. *Krut;* Fr. *Poudre;* It. *Polvere;* Sp. and Port. *Polvora;* Rus. *Poroch;* Pol. *Proch;* Lat. *Pulvis pyrius*). This well-known inflammable powder is composed of nitre, sulphur, and charcoal, reduced to powder, and mixed intimately with each other. The proportion of the ingredients varies very considerably; but good gunpowder may be composed of the following proportions; viz., 76 parts of nitre, 15 of charcoal, and 9 of sulphur. These ingredients are first reduced to a fine powder separately, then mixed intimately, and formed into a thick paste with water. After this has dried a little, it is placed upon a kind of sieve full of holes, through which it is forced. By this process it is divided into grains, the size of which depends upon the size of the holes through which they have been squeezed. The powder, when dry, is put into barrels, which are made to turn round on their axis. By this motion the grains of gunpowder rub against each other, their asperities are worn off, and their surfaces are made smooth. The powder is then said to be glazed.—THOMSON'S *Chemistry*.

Dr. Thomson, whose learning is equal to his science, has the following remarks with respect to the introduction of gunpowder into warlike operations: "The discoverer of this compound, and the person who first thought of applying it to the purposes of war, are unknown. It is certain, however, that it was used in the fourteenth century. From certain archives quoted by Wiegleb, it appears that cannons were employed in Germany before the year 1372. No traces of it can be found in any European author previously to the thirteenth century; but it seems to have been known to the Chinese long before that period. There is reason to believe that cannons were used in the battle of Cressey, which was fought in 1346. They seem even to have been used three years earlier, at the siege of Algesiras; but before this time they must have been known in Germany, as there is a piece of ordnance at Amberg, on which is inscribed the year 1303. Roger Bacon, who died in 1292, knew the properties of gunpowder; but it does not follow that he was acquainted with its application to fire-arms."—THOMSON'S *Chemistry*.

The invention of gunpowder is by some ascribed to Bertholdus or Michael Schwartz, a Cordelier monk of Goslar, south of Brunswick, in Germany, about A.D. 1320. But many writers maintain that it was known much earlier in various parts of the world. Some say that the Chinese possessed the art a number of centuries before. Its composition, moreover, is expressly mentioned by our own famous Roger Bacon, in his treatise *De Nullitate Magiæ*, which was published at Oxford in 1216.—HAYDN.

Composition of Gunpowder.—The present composition of the Chinese gunpowder corresponds so nearly with our own that the difference is nearly insensible; but whether it had arrived at that degree of perfection in their ancient periods, we have no means of knowing. Neither can we judge of its nature and power as known to the Arabs. But in our own country it was late in arriving at its present state of perfection; nor do the various proportions given by one of the earliest English writers on the subject, argue much in favor of their chemical knowledge. Peter Whitehorne, who wrote in 1573, gives numerous proportions, without seeming to be well aware of their respective values; and, respecting some of them, it is easy to see that they were scarcely fit for squibs, much less for the purpose of projecting shot. Such is nitre, sulphur, charcoal, equal parts; while, in the very opposite extreme, we have nitre 12 parts, sulphur and charcoal, of each 3 parts; and, still worse, nitre 27 to 3 of the other two ingredients; or nitre 48 parts, with 7 of sulphur and 3 of charcoal. Here, such as these compositions are, want of experience can scarcely be pleaded, as they are not better than those given by Nye in 1380. In France, also, the composition, at no very remote period, was—nitre 50, sulphur 16, charcoal 34; from which it varied to, nitre 67, sulphur 13, charcoal 20; and to nitre 84, sulphur 8, charcoal 8; these differences being supposed to be necessary for the larger cannon, and the smaller progressively, the last being their musket powder.

But as we can not afford space to describe the gradual progress of improvement in the composition of gunpowder, we will state the proportions at present in use in different nations. They do not materially differ from each other, although it is unquestionable that they are not all of equal power.

	Nitre.	Sulphur.	Charcoal.
Royal Mills at Waltham Abbey..	75	10	15
France, National Establishment.	75	12·5	12·5
French, for sportsmen..........	76·9	9·6	13·5
French, for mining.............	62	20	18
United States of America.......	75	12·5	12·5
Prussia........................	75	11·5	13·5
Russia.........................	73·78	12·63	13·59
Austria (musket)...............	72	16	17
Spain..........................	76·47	12·75	10·78
Sweden.........................	76	9	15
Switzerland, round powder.....	76	10	14
Chinese........................	75·7	9·9	14·4

Without any knowledge of the law of definite proportions, and even before that law was known to exist, each nation had experimentally hit upon nearly the best proportions of the three ingredients, namely, 1 equivalent of nitre, 1 of sulphur, and 3 of charcoal, or 75 per cent. of nitre, 11·77 of sulphur, and 13·23 of charcoal. In practice the proportions used for the manufacture of 100 lbs. of gunpowder are—saltpetre 77½ lbs., sulphur 10½ lbs., charcoal 16 lbs. = 104 lbs., the extra 4 lbs. being allowed for waste.

The proportions in the *commercial* gunpowder vary indefinitely, according to the views of the manufacturer respecting the markets, the price, and other matters. Cheapness being the leading object where it is only made for sale, and the nitre being the only expensive article, the proportion of this is diminished, and those of the other two ingredients increased. We have never met with any specimen in which there was less than 62 of nitre; but we have reason to believe that some of the inferior kinds do not contain more than 50. For the use of miners it is also made with a low proportion of nitre, producing advantages in mining not intended by the makers, whose only object is to manufacture a cheap article. But the proportions of all the commercial powders are very inconstant, even when furnished *bonâ fide* to the government.—E. B.

Gunny (Hind. *Tāt;* Ben. *Gūni*), a strong coarse sackcloth manufactured in Bengal for making into bags, sacks, and packing generally, answering at once the two purposes for which canvas and *bast* are used in Europe. The material from which this article is manufactured is the fibre of two plants of the genus Corchorus; viz., *Corchorus olitorius*, and *Corchorus capsularis* (Bengali *pat*); both, but particularly the first, extensively cultivated throughout Lower Bengal. Besides a large domestic consumption of gunny, the whole rice, paddy, wheat, pulses, sugar, and saltpetre of the country, as well as the pepper, coffee, and other foreign produce exported from Calcutta, are packed in bags or sacks made of this article. There is also a considerable exportation of manufactured bags, each commonly capable of containing two maunds, or about 160 lbs. weight, to Prince of Wales Island, Malacca, Singapore, Java, and Bombay. In 1841–42 there were exported from Calcutta 5,330,899 gunny bags, of the value of 499,426 rupees (£49,942), and 95,412 pieces of gunny cloth, worth 433,321 rupees (£43,332).—WALLICH, *Roxburg; Review of the External Commerce of Bengal for* 1841–42.

Guns and Fowling-pieces, Three European nations are distinguished for their production of these arms—the English, Belgians, and French. Small arms for war and for the chase are manufactured at Birmingham, the one with due solidity, the other with refinement of workmanship. In respect to Belgium, Liège is the Birmingham of that country, and manufactures guns on a very large scale. The Belgians, on account of cheapness combined with good execution, sell a great quantity of small arms to other nations, particularly to Russia. France, for the manufacture of small arms for war, is now perhaps more advanced than any other nation. St. Etienne is the town principally employed in the manufacture of muskets; but Paris produces the most finished weapons, combining all the perfection that can be required for precision of firing and beauty of ornament. Sharpe's rifles are manufactured in the United States in large numbers, also a variety of small arms.

Gunter, Edmund, an ingenious English mathematician and machinist, was born in Hertfordshire about the year 1581. He was educated at Westminster, and afterward at Christ Church College, Oxford, where he graduated. Though he took holy orders in 1614, mathematics, which had been his favorite study from his youth, continued to engross his attention, and in 1619 he was chosen to the chair of astronomy in Gresham College, where he remained till his death in 1626. Of Gunter's written works the chief are his *Canon Triangulorum*, a table of logarithmic sines and tangents, extended to seven decimal places, and forming a sort of complement to the logarithms of natural numbers by his colleague Brigg.

Gunter's Line, a logarithmic line, usually laid down upon scales, sectors, etc. It is also called the *line of lines* and *line of numbers;* being only the logarithms graduated upon a ruler, which therefore serves to solve problems instrumentally in the same manner as logarithms do arithmetically.

Gunter's Quadrant, an instrument made of wood, brass, or other substance, containing a kind of stereographic projection of the sphere, on the plane of the equinoctial; the eye being supposed to be placed in one of the poles; so that the tropic, ecliptic, and horizon, form the arcs of circles; but the hour-circles are other curves, drawn by means of several altitudes of the sun for some particular latitude every year. This instrument is used to find the hour of the day, the sun's azimuth, etc., and other problems of the globe; as also to take the altitude of an object in degrees.

Gunter's Scale (generally called by seamen the *Gunter*), is a large plane scale, usually 2 feet long by about 1½ inches broad, and engraved with various lines of numbers. On one side are placed the natural lines (as the line of chords, the line of sines, tangents, rhumbs, etc.), and on the other side the corresponding artificial or logarithmic ones. By means of this instrument, questions in navigation, trigonometry, etc., are solved, with the aid of a pair of compasses.

Gunwale (pronounced *gunnel*), the uppermost wale of a ship or boat, or that piece of timber which finishes the upper part of the hull. The raised work above this is called the *bulwark*.

Gutenberg, or **Guttemberg, Johann** (whose real name was Gensfleisch), was born at Sorgenloch, near Mentz, in 1397. It is now generally admitted that to him is due almost the entire credit of inventing the art of printing by movable types. The respective claims of Fust, Gutenberg, and Schoeffer, are fully discussed under FUST.—E. B.

Gutenberg, after a life of much suffering and hardship, died at Mentz in 1468, in great poverty. Posterity has done him the justice denied him by his cotemporaries. The statue by Thorwaldsen, erected in his honor at Mentz in 1837, furnished an example which has since been followed by many towns in Germany. The Gutenberg Society keeps his name in memory by an annual festival. No books are extant that are known for certain to have been printed by Gutenberg. The famous *Mazarin Bible*, DONATUS' *Grammar*, and the *Catholicon* of Janua, are believed to have issued from his press. See PRINTING.

Gutta Percha. This valuable substance has only been known within the last few years. It is the concrete juice of a large tree (*Isonandra gutta*), growing in certain parts of the Malayan Archipelago—hitherto chiefly obtained from Singapore. The first specimen of the inspissated juice which appeared in England was presented to the Society of Arts in 1843, but two or three years elapsed before a just sense of the importance of the substance began to gain ground. In 1845 the importation of gutta percha into England amounted to only 20,600 lbs.; in 1848 it had reached 3,000,000 lbs.; in 1852 it amounted to 30,580,480 lbs. —a rate of increase which gives serious cause to doubt whether the supply will long be adequate to meet the demand; for it is unfortunately the case that the trees which yield gutta percha are not only limited in their growth to certain districts, and less abundant in quantity than india-rubber trees, but they have been subjected for several years to the barbarous and wasteful mode of cutting down the trees for the sake of the sap. Whatever European industry may be able to do in checking this destructive system, and extending the cultivation of the gutta percha tree, there is yet reason to doubt whether this slow-growing tree can be reared in sufficient quantities to counterbalance the havoc already made. The *Isonandra gutta* belongs to the natural order Sapotaceæ, and is the only tree which yields gutta percha. It rises to the height of 60 or 70 feet, and the trunk is 3 or 4 feet in diameter. The tree flourishes in alluvial soils, at the foot of hills, and sometimes forms the chief part of the jungle in such situations. The foliage is of a pale green on the upper part, and covered with reddish-brown hairs beneath. The wood is soft, fibrous, spongy, pale in color, and traversed by longitudinal receptacles or reservoirs filled with the gum, forming ebony-black lines. This gum has many of the properties of india-rubber, but it has also special properties of its own which admit of its being applied to uses for which caoutchouc is not adapted. It possesses the same indestructibility by chemical agents which makes india-rubber so valuable, and it has also the peculiarity of becoming soft and plastic on being plunged into boiling water. In this state it can be molded into any desired form, which form it permanently retains on cooling. The great convenience and utility of such a substance could not fail to strike the natives of the countries in which it is produced; and accordingly, we find that, long before gutta percha became known to Europeans, it had been fabricated by the Malays into whips, basins, jugs, shoes, etc., thus at length exciting the attention of travelers, and leading to the introduction of some of these articles into Europe under the name of india-rubber, or, earlier still, of *mazer-wood*.

The honor of having drawn attention to its real nature and uses is due to Drs. D'Almeidá and W. Montgomerie. The latter, writing from Bengal, remarked on the ordinary name of the plant thus:—"The word is a pure Malayan one—*gutta* meaning the gum or concrete juice of a plant, and *percha* the particular tree from which this is procured. The *ch* is not pronounced hard like *k;* but like the *ch* in the English word *perch*." In 1843 Dr. Wm. Montgomerie, of the Indian Medical Service, observing certain Malay knife and kris handles, inquired the nature of the material from which they were made; and from the crude native manufacture inferred at once the extensive uses to which the gutta percha might be put in the arts of Europe. He purchased a quantity of the raw material, sending from Singapore part of it to Bengal, and part to Europe, and suggesting some of the uses to which he thought it might be applied. The quantity sent to England secured to him at once, as the discoverer, the gold medal of the Society of Arts. The surgical uses of gutta percha were early discovered by Dr. Oxley of Singapore, who declared it to be "the best and easiest substance ever discovered for the management of fractures, combining ease and comfort to the patient, and very much lessening the trouble of the surgeon."

Gutta percha arrives in lumps or blocks of several pounds' weight, but these often contain impurities, such as stones, earth, etc., introduced by the Malays for the sake of increasing the weight. The purification and preparation of this substance on a large scale are conducted as follows:—The lumps of gutta are subjected to the action of a vertical wheel, on the face of which are fixed three knives which, as the wheel revolves at the rate of 300 revolutions per minute, cut the lumps into thin slices. These are then softened in hot water, and thrown into a rotating machine, where they are further reduced by the action of jagged teeth. From this machine they again fall into water, and are further cleansed. They are then kneaded into a paste in hot water, and rolled between heated cylinders. The mass has now become uniform in texture, and is either rolled out into sheets between steel rollers, or is passed in the mass through heated iron cylinders; after which it is ready for use. Gutta percha is scarcely affected by boiling alcohol, but it dissolves nearly completely in benzine and in spirit of turpentine with the aid of heat, and also in naphtha, coal-tar, sulphuret of carbon, and in chloroform. Its solution in sulphuret of carbon or in chloroform may be almost entirely deprived of color by filtering, the process being conducted under a glass jar, in order to prevent loss by evaporation. If this solution be exposed in a flat dish to the air, the solvent will evaporate, leaving a solid cake of white gutta percha, which retains all the properties of the common gutta; and it may be melted by a gradual increase of temperature without acquiring any perceptible color.

The purposes to which gutta percha is applied are too numerous for recapitulation. Only a few of the more important uses can be here mentioned. It resists the action of water, and is at the same time a bad conductor of electricity; it is therefore employed for inclosing the metallic wires used in the electric telegraph. The efficiency of the submarine telegraph is largely due to this valuable substance.

Various other maritime uses have been found for it in the construction of buoys, life-boat apparatus, etc. Manufacturers and agriculturists have applied gutta percha to use in bands and straps for machinery, tubes, buckets, etc. Architects have accepted its aid in the interior ornamental work of houses, such as cornices, centres for ceilings, etc. Scientific men are aided in their electrical experiments by its high insulating power. Miners, railway officials, and others, find the value of speaking-tubes made of this substance; deaf persons are also greatly benefited by its power of conducting sound. Stereotype plates have been made in gutta percha. A mold is taken by pressure of a page of type with woodcuts in gutta percha; from this mold a cast is obtained on a cylinder of gutta percha, and from this last the printing is carried on. The dentist employs gutta percha in fixing or stopping teeth. The chemist is indebted to it in the preservation and conveyance of acids which corrode glass or metallic vessels. It is also extensively used in the manufacture of waterproof clothing, waterproof shoes, etc.

Within the last few years a substitute for gutta percha has been discovered in the juice of the muddar (*Asclepias gigantea*), a common plant in India, which also affords a valuable kind of hemp. Care is required in the collection of the milky juice, on account of its exceedingly acrid nature; but when exposed to the air it hardens into a substance closely resembling gutta percha, and having many of its valuable properties. It is, however, unfitted for electrical purposes, for it is found to conduct electricity as freely as a piece of untanned hide.—E. B.

Gutta Trap, a substance evidently allied to gutta percha and caoutchouc, employed at Singapore in the manufacture of bird-lime. It is the inspissated juice of an artocarpus; and it is highly probable that there are several similar vegetable productions, such as the mangegatu (*Ficus indica*), from Visagapatam, which might advantageously be introduced into commerce, and employed in the arts for purposes similar to those for which caoutchouc and gutta percha are now so extensively employed.

Guy, a rope used to steady any weighty body while it is being hoisted or lowered; also, a tackle to confine a boom forward to prevent the sail from gybing. Guy likewise denotes a large rope extending from the head of the main-mast to that of the foremast, to sustain the tackle used for loading and unloading a ship.

Gybing, the shifting of the boom of a fore-and-aft sail from one side of the mast to the other, either to alter the course of the vessel suddenly, or to accommodate the sail to a change of wind.

Gypsum, or **Sulphate of Lime**, is found in various parts of the Continent, in Derbyshire and Nottinghamshire, and in Nova Scotia, whence it is largely exported. When reduced to a powder, and formed into a paste with water, it is termed *plaster of Paris*, and is much used for forming casts, etc. It is also used for laying floors, and has been advantageously employed as a manure.

H.

Hackney Carriages are carriages stationed in the streets or other public places, and bound to carry such persons as require their services, for certain rates of hire according to the distances traveled. They have generally been licensed by authority, and subjected to certain regulations, intended to exempt strangers, and others using them, from fraud and imposition. It may be doubted, however, whether these regulations have had any good effect; and whether the public would not be as well accommodated, at least in all large towns, by throwing the business open, and trusting to competition to rectify abuses. Hackney coaches are of French origin. In France, a strong kind of cob-horse (*haquenée*) was let out on hire for short journeys: these were latterly harnessed (to accommodate several wayfarers at once) to a plain vehicle called *coche-à-haquenée:* hence the name. The legend that traces their origin to Hackney, near London, is a vulgar error. They were first licensed in 1662, and subjected to regulations, 6 William and Mary, 1694.—*Survey of London.* The number plying in London fixed at 1000, and their fares raised, 1771. The cabriolets are of Parisian origin; but the aristocratic taste of Englishmen suggested the propriety of obliging the driver to be seated on the outside of the vehicle.—HAYDN.

Hainan, a large island in the Chinese Sea, lying south of the province of Canton, to which it is annexed, and separating the Gulf of Tonquin from the Chinese Sea. It is separated from the southern extremity of the province of Canton by the Strait of Luichan, 15 or 16 miles wide, and lies between N. lat. 18° 10′ and 20° 54′, and E. long. 108° 25′ and 111°. It is about 150 miles in length by 100 in breadth, and has an area of above 12,000 square miles. The interior of the island is mountainous; some parts of it rise above the snow line, and it is inhabited by aboriginal tribes. The Chinese inhabitants are mostly descendants of emigrants from Fokien, and are agricultural, trading, or piratical in their vocation, according to circumstances. The soil is mostly sandy, but some of the plains, particularly on the west coast, are of great fertility. Timber constitutes its most valuable product, the sides of the mountains being covered with extensive forests of sandal, rose, braziletto, ebony, and other trees. Its other products are chiefly rice, sugar, tobacco, indigo, cotton, sweet potatoes, and various fruits. Wax also forms an important article of export; it is produced by an insect called the pelatchung, or white wax insect, when laying its eggs. Hainan is divided into 13 districts. The capital, Kiungchanfu, is a very populous town, at the mouth of the Limu River, on the Luichan, and has an excellent harbor. Several of the other towns are very populous. The island is said to contain about 1,500,000 inhabitants.

Hair, Human (Ger. *Haare, Menschen-haar;* Du. *Hair;* Fr. *Cheveux;* It. *Capelli umani;* Sp. *Cabellos;* Lat. *Capilli*). "Human hair makes a very considerable article in commerce, especially since the mode of perruques has obtained. Hair of the growth of the northern countries, as England, etc., is valued much beyond that of the more southern ones, as Italy, Spain, the southern parts of France, etc. Good hair is well fed, and neither too coarse nor too slender; the bigness rendering it less susceptible of the artificial curl, and disposing it rather to frizzle; and the smallness making its curl of too short duration. Its length should be about 25 inches; the more it falls short of this, the less value it bears."—M.

Hair of Beasts (Ger. *Haare, Huhaare;* Du. *Hair;* Fr. *Poil;* It. and Sp. *Pelo;* Lat. *Pelles*).—The hair of horses is extensively used in the manufacture of chairs, sofas, saddles, etc.; while the hair or wool of beavers, hares, rabbits, etc., is much employed in the manufacture of hats, etc. Hair, in its mechanical nature, may be regarded as a condensed form of cuticle. The feathers of birds may be considered as analogous to hair; while the only two classes of animals that are wholly devoid of any kind of hair are the fishes and reptiles. The variety in the conformation of hair is very great, ranging from the finest wool to the quills of the porcupine, or the horn of the rhinoceros, which last is nothing more than an assemblage of many hairs in one compact mass.

Hair Manufactures.—The various uses to which hair is applied are familiar to every one. The most valuable kind is human hair. It is procured chiefly from the north of France, Belgium, and Germany. The lighter colored hair, which bears the highest value, is the production of Germany; the darker shades are imported from France, where a peasant girl will sell the hair off her head without any sense of degradation; whereas in England this traffic is resorted to only by females of the lowest class. Indeed so common is the practice in France, that agents are employed to traverse certain districts annually at a particular season for the purpose of collecting the crops of human hair which are assiduously cultivated for the sake of the purchase-money, or its equivalent in gewgaws. A head of hair, such as is bought of the peasant girls in the districts above named, weighs from 1½ to 1¾ pounds.

The hair used for weaving consists of the long hair from horses' tails. It is procured principally from South America and from Russia. All the black and gray hair is dyed for the manufacture of black hair-cloth for covering furniture. The white is reserved for dyeing of the brighter hues, such as green, claret, crimson, etc. The quality of the cloth, as well as the brilliancy and permanency of the colors, depend in a great degree on the nature of the warp, which may be either of cotton, linen, or worsted. In the manufacture of hair-cloth, either plain or damasked, the weaver uses a sort of hook-shuttle, which he passes between the threads of the warp, or shed, toward his left hand; the assistant, or "server," places a single hair over the end of the hook, and the weaver draws it through the warp. The placing of the hairs one by one renders this a tedious operation, and one that does not admit of the application of machinery, which is so advantageously employed in fabrics where the shot or weft consists of a continuous thread.

Hair Pencils, or **Brushes**, for painting. Two sorts are made: those with coarse hair, as that of the swine, the wild boar, the dog, etc., which are attached usually to short wooden rods as handles; these are commonly called *brushes;* and hair pencils, properly so called, which are composed of very fine hairs, as of the minever, the marten, the badger, the polecat, etc. These are mounted in a quill when they are small or of moderate size, but when larger than a quill, they are mounted in white iron tubes.

Hair Powder (Ger. *Puder;* Fr. *Poudre à poudrer;* It. *Polvere di cipri;* Sp. *Polvos de peluca*) is used as an ornament for the hair, and generally made from starch pulverized, and sometimes perfumed.

Hake, a kind of fish, the *Gadus merluccius*, common in the Atlantic seas and the Mediterranean, and often prepared as stock-fish. See FISHERIES.

Halifax, a city and sea-port, capital of colony and province of Nova Scotia, founded in the year 1749. Situated on a declivity near the coast, and the centre of the peninsula, and on the west side of a deep inlet of the sea, called Halifax harbor, which extends several miles inland; lat. 44° 39′ 42″ north, long. 63° 35′ 30″ west. Including its suburbs it is 2½ miles long, and about one half mile wide. Population 1852, 26,000; 1854, 30,000.

The best mark in sailing for Halifax is Sambro light-house, on a small island off the cape of the same name, on the west side of the entrance to the harbor, in lat. 44° 30′, long. 63° 32′. The light, which is fixed, is 210 feet above the level of the sea; and a detachment of artillery, with two 24-pounders, is upon duty at the light-house, firing at regular intervals during the continuance of the dense fogs with which this part of the coast is very much infested.—*Coulier, Tables des Principales Positions Geographiques*, p. 78. The course into the harbor for large ships, after passing Sambro light, is between the main land on the west, and McNab's island on the east. On a spit projecting from the latter, a light-house has been constructed; and when this is seen, ships may run in the harbor without fear. The harbor is defended by several pretty strong forts. Ships usually anchor abreast of the town, where the harbor is rather more than a mile in width. After gradually narrowing to about one quarter of that width, it suddenly expands into a noble sheet of water, called Bedford Basin, completely land-locked, with deep water throughout, and capable of accommodating the whole navy of Great Britain. The harbor is accessible at all times, and is rarely impeded by ice. There is an extensive royal dockyard at Halifax; which, during war, is an important naval station, being particularly well calculated for the shelter, repair, and outfit of fleets cruising on the American coast and in the West Indies. Mr. M'Gregor has severely, and, we believe, justly censured the project for the removal of the dockyard from Halifax to Bermuda.—*Com. Dict.*, 1856.

Trade, etc., of Halifax and Nova Scotia.—Halifax is the seat of a considerable fishery; but the British colonists seem to be, for what reason it is not easy to say, less enterprising and successful fishers than the New Englanders. The principal trade of the town and province is with the West Indies, Great Britain, and the United States. To the former they export dried and pickled fish, lumber, coals, grindstones, cattle, flour, butter, cheese, oats, potatoes, etc. They export the same articles to the southern ports of the United States, and gypsum to the eastern ports of New England. To Great Britain they send timber, deals, whale, cod, and seal oil; furs, etc. The principal exports of timber are from Pictou on the St. Lawrence. The imports consist principally of colonial produce from the West Indies; all sorts of manufactured goods from Great Britain; and of flour, provisions, etc., from the United States, in part for exportation to the West Indies. In 1826 a company was formed for making a canal across the country from Halifax to the Basin of Minas, which unites with the bottom of the Bay of Fundy. The navigation will be formed, for the most part, by Shûbenacadie Lake and River. The legislature gave £15,000 to this undertaking. The excavated part of the canal is 60 feet wide at top, 36 feet at bottom, and will admit vessels drawing 8 feet water. It seems very questionable whether this canal, if constructed, will be profitable to the shareholders; but it will add to the trade of Halifax. There are two chartered banking companies at Halifax. Accounts are kept in pounds, shillings, and pence. The pound being equal to $4 United States' currency; the shilling, 20 cents; and the weights and measures are also the same as in England. About 120 large square-rigged vessels, and about the same number of large schooners, with several smaller craft belong to Halifax. The steamships conveying the mails to British North America, ply between this port and Boston (Mass.), semi-monthly, and Liverpool. The fare to Halifax or Boston from Liverpool, including provisions and steward's fee (but excluding wines and liquors), 140 dollars. On arriving at Halifax, passengers were formerly conveyed by coaches across the peninsula to Pictou, whence they were carried by steamers to Quebec and Montreal. The only commercial changes in the province of Nova Scotia, during the year ending 30th September, 1855, were those caused by the acceptance of the "reciprocity act," or treaty, made between the United States and Great Britain, and agreed to by the provincial legislature in December, 1854, whereby many products of the United States are now admitted into the province from the United States free of duty.

Hams. See Bacon and Pork trade.

Hamburg, a free Hanseatic city, on the north bank of the River Elbe, about 70 miles from its mouth, lat. 53° 32′ 51″ north, long. 9° 58′ 37″ east. Population in 1836, including the suburbs of St. George and St. Paul, but excluding the territory attached to the city, 148,754. Hamburg is the greatest commercial city of Germany, and, perhaps, of the Continent. The Elbe, which may be navigated by lighters as far as Melnik, in Bohemia, renders her the *entrepôt* of a vast extent of country. Advantage, too, has been taken of natural facilities that extend still further her internal navigation; a water communication having been established, by means of the Spree and of artificial cuts and sluices, between the Elbe and the Oder, and between the latter and the Vistula; so that a considerable part of the produce of Silesia destined for foreign markets, and some even of that of Poland, is conveyed to Hamburg. See Canals. There is, also, a communication by means of the Steknitz Canal, with the Trave, and, consequently, with Lubec and the Baltic. And she has been connected by means of railways with Berlin, Hanover, Brunswick, Kiel, etc. Vessels drawing 14 feet water come up to the town at all times; and vessels drawing 18 feet may come safely up with the spring tides. The largest vessels sometimes load from and unload into lighters at Cuxhaven. The trade of Hamburg embraces every article that Germany either sells to or buys from foreigners. The imports consist principally of cotton, wool, stuffs, and yarn; wool, woolen, and worsted goods; coffee, which is the favorite article for speculative purchases; sugar, silk, and silk goods; tobacco, hides, iron, and hardware, indigo, wine, brandy, rum, dyewoods, tea, pepper, etc.; very large quantities of coal are imported from the United Kingdom. Being brought from many different places, there is a great variety of quality in the grain found at Hamburg; but a large proportion of the wheat is inferior. Some of the barley is very good, and fit for malting. The oats are feed of various qualities. With the exception of coal, the exports consist of the same articles as the imports, Hamburg not being a centre of consumption, but of distribution. In addition to colonial produce, British manufactured goods and grain of all sorts, they include wool, clover-seed, bark, spelter, cattle, butter, salted provisions, rags, wooden clocks, and toys, linens, and all sorts of German manufactured goods, Rhenish wines, etc. Most sorts of Baltic articles, such as grain, flax, iron, pitch, and tar, wax, etc., may generally be bought as cheap at Hamburg, allowing for difference of freight, as in the ports whence they were originally brought. It will be afterward seen that the total annual value of the import and export trade of the port (including that of Altona, the merchants of which conduct their business on the Hamburg exchange), may be estimated at above £50,000,000 sterling a-year, or upward; and, as the largest portion of this immense trade is in the hands of the English, it will be necessary that we should be a little fuller than ordinary in our details in regard to this great emporium.

Hamburg was visited by a most destructive fire in May, 1842. But, notwithstanding the heavy losses that were in consequence incurred, and the paralysis it occasioned in trade and industry, the shock was less severe than might have been anticipated. The system of mutual insurance having been generally adopted, the proprietors of houses, and other property were subjected to a tax, to defray the interest of a loan of 32,000,000 marcs-banco raised to indemnify the sufferers, and to enable them to rebuild their houses. And we are glad to have to state that all traces of the devastation have nearly disappeared; and that here, as in most other places exposed to a similar calamity, it has led to a great improvement of the town, which is now better built, and more commodiously laid out than formerly.

Hamburg owes its commercial distinction principally to its situation. Indeed, the resources of Hamburg, as well as the other Hanse-towns, so far as they are dependent on their territorial limits, are of but little consequence. Their trade is, as it were, passive, depending entirely for its maintenance and activity upon the commercial movements of other countries. The city of Hamburg has but a very limited territory surrounding it, comprising the adjoining district, the towns of Bergdorf and Ritzebuttle, the districts of Vierländen (the sovereignty of which is shared by Lubec), Cuxhaven, some islands in the Elbe, and some detached portions of the territory enclosed by the Danish and Hanoverian dominions. These, together, constitute the republic of Hamburg. The area is about 137 square miles, and the population 188,054 souls; of whom 115,866 live in the city; 16,731 in St. George; 16,157 in the faubourg of St. Paul; and 39,300 in the country around.—*Com. Rel. U. S.*

The River Elbe is the chief commercial artery which gives life and energy to the trade of Germany. It rises in Bohemia, near the Carpathian Mountains, and, flowing through that country, receives the Moldau and its tributaries, and the Eger. Leaving Bohemia, this noble river flows by Dresden and Magdeburg, receiving in its course the Mulde, Elster, and Haval; all of which rivers, branching off into different streams, unite their waters with the Elbe immediately below Hamburg. The depth of water admits the largest ships; and, about 75 miles below Hamburg, the Elbe merges into the waters of the ocean. In respect to the navigation of the Elbe, the Stade duties levied by Hanover, at the castle of Brunshausen, were justly complained of, not only as arbitrary, but onerous and oppressive upon the commerce of the world. The principle, says McCulloch, was distinctly laid down by the Congress of Vienna in 1815, that the navigation of the Rhine, the Elbe, and the Weser, etc., should be quite free along their whole course. But, no general tariff of duties being then established, this declaration has, until lately, had no practical effect. On passing Stade every captain or master was obliged to send his papers, including the manifest, bills of lading, and cockets, on shore, that the amount of the duties could be calculated, and certified. These duties were paid at Hamburg, where the Hanoverian government had an agent to receive them; and, until the receipt was produced, the vessel could not proceed to unload. See ELBE RIVER.

Stade Dues.—An intelligent correspondent of the State Department at Hamburg, who has given much attention to the subject, has furnished the following information concerning the Stade Dues:

"About twenty-five miles below Hamburg, at a narrow place in the Elbe, the Schrominge, a small river, empties itself, on the banks of which, back a few miles from its mouth, is situated the town of Stade. At this place a 'toll,' under the name of *Brinshausen*, or *Stade Dues*, is levied on all vessels coming from the sea, except on those of Hamburg.

"These 'dues' owe their origin to a grant from Conrad II., Emperor of Germany, who in the year A. D. 1038, granted permission to the Archbishopric of Hamburg to *establish a fair or market* at Stade; and he appropriated the duties which were to be levied thereon, to the benefit of the church at Hamburg, which had been sacked and destroyed by the Pagans, as all outsiders were called in those days. Nothing beyond a market toll, a duty to be levied on goods brought to the market of Stade, was contemplated in this grant. But the Archbishops, particularly after the transfer of the see to Bremen, were not slow in converting, by an arbitrary and unjust interpretation, the Stade market privilege, with the trifling duty attached to it, into a source of lucrative revenue for their treasury, and in place of a simple right of holding a market at Stade, they feigned a privilege of compulsory market, viz., that no vessel sailing upward from the sea had a right to pass, but should lay to and pay a sort of transit, or rather passage duty, for the purpose, as it were, of buying off the right of sale pretended to have been granted at Stade—a right which could be easily enforced, from the circumstance that vessels, as already mentioned, were obliged to sail close by the Stade river, Schwinge. On so groundless a fiction rests the origin of the Stade dues. In the year A. D. 1189 the German Emperor, the great Frederic Barbarosa, granted to Hamburg the privilege which bears his name, besides other privileges and immunities in favor of the trade of Hamburg. The emperor, by this privilege, granted to her citizens, for their ships and merchandise, a free navigation from the sea to the city, with an entire exemption from all dues. At the peace of Westphalia, the territories of the Archbishop of Bremen were ceded to the crown of Sweden; which government, in consequence, claimed the right to levy the dues, as a *customary* right. In A. D. 1691 a treaty between Hamburg and Sweden was formed, wherein the rights of the former were acknowledged in the broadest sense; and a tariff was formed by Sweden for the rest of the world, and fixed the rate at about one sixteenth per cent. Soon after this treaty was formed, Stade, with the Duchies of Bremen and Verdun, was occucupied by the Danes, and finally ceded by them in A. D. 1715, to the electorate of Hanover; which cession was brought about by the cabinet of George I., of England, who, at that time, was Elector of Hanover, and for which, the British government paid Denmark £150,000 sterling. These tolls or dues have ever since been collected by Hanover, except for some four or five years during the elder Bonaparte's wars, when Hanover was in possession of the French, none were collected, but the lower Elbe was left as free as any part of the North Sea.

"For a correct understanding of this question it is proper to premise that the Lower Elbe, as it is called, (that is, from Hamburg to the North Sea), is, strictly speaking, a part of the sea, an arm of the sea, and has ever so been considered by all the European nations in their official acts and intercourse. Even at the great Congress of A. D. 1815, when the commerce of all the German rivers was regulated, the Lower Elbe and Stade dues were especially omitted for the reason assigned—that they were *neutral waters*, and the 'dues' were sea tolls. Hence, in my opinion, it rests alone upon the same foundation which the Danish Sound dues do, or which the old Tripolitan tribute did, and no other; and if the former is, and the latter was, illegal and unjust, so are the Stade dues. It should be borne in mind that Denmark has the territory on the right bank of the Elbe below Hamburg, and Hanover on the left bank, except at Ouxhafen, where Hamburg owns some territory. Neither Hanover nor Denmark has ever contributed one dollar to the improvement of the navigation of the Lower Elbe; but, on the contrary, have ever declined to do so, while Hamburg has ever borne the whole burden of making such improvements, and keeps them up at her own expense. In this respect Denmark has decidedly the advantage over Hanover, for she has done something to add to the safety of the navigation of the *Sound.*"

A British writer, of great commercial experience, says, in reference to this Elbe toll, "in equity, the duties levied at Stade should be, hereafter, in amount, only equal to the expenses of light-houses, buoys, and pilotage for maintaining the safe navigation of the Elbe, and should only be imposed for that purpose on the tonnage of vessels, instead of, as at present, on merchandise, and paid into the Hanoverian treasury." This policy, we are glad to say, has been recognized; and the following notification appeared in May, 1855: "With the view of encouraging the shipping interests of Hamburg, Hanover has abolished the Stade dues on the Elbe for all ships and goods entering Harburg seaward." The manufacturing industry of Hamburg, especially its sugar refineries, iron works, and various works in metals and other materials, rope-walks, distilleries, and breweries, give employment to a large portion of its population. Its great importance and wealth, however, are owing to its advantageous position as the chief emporium of the trade of Germany. The principal articles exported from Hamburg to the United States are silk, woolen, and cotton manufactures, including piece goods and hosiery, and the produce and manufactures of the German States generally. The principal articles exported from the United States to Hamburg are cotton, tobacco, rice, coffee, staves and other articles of wood, naval stores, whale and other fish oil, and whalebone.

RAW COTTON IMPORTED INTO HAMBURG DURING TEN YEARS.

Years.	Bales.	Years.	Bales.
1839	40,932	1844	64.997
1840	73,931	1845	67,448
1841	62,118	1846	61,601
1842	61,891	1847	71,457
1843	75,434	1848	47,846

STATEMENT EXHIBITING THE VALUES OF GOODS IMPORTED INTO HAMBURG DURING THE YEARS 1853 AND 1854.

Where from.	1853.	1854.
	Marcs-banco.	Marcs-banco.
U. States, including Br. N. Amer.	9,044,870	11,029,690
Asia	1,139,200	1,363,590
Australia	302,850	6,654,060
Africa	22,172,710	21,404,220
South America	9,512,480	12,729,970
West Indies	9,044,870	11,029,690
Northern part of Europe	13,478,120	17,273,110
Great Britain	142,561,990	149,160,760
Southern part of Europe	13,015,680	13,606,130
From and via Altona	43,564,480	52,426,270
By land routes and rivers	184,545,110	245,018,930
Total	448,382,360	541,696,420
Imports from the U. S. solely	8,765,560	10,449,950

STATEMENT EXHIBITING THE VALUES OF MERCHANDISE EXPORTED BY SEA, BY RIVERS, AND LAND ROUTES, FROM HAMBURG, DURING THE YEARS 1853 AND 1854.

Where to.	1853.	1854.
	Marcs-banco.	Marcs-banco.
U. States, including Br. N. Amer.	15,463,730	18,982,970
Australia	6,284,730	5,624,710
Asia	2,257,460	3,121,790
Africa	582,830	729,590
South America	25,011,940	27,545,470
West Indies	7,296,300	7,679,340
Northern part of Europe	19,163,410	25,812,680
Great Britain	62,030,430	82,323,910
Southern part of Europe	8,374,160	7,071,790
Provisions for vessels	706,000	947,500
To and via Altona	45,894,700	54,538,760
Land and river routes	228,607,800	258,651,830
Total	421,673,490	493,029,340
Exports to the U. S. solely	10,090,700	12,981,270

The following is the official statement of the imports and exports of Hamburg (Germany), from 1850 to 1855:

Years.	Imports. Marcs-banco.	Exports. Marcs-banco.
1850	353,136,070	313,829,250
1851	378,277,940	338,163,370
1852	392,028,820	372,495,450
1853	443,879,538	421,673,490
1854	530,668,030	493,029,840
1855	528,558,190	507,221,600

Hamburg receives supplies of raw cotton not only from the United States, Brazil, and other countries of South America, in the direct trade, but also from English ports, and other entrepôts of Europe. A considerable diminution is perceived in the importation of English twists (spun cotton) at Hamburg. This is attributable to the fact that the manufacturers of Prussia and Saxony have, of late years, ordered their supplies direct from Great Britain.

HAMBURG.—IMPORTATIONS AND EXPORTATIONS IN 1855, IN MARCS-BANCO.*

Countries.	Imports.	Exports.
	Marcs-banco.	Marcs-banco.
Australia	....	2,438,840
China	1,850,990	555,360
Manilla, Philippines	726,170	27,810
Singapore	367,120	1,808,680
Java	974,100	817,850
British East Indies	2,056,390	522,450
Eastern Coast of Africa	490.320	113.890
Cape Town	2,610	200,820
Western Coast of Africa	354,710	183,650
Madeira, Teneriffe, and Azores	117,930	9.800
Western Coast of America	5,073,790	9,858,580
California	....	950,570
Buenos Ayres and Montevideo	1,014,380	3,892,960
Brazil	16,044,310	7,519,900
Dutch Guiana	884,450	129,580
Venezuela and New Granada	3,497,140	2,853,720
Dutch West Indies	40,190	192,000
English West Indies	....	24,450
St. Thomas and Porto Rico	1,299,760	2,686,130
Hayti	2,611,770	413,260
Cuba	7,027,340	3,232,050
Honduras	15,550	15,170
Eastern Coast of Mexico	494,150	2,255,470
United States	8,813,390	6,939,130
Greenland	2,080	....
British North America	....	1,714,460
Sea Stores	....	1,009,400
Islande	....	81,920
Russia	....	....
Sweden and Norway	1,978,550	11,299,370
Prussia	278,230	3,531,910
Mecklenburg	8,770	24,930
Lubec	....	....
Denmark, Schleswig & Holstein	388,120	1,002,110
Heligoland and Cuxhaven	80,260	626,960
Bremen and the Weser	3,188,230	1,732,190
Oldenburg and East Friesland	505,350	594,320
Holland	8,105,950	7.796,930
Belgium	2,754,610	746,890
Great Britain and Ireland	160,494,560	57,049,620
France	4,097,520	4,561,450
Portugal	1,496,420	696,120
Spain	2,824,960	462,950
Gibraltar	52,590	413,570
Sardinia	612,690	312,850
Tuscany	690,510	449,890
Papal States	....	57,640
Naples and the Two Sicilies	1,524,720	6,280
Trieste and Venice	535,830	593,780
Greece and Ionian Isles	297,690	....
Turkey and Levant	236,930	93,490
Altona	56,329,310	56,837,310
Railroad, Schleswig & Holstein	5,604,670	16,482,170
Lubec (by wagons)	1,020	1,221,270
" Stecknitz	393,380	959,420
" Railroad	9,232,150	19,162,470
Railroad, Berlin to Hamburg	86,911,600	135,863,990
Elbe, superior	21,362,780	30,477,800
" inferior	5,096,770	4,197,120
Luneburg	292,600	695,500
Harburg	28,108,900	25,524,320
Post roads, etc	72,109,880	73,299,080
Total	528,558,190	507,221,600
Grand total	1,035,779,790	

* From the Almanac de Gotha, 1857.

COMMERCE IN 1855.

Continents.	Entered.			Cleared.		
	Vessels	Tonnage lasts.	Crew.	Vessels	Tonnage lasts.	Crew.
Europe	4,138	255,490	34,470	4,119	258,119	34,543
America	407	46,489	4,901	370	40,848	4,406
Asia	43	6,124	623	31	4,867	469
Africa	10	899	108	17	1,519	186
Australia	....	....	....	25	4,631	409
Total	4,593	309,002	40,102	4,562	309,984	40,013
Loaded	3,970	284,584	36,713	2,580	189,058	26,876
In ballast	623	24,418	3,389	1,982	120,926	18,137

Foreign Navigation of Hamburg.—1. The most important class of Hamburg packet-ships are those which sail, at stated periods, for Adelaide, Melbourne, and Sydney in Australia, Valparaiso in Chili, and San Francisco in California. They consist of 23 large class ships.

2. Fourteen large-sized vessels ply regularly between Hamburg, New York, New Orleans, Galveston, and Indianola.

3. Five large three-masted ships, owned by a private company, are engaged in the direct trade between Hamburg and New York.

4. Two three-masted ships, also owned by a private company, ply between Hamburg and the ports of North and South America, as they find a market.

TABLE SHOWING THE NUMBER AND TONNAGE OF VESSELS BELONGING TO HAMBURG IN THE YEARS SPECIFIED.

Years.	Vessels.	Tonnage.
1836	146	33,975
1845	205	50,937
1848	249	68,691
1853	408	127,695

STATEMENT EXHIBITING THE NAVIGATION OF HAMBURG DURING SEVENTEEN YEARS, ENDING WITH 1852.

Years.	Vessels entered.	Tonnage.	Years.	Vessels entered.	Tonnage.
1836	2,497	331,314	1845	3,990	584,424
1837	2,601	349,506	1846	3,779	558,061
1838	2,700	372,372	1847	4,178	631,890
1839	2,939	413,398	1848	3,304	593,664
1840	2,937	448,863	1849	3,459	....
1841	3,694	495,738	1850	4,094	730,569
1842	3,330	520,764	1851	4,169	744,537
1843	3,538	533,949	1852	4,440	840,109
1844	3,260	484,299			

The following statement exhibits, in continuation, the number and tonnage of American vessels arriving at and departing from the port of Hamburg during the six months ending with June 30, 1855. The letter accompanying the consular return contains the following passages: "The direct imports to this port from the United States will show a great falling off from last season; most of our vessels brought cargoes (chiefly sugar) from Cuba, destined, *via* Prussia, for Russia. The exports have also been much less than last year. But few of our ships left for American ports direct; most of them left in ballast for English ports, to load coal or iron; several took, at low rates, long charters for South American ports. The number of emigrants for the United States from this port will hardly reach half as high as last year. There being no American shipping-houses at Hamburg, it will always be difficult for our flag, as the regular Hamburg passenger lines must first be filled, to participate fairly in this trade. In the article of saltpetre, destined for Russia, our flag had the preference when coming from our ports; but, generally, the Hamburg flag and property being exempted from the Stade toll dues, this can not be the case." Number of vessels, barks, 13; tonnage, 5,143. Ships, 4; tonnage, 2,167. Total number of vessels, 17, and total tonnage, 7,310. Cargoes consisted principally of,—

Inward.—Arrack, seeds, cassia, dye-wood, India-rubber, rice, sugar, tamarinds, pot-ashes, household goods, cotton, honey, ginger, whalebone, tobacco, clocks, segars, preserves, tortoise-shells, gums, rosins, hops, oil, machinery, raisins, shoes, coffee, turpentine, furs, sarsaparilla, piano-fortes, and general merchandise.

Outward.—Passengers, pig-lead, plates of spelter, willow, succory flower, cinnabar, glue, gypsum, rags, tow, worsted yarn, woolens, wormseed, hair cloth, glass-ware, china, hardware, iron-ware, sheet-zinc, musical instruments, bristles, slates, drugs, earthenware, straw goods, and general merchandise.

STATEMENT SHOWING THE NUMBER OF EMIGRANTS, WITH THE NUMBER OF VESSELS CONVEYING THEM, WHICH LEFT THE PORT OF HAMBURG FOR THE UNITED STATES, FROM 1847 TO 1854, BOTH INCLUSIVE.

Years.	No. of vessels.	No. of emigrants.	Years.	No. of vessels.	No. of emigrants.
1847	51	5,439	1851	57	8,533
1848	43	4,741	1852	88	13,886
1849	34	3,777	1853	75	13,898
1850	43	5,600	1854	100	20,835

	Vessels.	Tonnage lasts.	Crew.
Belonging to the port, Dec. 31, 1855.	184	9,980	1,344
" " " 1854.	153	10,962	1,255

The tariff is that of December 29, 1851. *Monies.*—1 marc-banco=16 shillings=$0·35 United States' currency. *Duties on Imports.*—These duties amount to not more than ½ or 1 per cent. ad valorem; and the *duties on exports* to not more than one eighth of 1 per cent. ad valorem. The following articles are exempt both from import and export duties: apparel of travelers, brought in by the respective parties, or by a special permit of the Director of Customs, bark unground, barley, bones, bronze metal, buckwheat, copper for sheathing ships, brass, old, also in plates or sheets, coal, stone, gold and silver bullion or coin, open samples of goods under 70 pounds' weight, exported and then re-imported through the same gate, linens, with or without cotton mixture, linen bagging, malt, oats, oil cakes, potatoes, printed matter, musical and scientific maps, rags, woolen or cotton, rape-seed, rye, wool, sheep's and lamb's raw, wheat, zinc, crude. The following articles are free of import duties only: articles not exceeding 5 marcs-banco ($1 75) in value; those also subjected to excise duties not over 20 marcs-banco in value; timber, staves, fire-wood, and turf. Those free of export duties are, all articles under 20 marcs-banco ($7) in value, regardless of quantity; all manufactures of the city of Hamburg; all provisions for the immediate use of vessels lying in the harbor; articles not exceeding 100 pounds in weight, and not of greater value than 100 marcs-banco. *Transit Duties.*—All goods re-exported within three months from the date of arrival, are free of any transit duty, if yet in the hands of original importers.—*U. S. Commercial Digest.*

Money is generally reckoned in Hamburg in marcs, 16s., each of 12 pfennings; and is of two sorts, *banco*, and *current*. The former consists of the sums inscribed in the books of the bank, opposite to the names of those who have deposited specie or bullion in the bank, or got it transferred to them at the rate of 27¾ marcs-banco to the Cologne marc of fine silver. The value of the marc-banco, taking silver at 5s. an oz., is, consequently, 1s. 5½d., which makes the par of exchange 13 marcs 10½s. banco per £1 sterling. Banco is worth about 23⅛ per cent. more than currency; the agio varying from 120 to 125¾. Speaking generally, the value of the current marc may be taken at 1s. 2¼d. or 1s. 2d. sterling. The silver coins current in Hamburg are, specie dollars (of which 9¼ are equal to a marc-Cologne, fine silver); Prussian current dollar (14 dollars to the marc fine); new 2s. 3d pieces (18 to the marc fine); Danish grob. current, and Hamburg current (34 to the marc, fine). The gold coins comprise ducats=9s. 4d. sterling, Louis and Frederic dollars. The agios of these different coins, with banco, constantly vary. Hamburg has for many years ceased to coin monies, with the exception of ducats and the smaller coins.

Measures and Weights.—A new regulation of these was effected by an act passed on the 16th January, 1843. There are in Hamburg three different sorts of *pound weights*. 1. The bank or silver weight (formerly the Cologne weight). 2. The commercial weight. 3. The apothecary weight. One pound bank, or silver weight, is=2 marcs; 1 marc (Cologne) is 233·85489 grains, or 4865·57 Dutch As.=100 marcs =62·6554 English troy pounds. The old relation between the commercial weight and bank weight, by which the commercial pound is equal to 33 5-32 oz. bank weight, has been confirmed by the late act. 1 centner=112 com. pounds; 1 pound=32 oz.; 1 oz.= 4 drachms; 1 drachm=4 pfennings. By the *United States' Commercial Digest* the centner is made equal to 119·504 avoirdupois. 100 commercial pounds=106·838 English pounds avoirdupois; 48·4609 kilogrammes; 86·5355 pounds Vienna; 96.9219 pounds German customs union. One "schiffpfund," in commerce=$2\frac{1}{2}$ centners, or 20 "liespfund" of 14 pounds each, or 280 pounds; 1 pfund=1·067 pounds avoirdupois. One "schiffpfund" by land-carriage has 20 "liespfund," each of 16 pfund; is, therefore,=320 pounds. A pipe of oil is 820 pounds; 1 barrel of butter (small willow and hoops) is taken at 224 pounds; but with common hoops, at 280 pounds nett.

Long Measure.—The Hamburg foot, divided into 12 inches of 8 parts each=0·28657 metres=127·056 Parisian lines=11·289 English inches. Hence, 100 Hamburg feet=94·021 English feet; 28·657 French metres; 91·307 Prussian or Rhenish feet; 90·664 Vienna feet. The Hamburg ell (short ell)=2 Hamburg feet. 05·7314 metres=254·072 Paris lines. 100 Hamburg ells=62·681 English yards. The Brabant ell (or long ell) most commonly used in Hamburg, in measurement of piece-goods=27·585 English inches.

Liquid Measure.—1 fuder=6 aums, $1\frac{1}{2}$ aum=4 ankers or 5 eimers; 1 anker=5 viertels; 1 viertel=2 stübchens; 1 stübchen=2 kannens; 1 kannen=2 quarters of Oessel; 1 eimer=4 viertels; 1 hogshead=$1\frac{1}{2}$ aums, or 6 ankers, or 30 viertels, each of 8 quartiers or bottles. The stübchen contains 266 Hamburg cubic inches=3·62 litres. 100 Hamburg vietrels=159·39 English imperial gallons; 724·18 French litres; 632·45 Prussian quarters; 511·88 Vienna maass. The full beer barrel contains 48 stübchens, or 192 quartiers; the small barrel only 32 stübchens, or 128 quartiers. The vinegar barrel contains 30 stübchens, or 120 quartiers. The whale and fish-oil barrel contains 32 stübchens, or 128 quartiers; 2 whale-oil barrels=1 quarteel.

Grain Measure.—One lass=60 fass; 1 fass=2 himpten; 1 himpten=4 spint. The wispel of wheat, rye, and peas is 20 fass; but of oats and barley, 30 fass. The scheffel of wheat, rye, and peas, is 2 fass; of barley and oats, 3 fass. The fass contains 3,872 Hamburg cubic inches=52·734 litres, and 2658·45 Parisian cubic inches; and 100 Hamburg fass=18·135 imperial quarters; 52·734 hectolitres; 95·947 Prussian scheffels; 85.765 Austrian hetzen. 10 Hamburg lasts=108·81 imperial quarters. The mode of measuring grain has hitherto been by the metres throwing or pitching it into the fass, and striking off the surplus with a wooden roller pressed lightly along the upper edge; but an alteration is expected on a new corn law, now projected, coming into operation; there will probably be a new fass measure (of 4035 Hamburg cubic inches), equal to the Prussian scheffel. In practice, 1 Hamburg last is taken at 11 imperial quarters, 31 hectolitres, 57 Prussian scheffels, 25 Danish barrels, and $16\frac{1}{2}$ Russian chetwerts. The coal barrel contains (when the 1453 Hamburg cubic inches of head or heaped measure is added) 16,438 cubic inches. The Hamburg ship last, or last of commerce, really weighs 6000 pounds, or 3 tons (not 4000 pounds, as is generally stated).

Navigation of the Elbe, Pilotage, etc.—The mouth of the Elbe is covered with sand-banks. The channel leading to Cuxhaven is bounded on the north by the Vogel Sands and North Grounds, and on the south by the Schaarhorn Sands and Neuwerk Island. On the latter there are two light-houses and two beacons, and on the Schaarhorn is another beacon. The light-houses on Neuwerk Island are about 700 yards apart; the most southerly, which is also the most elevated, being in lat. 53° 54′ 57″ N., long. 8° 29′ 40″ E. It is 128 feet high, being twice the height of the other. The channel is, in some places, hardly three quarters of a mile wide. The outer red buoy in the middle of the channel, at its mouth, bears from Heligoland south-east by south, distant nearly 20 miles. But the best mark in entering the Elbe is the floating light, or signal ship, moored two miles north-west by north of the red buoy, in 11 fathoms at low water. This vessel never leaves her station, unless compelled by ice in the winter season. By night she exhibits a lantern-light, 38 feet above deck, and in foggy weather rings a bell every quarter of an hour. A second signal ship is stationed $5\frac{1}{2}$ miles south-east by east from the first, at the westernmost point of a sand-bank dividing the fair way of the river. She is rigged like a galliot, to distinguish her by day from the first signal ship; and during the night she exhibits *two* lights, one 18 feet above the other. The distance from the outer red buoy to Cuxhaven is about 16 miles; thence to Glückstadt the course is east, 28 miles; from the latter to Stade the course is south-easterly, 9 miles; and then easterly to Hamburg, 18 miles. The channel throughout is marked with black and white buoys, which are numbered and specified in the charts. The black ones are to be left, in passing up the river, on the starboard or right-hand side, and the white on the larboard side.

Every vessel coming from sea into the Elbe, and drawing four feet water, is directed to take a pilot on board, and must pay pilotage, though she do not take one. However well the signals, lights, beacons, and buoys, may be arranged, an experienced pilot is very necessary, in case of a fog in the night, or of a storm. To take in a pilot, a vessel must heave to by the pilot galliot, which lies, in good weather, near the red buoy, and in bad weather N.E.N. from Neuwerk, and is known by having at the flagstaff an admiral's flag, and a long streamer flying at the top. If the pilot boat have no pilot on board, or if the weather be so bad that the pilot can not leave her, she lowers her flag, and then the vessel coming in must sail, with the signal for a pilot hoisted, to Cuxhaven, and heave to there, where she is certain of getting one. See ELBE.

There are no docks or quays at Hamburg; and it is singular, considering the great trade of the port, that none have been constructed. Vessels moor in the river outside of piles driven into the ground a short distance from shore; and in this situation they are not exposed to any danger unless the piles give way, which rarely happens. There is a sort of inner harbor formed by an arm of the Elbe which runs into the city, where small craft lie and discharge their cargoes. Larger vessels load and unload from their moorings, by means of lighters. These carry the goods from and to the warehouses which front the various small arms and channels of the river, and the canals carried from it into different parts of the city. The charges on account of lighterage are extremely moderate.

Port Charges.—The charges of a public nature payable by vessels entering the port of Hamburg, unloading and loading, are pilotage and lastage. The separate items of which are given in the following tables:

Pilotage Earned.—The pilotage fees are earned if vessels are brought as far as Freyburgh or Glückstadt, and when from stress of wind or weather, which seldom happens, the Hamburg pilots take the vessel to Wittenberg or Neumühlen, they are to pay, without distinction,

	Marcs currency.		d. stg.	
To Wittenberg................	1	0	14	0
Neumuhlen	1	8	21	0

Pilotage all the way.—For pilotage the whole way from Cuxhaven to Hamburg there is no table of rates, for, generally speaking, the Hamburg pilots do not take vessels up beyond Boesche.

Pilotage and Lastage.—The Hamburg pilots, generally speaking, take charge of vessels only from the Red Buoy to Freyburgh or Glückstadt.

Half Pilotage only.—In case the Hamburg pilots enter a vessel only within the first buoy beyond the Rosshacken, Strangfly, or Cuxhaven, half the above-mentioned pilotage is paid. Also half pilotage must be paid at all events, whether the vessel has taken a pilot from the pilot galliot or not.

From Boesche to Hamburg.—Vessels are generally piloted from Boesch to Hamburg by Danish or Hanoverian pilots, to whom it is customary to pay three marcs.

Lastage and Custom-house Charges.—British and other foreign vessels pay the same as Hamburg vessels. For clearing in and clearing out, no separate charges are made; visiting the port is considered as *one* voyage, and the charges on vessels are paid as follows: For vessels arrived with cargoes from the undermentioned places, viz.:

Places.	Lasts of 6,000 lbs.				
	Marcs.		£	s.	d.
The East Indies	3	0	0	3	6
West Indies, North and South America	2	8	0	3	5
Portugal, Spain, and the Mediterranean	2	0	0	2	4
The rest of the European ports	1	8	0	1	9
Holland, East Friesland, the Weser, Eyder and Jutland	0	12	0	0	10½
For vessels under 20 commercial lasts without distinction	0	4	0	0	3¼
Vessels arriving and departing in ballast, of upward of 20 commercial lasts	0	8	0	0	7

It is difficult to determine the exact ratio of a last to a ton; but it may be taken at about 3 or 2¾ to 1. But in Hamburg all vessels are measured by the harbor master; and it is upon his report that the lastage is calculated.

For all vessels laden with coals, wood, or turf, no lastage is paid, provided they do not take return cargoes. Vessels arriving in ballast and departing with a cargo pay half the above lastage, according to their destination. Exclusive of the above dues, which are all remarkably moderate, vessels coming to the port of Hamburg are obliged to pay certain dues to Hanover, called Stade or Brunshausen dues. See *post.*

Custom-house Regulations.—On a vessel's arrival at Hamburg the broker reports her to the custom-house, and gives his guaranty for payment of the duties, and delivers her papers; and, upon a receipt being produced for the Stade duties by the Hanoverian authorities at Hamburg, the vessel is allowed to unload. On clearing, a manifest of the outward cargo, together with the consul's certificate of the regularity of the ship's papers, must be produced at the custom-house by the broker, who obtains in return a clearance certificate, authorizing the vessel to go to sea.

Quarantine.—Ships are visited at Cuxhaven, a Hamburg possession at the mouth of the Elbe. Suspected vessels are generally sent to a station on the Norwegian coast; but vessels which have undergone quarantine in an English port, or come from beyond the Cape of Good Hope or Cape Horn, or direct from the River Plate, are permitted to come directly to Hamburg.

Credit, Brokerage, etc.—Almost all goods are sold for ready money, with an allowance of one per cent. for discount. Sometimes, but not frequently, sales are made at two or three months' credit; and in such cases a higher price is obtained than for cash. Sometimes, sugar is sold to the sugar-baker at this credit.

Brokers are positively forbidden to act as merchants or factors. They are licensed by the Senate, and must conform to the established regulations.

Banking, Insurance, etc.—For an account of the Bank of Hamburg, see BANKS. All sorts of insurances are effected at Hamburg. A municipal regulation compels the insurance of all houses within the city, the rate varying according to the number of fires and the amount of loss. Marine insurance is principally effected by joint stock companies, of which there are several; their competition has reduced the premiums to the lowest level, and the business is not understood to be profitable. The high duties on policies of insurance in this country has led to the insuring of a good many English ships at Hamburg. Life insurance is not prosecuted in Germany to any considerable extent; but some of the English companies have agents here, who are said not to be very scrupulous.

Bankruptcy.—Considering the vast number of merchants and tradespeople at Hamburg, bankruptcy does not seem to be of frequent occurrence. Much of the business transacted at Hamburg being on commission and for account of houses abroad, the failure of foreign merchants is a prevalent source of bankruptcy. Another source of bankruptcy is losses on goods imported or exported on speculation, and occasionally losses in the funds, in which a good deal of gambling goes on here. Expensive living is not nearly so prevalent a source of bankruptcy here as in London and other places. See *Com. Rel. U. S.*; HUNT'S *Mer. Mag.*, xxiii., 177, xv., 177; *Westm. Rev.*, xxxviii., 437.

Hammock or **Hamac**, (Span. *hamaca*—a word of Indian origin), a kind of hanging bed, which is suspended between trees or posts, or two hooks. The true Indian hammock is a long narrow net made of strong cord, and terminated at each end by small ropes for suspending it. The hammock used on board ship consists of a piece of stout canvas, about six feet long and three broad, gathered at the ends and suspended by cords. The sailor's hammock is an oblong piece of hempen cloth; at each end are fastened several small lines, meeting in a grummet or iron ring: these form the *clews.* The whole, having mattresses, pillows, etc., placed in it, is hoisted up into its place by small ropes called *laniards*, between two battens or screws in the beams of the deck over head, about nine feet distant asunder. The hammock is a very agreeable bed, especially in cold weather; but some little practice is requisite at first in getting in and out successfully. During the day, the hammocks, lashed up tight in the form of caterpillars, are stowed in the nettings along the upper edge of the bulwark.

Hampton Roads, Va., a branch of Chesapeake Bay, off the mouth of James River, between Old Point Comfort on the north and Willoughby Point on the south. It is sufficiently deep for the largest ships of war, and is an important naval rendezvous. On Old Point Comfort, there have been ceded to the United States 250 acres;—a fortification called Fort Monroe has been erected, which mounts 335 guns, generally 32 and 48-pounders, 130 of which are under bomb-proof covers. On the opposite point, one mile distant, is Fort Calhoun. The foundation is made by throwing in stones, and it covers about seven acres. This fort is designed to mount 265 guns, 24's and 32's, and nearly all under cover. These completely command the entrance to Hampton Roads. On the north side of the entrance is *Old Point Comfort Light*, lat. 37° 6′, long. 79° 18′ W., showing a fixed light on a white tower, and elevated 40 feet above the surface of the sea. On the south side of the entrance the *Willoughby Spit Light Vessel* shows fixed lights, elevated, the one 32 and the other 41 feet above the sea-level; and here is a fog-bell also. The channel leading from the Capes of Virginia to Hampton Roads is reduced at *Old Point Comfort* to a narrow width. The shoal water, under the action of the sea and the reaction of the bar, is kept in an unremitting ripple; which circumstance has given to this place the name of the *Rip Raps.*

Handkerchiefs. Handkerchiefs, wrought and edged with gold, used to be worn in England by gentlemen in their hats, as favors from young ladies, the value of them being from five to 12 pence for each, in the reign of Elizabeth, 1558.—STOW'S *Chron.* Handkerchies were of early manufacture, and are mentioned in our oldest works. Handkerciefs of the celebrated Paisley manufacture were first made in that town in 1743.

Handspike is a stong wooden bar, used as a lever to move the windlass and capstan in heaving up the anchor, or raising any heavy weights on board a ship. The handle is smooth, round, and somewhat taper; the other end is square, to fit the holes in the head of the capstan, or barrel of the windlass.

Hang-Chau-Fou, an important city of China, capital of the province of Che-kiang, on a plain near the River Tsientang, about 40 miles from its mouth, and 140 miles south-east of Nanking. It is surrounded by high and strong walls, said to be nine miles in circumference; and adjoining it are very extensive suburbs. The Governor-General of Che-kiang and Fukien resides in this city, and also the governor of the province, which, with their courts and troops, in addition to its great trade, render this one of the most important and richest cities in the empire. A portion of the space within the walls is divided off for the accommodation of a garrison of 7000 troops. The Grand Canal has its southern termination here, in a large irregular basin. The streets are well paved, and the shops and warehouses are large, and well stored with goods. There are numerous rich temples and elegant public buildings; and altogether, this city presents the appearance of great wealth and splendor. It is noted for its silk manufactures, which employ a large portion of its inhabitants. The population is said to be about 1,000,000.

Hanover, a kingdom in Germany, formed out of the duchies which formerly belonged to several families of the junior branch of the house of Brunswick. In the course of the revolutionary war, under the influence of France, the dukedoms of Bavaria, of Saxony, and of Wirtemburg had been raised to the rank of kingdoms; and when the overthrow of Bonaparte was accomplished, the dukedoms which had composed the electorate of Hanover were thought by the allied powers of sufficient consequence to be elevated to the same dignity, as, with the additions then made to them, they were nearly equal in extent and population to the other portions of Germany whose rulers had received that rank. It accordingly assumed that grade in 1814, under George III., and was acknowledged as such by all the powers of Europe.

The kingdom of Hanover lies between lat. 51° 18′ and 53° 52′ N., and long. 6° 43′ and 11° 45′ E.; and is bounded on the north by the German Ocean, north-east by the Elbe, which separates it from Denmark, Hamburg, and Mecklenburg, east and south-east by Prussia and Brunswick, south-west by Hesse-Cassel and Prussia, and west by Holland. The boundaries include the duchy of Oldenburg, which almost completely separates Hanover into two large portions, the connection being maintained by a narrow strip of land, not more than six miles in width, south of the duchy. A small portion in the south is separated from Hanover proper by the interjection of part of Burnswick. The entire area amounts to about 9,464,446 acres, or 14,788 square miles, as follows:

Provinces.	Extent in English acres.	Population in Dec. 1852.	Number of dwelling-houses
Hanover..........	1,483,698	349,958	48,445
Hildesheim.......	1,102,089	367,883	52,042
Luneburg.........	2,769,562	338,764	43,835
Stade.............	1,674,368	279,834	44,031
Osnabruck........	1,540,649	261,965	41,027
Aurich............	737,968	185,129	30,024
Clausthal.........	156,112	35,720	3,392
Total...........	9,464,446	2,819,253	262,796

The whole of the kingdom of Hanover dips toward the north, and the courses of all the rivers are in that direction. These are, first, the Elbe, which borders a large part of the dominion, and receives into it the Ohre, which rises in the province of Luneburg; the Aland and Jeetze, which come out of Prussia, and are navigable before they terminate in the Elbe; the Ilmeneau, which becomes navigable at Luneburg; the Este, which is navigable to Buxtehude; the Lühe, navigable to Hornburg; the Schwinge, by which vessels reach Stade; the Oste, which passes Harburg, and is navigable to Kirchosters; and the Medem, which runs through the Hadeln-land, and admits large vessels as high as Otterndorf; second, the Weser, which enters the dominion of Hanover at Münden, being there formed by the junction of the Fulda and the Werra. It is navigable for barges from the spot at which its name commences; and it receives in its course the Hamel, the Aller, the Oertze, the Leine, the Böhme, the Eyther, the Wümme, which, in the lower part of its course, takes the name of Lesum, the Geeste, and the Hunte; all of which are Hanoverian rivers, and continue their united course till they are lost in the German Ocean, near Bremen; third, the Ems, a river rising in the Prussian province of Westphalia. After entering Hanover, it receives the waters of the Aa, the Hase, the Else, and the Leda. Before reaching the sea, it falls into the Dollart, near Emden, which is the principal sea-port in the kingdom. It is navigable for flat-bottomed vessels from Rheina downward, and for sea-going ships from Halte and Weener. About 1,200,000 thalers ($87,000) have been expended in improving the navigation, and it has become in consequence a very important channel for the inland trade of the country. Fourth, the Vecht, a river of short course, rising in the Prussian province of Westphalia, and terminating in the Zuyder Zee. Its principal importance is derived from a navigable canal, which commences at the city of Münster, and is the channel of some trade through the Vecht to Amsterdam.

Though Hanover is generally a sandy soil, it has some small fresh-water lakes. The Dummersee, in Diepholtz, is about 12 miles in circuit. The Steinhudermeer, in the province of Kalenburg, is about four miles long and two broad; and the Dollart, at the mouth of the Ems, which is rather an estuary than a lake, is 12 miles across. The canals are all of short course. The Aurich Canal, between Aurich and Emden, is 15 miles long; the Bremen Canal, between the Oste and the Schwinge, serves both for draining and for transport; the Papinburg Canal, between Papinburg and the Ems, is unimportant.

Manufacturing industry prevails less in Hanover than in the other States of Germany. Linen yarn and cloth are the principal branches. Woolen cloths are made to a considerable extent in the southern part of the kingdom; and this branch of trade has lately been increasing. In the west stockings and gloves are made. Cotton-spinning has also increased, but is still insignificant, and the same may be said of silk. Potteries, tile-works, and tobacco-pipe works are numerous. There are nine glass-houses, and 52 paper-mills, which produce yearly about 20,000 bales of paper. Wax is bleached to a considerable amount, and there are numerous tobacco factories, tanneries, breweries, vinegar works, and brandy distilleries, the produce of which last has of late very much increased. East Friesland produces gin. The most thriving branch of industry however is that of metal wares. The whole population of the Hartz lives by the mining and forging of metals, excavating coal, and manufacturing wooden articles. Founderies and forges, and works of iron, copper, brass, wire, silver, and lead, vitriol and sulphur, are in the utmost activity. These mines and associated works support about 35,000 persons. About 20,000 workmen were very recently employed in the Hartz, and the yearly value of the produce was 5,000,000 thalers (£750,000 sterling). The latest returns give the following quantity for one year, for Hanover and Brunswick together: gold, 82 oz.; silver, 375,833 oz.; iron, 377,812 cwt.; copper, 540; vitriol, 5400; quicksilver, 540; coal, 2,160,000; salt, 842,000.

As may be supposed from the small quantity of surplus production, the trade of Hanover is not extensive. The principal port, Emden, has some export and import trade; but from the state of the roads between that place and the more populous parts of the kingdom, more of its trade passes through Hamburg and Bremen than through that city. Besides the more considerable articles made from flax, its honey, wax, feathers, and large quantities of timber, are sent to Hamburg and Bremen. Wool, horses, and cattle, wheat and other grain, butter and cheese, tobacco and mineral productions, are among the chief exports. Hops, rape-seed, oil-cake, fruit, hams, and sausages, form also articles of export of small amount. The imports consist principally of English manufactures, colonial produce, fruits, wines, jewelry, and silks. As the roads to the great fairs of Leipsic and Frankfort pass through Hanover, the transit of goods for these used to create a pretty large commission trade, and give employment to many wagons, horses, and men, as well as to the barge owners. These, however. are now in some degree superseded by railways, the city of Hanover having become a central station, from which these diverge in different directions to Hamburg, Brunswick, Hildesheim, Bremen, and Minden. Hanover has joined the *Zollverein* or General Customs Union from 1st January, 1854.

The commerce between the other States of the German Customs Union and the United States is not of much importance. The linens of Hanover always find a ready market; and, were interposing import duties in both countries modified or altogether abolished, the linens, raw wool, lead, rape-seed, hemp, and flax of this kingdom would be much more extensively exchanged for American rice, sugar, tobacco, and similar produce. The direct exports from the United States to Hanover in 1852 were, besides staves and flour (in value $115), 186 hhds. of tobacco, valued at $5,791. The value of exports from Hanover, via Hamburg and Bremen, in 1853, was $15,841, and the exports from the United States direct to Hanover were 143 hhds. tobacco, valued at $6,290. All other American exports found their way to the markets of Hanover through the ports of Bremen and Hamburg. The value of exports from Hanover in 1855 was $44,277, of which there reached the United States via Bremen $43,409, and via Belgium $868. The tobacco annually produced in the kingdom of Hanover is valued at about $50,000, from which about 2,500,000 lbs. of smoking tobacco is annually manufactured. Were the Zollverein duty on tobacco abolished, as it has been on raw cotton, the cultivation of the inferior quality produced in Hanover would not only cease altogether, but her tobacco manufactories (346 in 1843), would be multiplied, and the manufacturing industry of the kingdom more profitably developed. The principal sea-ports of Hanover are Emben, Harburg, and some minor ports or shipping places on the Weser, in the district of Aurich, or that part of Hanover west of Oldenburg. The Hanoverian trade from the Elbe centres at Hamburg, that of the Weser at Bremen.

The commerce of the port of Harburg, on the Elbe, has, within a few years, assumed considerable importance. In 1849 the number of vessels arriving at this port was only 49. The following exhibits the results of three years, ending with 1854: See Elbe River.

Years.	Vessels entered.	Vessels cleared.
1852	691	574
1853	834	859
1854	1,032	1,027

The preceding summary indicates the rapidly increasing commerce of this port. The vessels chiefly come from the countries of northern Europe, but some even from the Mediterranean. Thus, in 1854, there proceeded from the Mediterranean ports 580 vessels under the Hanoverian flag, 152 under the British flag, 135 under the Danish, 81 under the Dutch, and 3 under the French flag. Of these, 265 entered, and 679 cleared in ballast, or with partial freights. The remaining vessels were laden chiefly with wood, stone, oil-cakes, and sundries. The marine service of Harburg consists of 1 three-master, 6 barks, 3 brigs, 2 brigantines, 1 schooner, and 6 smaller craft; making in all 19 sail, exclusive of one bark on the stocks.

The river (Elbe) arrivals, during the same period, were:

	Batteaux.
In 1849	2,918
1852	4,079
1853	4,226
1854	5,393

Notwithstanding this rapidly increasing prosperity of the port of Harburg, and the commercial facilities which it receives from the Hanoverian government, Hamburg, on the opposite side of the river, is the principal centre of Hanoverian trade. Within the past ten years the number of vessels belonging to Hanover has tripled in this port. In each of the years 1852 and 1853, there arrived 1,100 vessels under the Hanoverian flag, measuring, in the aggregate, a tonnage of about 15,000 commercial lasts, of 6,000 pounds each, or an aggregate of 44,000 tons. In the navigation of Hamburg, Hanover holds the third rank as respects tonnage—the tonnage of the port itself ranking first, and that of England second. The freights in 1853, in Hanoverian bottoms, exceeded those of the preceding year 100 per cent., and many years the freights are threefold greater than those given for the years immediately preceding.

The Hanoverian flag participates proportionally in the general foreign trade, and enjoys a considerable share in the movements with trans-Atlantic countries. In 1854 the number of Hanoverian vessels in the port of Hamburg largely exceeded that of any former year. It reached as high as 1,330 vessels, measuring an aggregate of 20,336 lasts, or nearly 60,000 tons, entered, and 1,317 vessels cleared. The smaller craft, exclusively engaged in the river trade, are not comprised in these totals. The commercial movements at the port of Emden in 1854 present the following results:

	Thalers (gold).
Imports	1,718,050
Exports, direct	1,451,031
" indirect	596,388
Total	3,765,469
3,765,469 thalers equal to	$2,965,306

The thaler (gold), or Bremen thaler, equals 78¾ cents. The import trade employs 5,895 vessels, and 4,107 vehicles for the land trade. The imports consist chiefly of cereals, butter, and cheese; and the exports are mostly of the same character. These latter employ, for the home trade of the port of Emden, 391 vessels. England, Holland, and Belgium are the principal countries to which the exports from this port are destined. The mercantile houses of Emden engaged in the direct trade between that port and the Russian ports of the White Sea, the Baltic and the Black Seas, own about 3,000 tons of the marine service employed in that commerce. The cultivation and manufacture of flax, hemp, etc., yielded, in the export trade of Hanover, in 1853, 8,500,000 francs, or nearly $1,700,000. This sum exceeded the value of similar exports in 1852, namely: of flax exported, 724,000 francs; and of tissues, 1,070,000 francs.

The tissues of Hanover are in high repute in foreign markets; and at the German Industrial Exposition, held at Munich in 1854, they were favorably noticed. As the cultivation and manufacture of flax and hemp constitute the chief agricultural and industrial wealth of the kingdom of Hanover, the annexed table, showing the quantities of tissues manufactured, and their values, from 1840 to 1853—a period of 14 years—is compiled from the official returns of that government:

Years.	Tissues manufactured.		Values.
	Pieces.	Ells.	Thalers.
1840	214,592	18,130,174	1,489,812
1841	217,764	18,295,214	1,531,826
1842	217,244	18,346,183	[illegible]
1843	193,831	16,630,619	[illegible]
1844	198,173	16,567,666	1,288,722
1845	208,785	17,183,187	[illegible]
1846	192,251	15,368,526	[illegible]
1847	223,608	18,043,585	1,564,776
1848	195,435	[illegible]	[illegible]
1849	233,609	19,228,620	1,585,112
1850	249,448	20,890,677	1,768,735
1851	241,758	19,665,446	1,640,296
1852	219,246	17,875,366	1,460,116
1853	207,094	16,935,673	1,446,555

The ell of 2 feet=22.91 English inches; 12 pfennings =1 groschen; 24 groschen=1 thaler=73 cents.

The tissues and yarns of Hanover are exported directly from Hanoverian ports for Friesland and the countries below the Elbe, Sweden and Norway, Mecklenburg, Holland, and the States of the Zollverein.

From Bremen, for New York, Baltimore, Havana, St. Domingo, Porto Rico, Porto Cabello, Laguayra, Venezuela, Mexico, and the Canary Isles.

From Hamburg, for the cities and countries above designated, and also for Brazil, New Orleans, Cuba, and the West Indies.

Effective merchant marine of Hanover in 1855.—Sailing vessels: total, 701; aggregate tonnage, 64,741 tons. Coasting and river craft: total, 1,839; aggregate tonnage, 33,121 tons. Steam vessels: total, 8; aggregate tonnage, 551 tons.

Effective merchant marine of Harburg in 1855.—Sailing vessels: total, 18; aggregate tonnage, 5,102 tons. Steam vessels: total, 2; aggregate tonnage, 810 tons.

Adjacent to the town of Stade, on the Elbe, stands the castle of Brunshausen, near which a vessel is stationed to receive toll on all vessels passing up the river. American vessels passing up to Hamburg are subjected to vexatious and onerous duties at this point, seriously, and in violation of the treaty of June 10, 1846, with Hanover, affecting American commerce with that port. Hamburg property and the Hamburg flag are exempt from any duty at Brunshausen.

COMMERCE IN 1854.

Arrondissements.	Vessels.	Capacity.	Coasting vessels.	Capacity.
Luneburg......	12	1,072	124	540
Stade..........	98	4,772	928	10,442
West Friesland.	567	26,257	813	5,321
Total........	677	32,101	1,865	16,303

The 3d section, article 1, of the treaty of 1846, is in these words: "And further, it is agreed, that no higher or other toll shall be levied or collected at Brunshausen or Stade, on the River Elbe, upon the tonnage or cargoes of vessels of the United States, than is levied or collected upon the tonnage and cargoes of vessels of the kingdom of Hanover." Article 7 is in the following words: "The high contracting parties engage, mutually, not to grant any particular favor to other nations, in respect of navigation and duties of customs, which shall not immediately become common to the other party; who shall enjoy the same freely, if the concession were freely made, or on allowing a compensation, as near as possible, if the concession was conditional." It is proper, however, to add, that it is claimed that the concession is conditional, viz: services rendered to the Hanoverian custom-house in the computation and collection of duties, etc., by the officials of Hamburg. If the flag and property of Hamburgians pass Stade exempt from any toll or duty, the imposition of either on American vessels is clearly in violation of treaty stipulations.

The duchy of Oldenburg is nearly inclosed within Hanover, having, however, a sea frontier of from 40 to 50 miles, and the Weser bounding it on the west. The duchy lies in the basin of the North Sea, and is entirely flat, and in many places marshy, though in several parts it possesses excellent pasturage, on which horses, cattle, and sheep are extensively raised. The soil is not well adapted for agricultural purposes; and, hence, the agricultural productions are not sufficient for the consumption of the inhabitants. Its commerce with the United States is small. In 1852, Oldenburg sent, *via* France and England, to the United States, merchandise amounting to $478. This duchy entered the Zollverein League, January 1, 1854.—*Com. Rel., U. S.*

Hanseatic League, an association of the principal cities in the north of Germany, Prussia, etc., for the better carrying on of commerce, and for their mutual safety and defense. This confederacy, so celebrated in the early history of modern Europe, contributed in no ordinary degree to introduce the blessings of civilization and good government into the north. The extension and protection of commerce was, however, its main object; and hence a short account of it may not be deemed misplaced in a work of this description.

Origin and Progress of the Hanseatic League.—Hamburg, founded by Charlemagne in the ninth, and Lubec, founded about the middle of the 12th century, were the earliest members of the League. The distance between them not being very considerable, and being alike interested in the repression of those disorders to which most parts of Europe, and particularly the coast of the Baltic, were a prey in the 12th, 13th, and 14th centuries, they early formed an intimate political union, partly in the view of maintaining a safe intercourse by land with each other, and partly for the protection of navigation from the attacks of the pirates, with which every sea was at that time infested. There is no very distinct evidence as to the period when this alliance was consummated; some ascribe its origin to the year 1169, others to the year 1200, and others to the year 1241. But the most probable opinion seems to be, that it would grow up by slow degrees, and be perfected according as the advantage derivable from it became more obvious. Such was the origin of the Hanseatic League, so called from the old Teutonic word *hansa*, signifying an association or confederacy.

The Hanse-Towns (so called from the old Teutonic word *hansa*, signifying an association or confederacy), or the free Hanseatic republics of Lubec, Bremen, and Hamburg, are all that now remain of the once powerful confederation which constituted the Hanseatic League. Formed, it is supposed, about the year 1164, partly for mutual protection and safe intercourse by land, and partly for the protection of navigation from the pirates who infested the Baltic and the coasts of the North Sea, this League has become justly celebrated in the early history of the civilization and governments of modern Europe. The first and principal members of this Confederacy were Hamburg, founded by Charlemagne toward the close of the 8th, and Lubec, founded about the middle of the 12th century. "The wild, enthusiastic expeditions of the Crusaders, in the 11th and subsequent centuries, the introduction of the distillery into Europe in the 12th century, and the conquest of the Teutonic Knights of the Cross in Prussia and Livonia, were," says the author of "Lex Mercatoria," "among the causes which originally brought forward the navigation and trade of northern and western Europe, and combined in forming this celebrated association."

The disorders to which most parts of Europe, and particularly the coast of the Baltic, were a prey, during the 12th and following centuries, first invited the cities of Lubec, Hamburg, and Bremen, to unite in this Confederacy. Soon, however, they were joined by most of the trading towns of Europe. The cities which were established along the coast of the Baltic, and in the interior of the countries bordering upon it, eagerly sought admission into a League which guarantied them ample protection against the robber-princes and barbarians by whom they were surrounded. London, Rouen, Bordeaux, St. Malo, Bayonne, Marseilles, Barcelona, Seville, Cadiz, Lisbon, Antwerp, Dort, Amsterdam, Bruges, Rotterdam, Ostend, Dunkirk, Leghorn, Messina, and Naples; Bergen in Norway, Novgorod in Russia; all the towns on the Elbe and Weser; Emden, Cologne, and other cities, successively united with this formidable association, until it was able, in a war against one of the northern powers, in the 14th century, to call into active service 40 ships of war and 12,000 troops, exclusive of seamen. At this period, several of the European powers, especially the kings of France and of southern Europe, becoming alarmed at the extraordinary and formidable progress of an association, whose merchants, traders, and emissaries were found in every port, city, and village throughout Europe, and whose decrees were proclaimed as the supreme law in their respective dominions, withdrew their towns and their merchants from a League which threatened to annihilate their sovereignty and give laws to the world.

It has been urged, and with much force, that the decline of the Hanse-towns was owing mainly to their having become warlike, instead of remaining altogether commercial. There can be no doubt that this was, at least, one of the causes, and, perhaps, the predominating cause, of their decline. Everywhere they claimed special concessions and special privileges. They demanded and obtained the entire custodianship of *Bishopsgate*, one of the principal entrances to London; and when certain privileges were attempted to be withdrawn from them, they boldly declared war against England, and immediately drove her vessels from the Baltic, until Edward IV. restored them all their privileges, and even exempted them, in maritime cases, from the authority of the admiralty court. Referring to the treaty concluded with the Hanseatic League, at this period, McCulloch remarks: "The privileges of the merchants of the Hanse-towns were renewed, and the King assigned to them, in absolute property, a large space of ground with the buildings upon it, in Thames-street, denominated the Steelyard, whence the Hanse merchants have been commonly denominated the Association of the Steelyard. It was further agreed that the particular privileges awarded to the Hanse merchants should be published, as often as the latter judged proper, in all the sea-port towns of England, and such Englishmen as infringed them should be punished. In return for these concessions, the English acquired the liberty of freely trading in the Baltic, and especially in the port of Dantzic, and in Prussia. This treaty," he adds, "settled the difficulties with the Hanse-towns on terms which were any thing but honorable to the English." In 1641, even when the power of these cities had declined, and their organization had become comparatively dismembered, we again find them converting their merchant vessels into ships of war, and disputing with Denmark her pretensions to tax the commerce of the world at the castle of Cronberg. Indeed, it may be remarked, in passing, that the Hanseatic League never quietly submitted to the pretensions of Denmark in the imposition of the Sound tax upon the commerce of the Baltic.

Prior to the treaty with Sweden in the 14th century, the collection of this toll was successfully resisted by the League. Being then in the meridian of its greatness, it obtained, on its own terms, a free passage for its ships and cargoes through the Sound—a privilege enjoyed until Denmark, perceiving that the Hanseatic League held her authority in utter contempt, deemed it judicious to invite other nations to engage in the trade of the Baltic, permitting the vessels of England and Holland to pass through the Sound on the payment of mere nominal tolls. This was intended to strengthen the arms of Denmark in any conflict in which her abrogation of the privileges enjoyed by the League might involve her. Lubec, in the name of the other Hanse-towns, ineffectually protested against this encroachment upon their long undisputed sovereignty of the Baltic, and demanded the immediate exclusion of the Dutch from that sea. Their power, however, was now declining; their demand was refused, and we find them, in 1560, submitting to a convention with Denmark for the adjustment of the question of the Sound dues, resulting in the treaty of the Odensee between "the king of Denmark and his subjects on the one part, and the right honorable Hanseatic cities and the merchants thereof on the other part." So rapid was their decline from this period, that when Denmark, three years after the conclusion of this treaty, made her war with Sweden a pretext for increasing the Sound dues against the Hanse-towns, in violation of the stipulations of that treaty, the latter, being now shorn of their former power, were compelled to submit. Toward the close of the 17th century, the Hanseatic League may be considered as having ceased to exist in a federal capacity. But, about that period, individual cities which formed the League, especially Hamburg, not only regained their former commercial splendor, but, since that time, have gradually risen in wealth and prosperity.

Notwithstanding, however, the warlike attitude in which the Hanseatic League so frequently appeared, whether in asserting new, or in maintaining old privileges and concessions, other causes, no less fatal to their supremacy, and more certain in result, combined to bring about their dissolution. The progress of civilization in Europe—the discoveries of the passage to India by the Cape of Good Hope, and of America—the rise of Holland, and the consequent rapid commercial progress of the Dutch—these causes combined, opened new and hitherto unknown channels for navigation and commerce, and created changes in the commercial world for which ancient trading establishments were neither adapted nor prepared. Thus we see that the decline of this once powerful League was mainly brought about by that very progress of improvement which it had contributed so much to promote. Its dissolution was but the natural consequence of the improved civilization, and of the development of the commercial spirit which it had fostered and spread throughout the different nations of Europe. The cities of Lubec, Hamburg, and Bremen, were all that continued to acknowledge the authority of the League, and all that now remain to represent its ancient splendor and power. The freedom of these cities was guarantied by the Congress of Vienna, in 1815; and since that period navigation and trade have advanced and prospered, especially the trade of Hamburg and Bremen, without any interruption, until the disastrous fire of 1842, which destroyed so large a portion of the city and property of Hamburg; from which calamity, however, it has now almost entirely recovered. This conflagration commenced on the 5th of May, 1842, and burned 61 streets and 120 passages and courts, and left houseless 19,955 of the population. Since that period a great portion has been rebuilt according to a regular plan.

The Hanse-towns, especially Hamburg and Bremen, have established in every part of the world, possessing any commercial importance, numerous mercantile houses, under the management of merchants of great intelligence and energy. These establishments contribute largely to the prosperity and augmentation of the foreign commerce of the Hanse-towns. Of the 343 houses and *comptoirs* which represent the commerce of Germany in foreign countries, 227, or two thirds, belong to Hamburg and Bremen. In the United States alone, in 1846, there are stated to have been 76 commercial houses of this description, namely: At New York, 35; Philadelphia, 7; Baltimore, 14; New Orleans, 7; Louisville, 2; St. Louis, 5; Texas, 3; Cincinnati, 3. These were exclusive of 61 other German houses in the United States. Since 1846 the increase of commercial houses in the United States, from the Hanse-towns, has been very great.

There are 37 Hanseatic commercial houses in Mexico, of which there are in the city of Mexico, 11; Vera Cruz, 11; Tampico, 4; Mazatlan, 5; other places, 6. In Guatemala, 1; Cuba, 14; Porto Rico, 3; Hayti, 6; St. Thomas, 4; the other Antilles, 6; Venezuela, 23; Peru, 5; Chili, 8; Brazil, 29; other German houses in South America, 21. In the ports of the La Plata—Hanse houses, 2; other German houses, 8. In Ecuador—German houses, 2. In China and Chinese India—Hanse houses, 7; other German houses, 7. In African ports—Hanse houses, 9; other German houses, 2.

Statement exhibiting the Number of Hanse Vessels that passed the Sound in 1851.

Flags.	Whence and whither.	No. of vessels.	Duties paid at the Sound.
			Francs.
Lubec	From the North Sea	63	34,376
	" Baltic	60	12,670
Hamburg	From the North Sea	33	13,844
	" Baltic	43	12,258
Bremen	From the North Sea	19	24,702
	" Baltic	15	5,300
Foreign	From Lubec	16	....
	To Lubec	81	....
	From Hamburg	86	....
	To Hamburg	17	....
	From Bremen	89	....
	To Bremen	100	....

From 1849 to 1851, 445 vessels, under the Hanse flag, passed the Sound, and paid 196,170 francs for the privilege of saluting the castle of Cronberg. The number of Hanse vessels which passed the Sound in the years 1852, 1853, and 1854, is stated as follows:

	1852.	1853.	1854.
Hamburg	65	83	49
Bremen	7	37	24
Lubec	109	136	135
Total	181	253	208

The aggregate amount of Sound dues paid by the Hanse-towns from 1846 to 1851, both inculsive, was: francs, 471,354 = $89,557; annual average, francs, 78,559 = $14,926.

In connection with this subject, it is proper to add, that arrangements are now being actively brought toward consummation, which will exercise a marked influence on the foreign commercial movements through the ports of the Hanse-towns. These have for their object the opening of a route between the North Sea and the Baltic: 1st. Across Schleswig, by the construction of a railroad between Tonningen and Husum, on the one side (the west of Schleswig), and on the other, through Flensburg (on the eastern side); and 2. Across southern Sweden, by steam navigation on the Gotha Canal.

It need not be added that either route will supersede the passage of the Sound and the impost which is there levied—yielding to Denmark so large a portion of her Sound-dues revenue—and must necessarily, to a great extent at least, divert from the latter route the transitage through the Hanse-towns destined for the Scandinavian countries and those bordering on the Baltic. The steam navigation of the Gotha Canal has been granted to an English company, denominated "Navigation Company between Hull and St. Petersburg." This company commenced the construction of four steamers in 1853, at the shipyards of Motala, two of which were completed toward the end of that year, and the other two in 1854. These steamers are even now insufficent for the heavy freights offered for transit, and it is understood that others will soon be added to the line. The railroad referred to has also been granted to an English company, which has long since commenced operations. When completed, it will place London within 30 hours' distance of Flensburg.

The commercial relations between the United States and the Hanse-towns are regulated by the treaty of December 20, 1827. This treaty stipulates entire reciprocity of trade and perfect freedom of commerce between the two high contracting parties, no matter from what country or port the vessels and cargoes may come. The sixth article stipulates that it shall be wholly free for all merchants, commanders of ships, and other citizens of both parties, to manage, themselves, their own business, in all the ports and places subject to the jurisdiction of each other, as well with respect to the consignment and sale of their goods and merchandise by wholesale or retail, as with respect to the loading, unloading, and sending off their ships; submitting themselves to the laws, decrees, and usages there established, to which native citizens are subjected; "they, in all cases, to be treated as citizens of the republic in which they reside, or, at least, to be placed on a footing with the citizens or subjects of the most favored nations;" and all favors granted by either party to other nations, to become common to the other party on equal conditions.

The policy of allowing to the Hanse-towns, by treaty stipulation, the privileges of their flag to all vessels *owned* instead of *built* within their dominions, as in the treaty been the Hanse-towns and Great Britain, has been a question of considerable doubt among eminent merchants of the United States. By virtue of this stipulation, the Hanse-towns bring to the United States the productions of the different States of Germany, and carry back, in return, the cotton, rice, and tobacco, with which the store-houses of these towns, especially Bremen, are always supplied. The effect of this privilege has, undoubtedly, been to throw almost the entire carrying trade, from the United States for German markets, into the hands of Hanse ship-owners. This is more particularly true with respect to the port of Bremen, as appears from the following summary of the navigation returns of that port. The vessels engaged in the trade between the United States and Bremen were:

1826—1830	Bremen	2-7	United States	5-7
1831—1835	"	4-7	"	3-7
1836—1840	"	4-5	"	1-5
1841—1845	* Hanse-towns	5-7	"	2-7
1846—1850	"	4-5	"	1-5
1851—1855	"	6-7	"	1-7

The Cotton Trade.—Cotton and tobacco are the leading imports of the Hanse-towns from the United States. The value of the former imported during the 12 months ending June 30, 1855, was nearly $3,000,000; of the latter, more than $2,500,000; while the value of all other domestic produce imported into Bremen and Hamburg from the United States was upward of $9,000,000. The export of cotton from the United States to the countries of northern Europe commenced some 60 years ago. In the year 1800, Holland, including the territory now known as the kingdom of Belgium, received 79,694 lbs.; in 1855 the aggregate quantity exported to the two countries was 17,160,967 lbs. In 1803 Norway and Denmark first imported American cotton, amounting that year to 184,193 lbs.; in 1855 the aggregate quantity exported to these two countries, including Sweden, was some 7,000,000 lbs. Prussia and Sweden began importing cotton from the United States in 1804. Russia, in 1809, received cotton from the United States, for the first time, and to the amount of 500,000 lbs; while in 1853, the year prior to the commencement of the late war, the exportation to that country amounted to more than 21,000,000 lbs. The Hanse-towns received cotton from the United States prior to the year 1800; and the progress of the trade with those cities, which is exhibited in the subjoined statement, strikingly exemplifies, in connection with the remarks which have preceded, and the general statement which follows it, the rapid and powerful advancement of the king-staple, not of the United States only, but of the commercial world. The following statement shows the quantities of cotton exported from the United States to the Hanse-towns every 10 years, for a period of 51 years, from 1805, to 1855:

	lbs.		lbs.
In 1805	122,003	In 1835	2,688,147
1815	1,846,283	1845	17,204,094
1825	577,109	1855	30,809,991

Tobacco is borne in direct voyage from the United States; not so, however, with cotton, in the carrying trade of which Great Britain has been for many years an active competitor. Entering the ports of the United Kingdom free of duty, her merchant flag can realize a profitable trade in its re-exportation to the various ports of continental Europe. Thus the Hanse-towns receive their supplies of raw cotton not only from the United States, in the direct trade, but also in the indirect trade, from English ports and other entrepôts of Europe. The annual average quantity of cotton exported from the United States to the Hanse-towns, including Prussia, during the four years from 1851 to 1854, both inclusive, was 24,811,626 lbs.; while the annual average exported from Great Britain during the four years ending December 31, 1854, was 36,563,996 lbs.

---

* The Hanse-towns are given for this and the following periods; Bremen and Hamburg being united under the official data, under that designation. Bremen, however, averages more than three fourths of the navigation between the United States and the Hanse-towns.

The annual average quantities of cotton exported from the same countries, respectively, during the same periods, to other nations of northern Europe, exhibit similar results. These facts are illustrated by the subjoined statement, and suggest a strong argument for the serious consideration, by the navigation interests of the United States of such measures as would be likely to promote the direct exportation of our great staple from our own ports, in our own vessels, to those of the countries by which it is consumed.

Comparative Statement showing the Quantities of Cotton exported to certain Countries of Northern Europe from the United States and Great Britain, respectively, for a Period of Three Years, from 1852 to 1854, both inclusive.

From the U. States to	1852.	1853.	1854.
Hanse-towns and Prussia	22,138,228	22,671,782	37,719,922
Belgium	27,157,890	15,494,442	13,980,460
Russia	10,475,168	21,286,563	2,914,954
Holland	10,259,042	7,038,994	6,048,165
Sweden & Norway	5,939,025	6,099,517	9,212,710
Total	75,969,353	72,591,298	69,876,211

From Great Britain to	1852.	1853.	1854.
Hanse-towns and Prussia	23,146,256	34,560,736	59,499,888
Belgium	12,657,680	18,466,672	14,040,768
Russia	45,605,840	48,937,392	208,544
Holland	15,834,224	28,676,592	26,934,544
Sweden & Norway	3,591,840	4,414,368	5,866,560
Total	100,835,840	135,055,760	106,550,304

Tabular comparative Statement, showing the average Quantities of Cotton Produced, Consumed, and Exported by the United States, with the Values of the Quantities so exported; and the average Quantities of Foreign Cotton imported into and exported from the United States; together with the current Prices of Cotton in the United States and Great Britain, respectively, during the first Three Years of each Decade, for a Period of Sixty-three Years, from 1792 to 1854, both inclusive.

In the years		Produced.	Consumed.	Exported.		Foreign.		Prices in	
				Quantities.	Values.	Imported.	Exported.	United States.	Great Britain.
		Pounds.	Pounds.	Pounds.	Dollars.	Pounds.	Pounds.	Cents.	Pence.
1st period...	1792, 1793, 1794	5,300,000	5,500,000	743,000	233,000	1,900,000	1,600,000	31 1-3	19 1-6
2d period...	1802, 1803, 1804	60,000,000	10,500,000	35,600,000	6,900,000	3,200,000	2,800,000	19 1-8	16 5-6
3d period..	1812, 1813, 1814	73,300,000	30,000,000	22,600,000	2,700,000	800,000	200,000	12 1-2	20 1-2
4th period...	1822, 1823, 1824	203,300,000	55,000,000	153,500,000	22,100,000	1,000,000	270,000	14·6	8 1-3
5th period...	1832, 1833, 1834	431,600,000	85,000,000	344,000,000	38,500,000	1,500,000	450,000	11·23	7 1-2
6th period...	1842, 1843, 1844	907,100,000	148,600,000	680,200,000	50,700,000	8,000,000	7,600,000	7·46	5
7th period...	1852, 1853, 1854	1,227,400,000	270,800,000	1,064,200,000	97,000,000	500,000	14,000	9·12	6 1-7

This statement, made up with care and labor, from sources official and unofficial, and often conflicting, although not, perhaps, statistically exact, is yet, probably, enough so for those purposes of general comparison for which it is submitted. For obvious reasons, the aggregate of the exportation and consumption of cotton can not be expected to balance the production in any single year, independently of stocks on hand from preceding years. An average, year with year, of some 70,000,000 lbs. consumed for household and other uses, and of some 3,000,000 lbs. lost or destroyed, and of some 500,000 lbs. of imported cotton consumed, are, also, items to be considered in striking this balance; as well, moreover, as the fact that the sums are in round numbers, and that the only figures in the statement which can be viewed as at all statistical, are those giving the amounts and values of exportation; those for the consumption being derived from the unofficial declarations of manufacturers, and those for the production being estimated from all the other items put together. The aggregates, however, of consumption and exportation, for the whole period of 63 years, balance the production and importation within some 6,000,000 lbs. The data for quantities, values, and prices derived from the Treasury Reports, do not, it will be perceived, always afford results entirely consistent. Prior to 1802, foreign cotton was united with domestic in official accounts of exports. The capacity of the bale is computed, agreeably to usage, at 400 lbs., in changing bales into pounds, for this statement, although an average of 450 lbs. to the bale would, probably, be more exact. The unusually large triennial average of cotton imported in 1842, 1843, and 1844, is to be attributed to the fact, that, during those years, Texas was an independent republic. Foreign cotton, from January, 1791, to 1812, paid a duty of three cents per pound; from July, 1812, to April, 1816, six cents; and from April, 1816, to July 30, 1846, three cents, when it was made free. The 7th decade terminates in 1861. The statement may, therefore, be viewed as embracing a period of 70 years, from 1792 to 1861 inclusive.

Tariff Regulations.—Bremen.—The tariff is that of December 23, 1850.

Moneys.—One rixdollar = 72 grotes = 78¾ cents; 1 grote = 1 1-10 cent.

Weights and Measures. One centner = 100 lbs. = 109.8 lbs. avoirdupois; 1 lispund equals 14 lbs. United States' weight; 1 stone of wool equals 10 lbs. do.; 1 stone of flax equals 20 lbs. do.; 1 scheffel equals 2 bushels United States' measure; 1 last equals 80 bushels do.; 1 Bremen foot equals 11.38 inches do.

Import Duties.—These duties consist of two thirds of 1 per cent. ad valorem on the valuation given in the invoices, including at the same time freight and insurance.

Export duties consist of one third of 1 per cent. ad valorem, according to invoices.

Transit Duties.—All merchandise which has been entered at the custom-house as transit goods, is subject to a duty of one groat (1 1-10 cent.) per centner (or 109.8 lbs. avoirdupois), if re-exported within three months from the date of the entrance. From this, however, the following articles are excepted, and pay only one half grote per centner: Alum, asphalt, empty barrels, coal, bomb-shells, boxes, cannons, cheese, copper (crude), earth for coloring, gypsum, hair (cow), herrings, iron in sheets, castings, bars, rods, and balls, juniper berries, lime, linseed, manganese, marble (unmanufactured), metallic earths, mortars, oak-bark (ground or not), ochre, clay pipes, pitch, rags, railroad materials, as rails, wheels, and axles, gutters (roof), rosin, salts, scraps of paper, sea-grass, succory (or chicory), tar, vitriol, waste paper, wrapping material, common manufactures of wood, zinc (in blocks).

The following pay one quarter grote per centner: Ashes (ley), birds, bones, bone-black, sugar-box boards, dye-woods, fresh fruits, grass, hay, iron (old or crude), lead ore, oil cakes, ores, potatoes, slates and pencils, sulphuric earth, timber (hewn), wood, ebony, mahogany, and timber for carpenters.

Commerce of the United States with the Hanse-towns, from October 1, 1820, to July 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Export.	Import.	American.	Foreign.
Sept. 30, 1821........	$1,535,506	$597,038	$2,132,544	$990,165	....	$190,165	17,308	4,091
1822........	1,644,226	860,789	2,505,015	1,578,757	....	59,151	15,750	5,157
1823........	1,582,354	1,587,085	3,169,439	1,981,026	$1,800	40,572	19,504	11,747
1824........	859,383	1,003,890	1,863,273	2,527,830	....	76,920	11,052	9,973
1825........	1,144,474	1,976,559	3,121,033	2,739,526	58,050	1,972	17,260	6.488
1826........	979,313	1,137,384	2,116,697	2,816,545	....	33,859	13,510	4,937
1827........	1.693,971	1,319,214	3,013,185	1,638,558	....	1,965	25,274	5,707
1828........	1,804,333	1,190,918	2,995,251	2,644,392	....	12	23,685	11,563
1829........	1,998,176	1,278,984	3,277,160	2,274,375	2,000	3,844	21,962	10,894
1830........	1,549,732	725,148	2,274,880	1,873,278	....	12,488	14,728	10,262
Total....	$14,791,468	$11,677,009	$26,468,477	$21,064,452	$61,850	$420,948	180,033	80,819
Sept. 30, 1831........	$1,812,241	$779,931	$2,592,172	$3,493,301	....	$5,628	17,147	17,487
1832........	2,435.542	1,652,670	4,088,212	2,865,096	....	5,280	18,452	25,778
1833........	2,108,110	795,186	2,903,296	2,227,726	....	2,200	9,296	27,163
1834........	2,603,571	2,056,103	4,659,674	3,355,856	....	17,067	16,719	27,127
1835........	2,771,390	756,886	3,528,276	3,841,943	....	1,305	....	....
1836........	3,152,418	1,211,464	4,363,882	4,994,820	....	1,207	7,208	37,236
1837........	2,562,357	1,192,592	3,754.949	5,642,221	$43,616	12,735	6,957	48,565
1838........	2,625,802	665,843	3,291,645	2,847,358	12,533	10,211	8,366	34,542
1839........	2,067,608	733,459	2,801,067	4,849,150	12,103	6,125	4,892	29,998
1840........	3,367,963	830,496	4,198,459	2,521,493	206	393	17,849	42,324
Total....	$25,507,002	$10,674,630	$36,181,632	$36,638,964	$68,458	$62,151	106,886	290,220
Sept. 30. 1841........	$4,110,655	$450,061	$4,560,716	$2,449,964	$5,300	$89	14,123	46,147
1842........	3,814,994	749,519	4,564,513	2,274,019	605	4,062	16,779	54,060
9 mos. 1843........	2,898,948	392,984	3,291,932	920,865	....	285,267	13,937	42,075
June 30, 1844........	3,174,483	392,204	3,566,687	2,136,386	....	35,204	12,749	50,656
1845........	4,106,927	838,093	4,945,020	2,912,537	....	....	16,016	59,007
1846........	4,008,315	600,305	4,608,620	3,149,864	....	143	8,143	60,807
1847........	4,068,413	266,225	4,334,638	3,622,185	....	....	12,127	56,634
1848........	3,856,676	465,109	4,321,785	6,293,280	266,786	3,842	15,737	59,109
1849........	2,710,248	604,682	3,314,930	7,742,864	313,775	43,519	23,385	44,264
1850........	4,320,780	885,742	5,206,522	8,787,874	112,706	....	21,156	68,016
Total....	$37,070,439	$5,644,924	$42,715,363	$40,289,838	$699,172	$372,126	154,152	547,775
June 30, 1851........	$5,405,956	$641,491	$6,047,447	$10,008,364	$579,116	$245,996	16,696	69,724
1852........	6,195,927	681,030	6,876,957	8,171,411	932,128	59,319	27,521	87,500
1853........	7,409,315	610,738	8,020,053	13,843,455	1,367,809	5,144	26,995	85,281
1854........	10,641,596	1,444,662	12,086,258	16,966,898	3,558,319	....	23,765	103,220
1855........	9,155,169	975,081	10,130,250	12,360,113	1,456,212	10,110	34,686	112,507
1856........	13,188,985	1,050,386	14,239,371	14,458,512	1,442,493	7,752	54,433	100,844

The following pay one sixth grote per centner: Ashes (not ley), birch, brooms, blood, bottle cases, bricks, cement, chalk, clay (brown or stone), earth (common), earthenware (common), fayence (common), glass (broken), glue, leather, offal of tanneries, gravel, guano, marl, mill-stones, oyster-shells, potters' earth, shell-lime, stones (hewn or not), sugar-bakers' clay, sugar scum, tiles, tomb-stones, trees for planting, turf, fire-wood, hoops, shingles, materials for basket-makers, and posts for fences. Goods not exported after three months, by paying 25 per cent. of the transit duty, may have a further prolongation of three months.

Hamburg.—The tariff is that of December 29th, 1851.

Moneys.—1 marc-banco = 16 shillings = 35 cents.

Weights and Measures.—1 centner = 119.504 lbs.; 1 pfund = 1.067 lbs. avoirdupois.

Duties on Imports.—These duties amount to not more than ½ of 1 per cent. ad valorem; and the *duties on exports* to not more than ⅛ of 1 per cent. ad valorem.

The following articles are exempt both from import and export duties: apparel of travelers, brought in by the respective parties, or by a special permit of the director of customs; bark, unground; barley; bones; bronze metal; buckwheat; copper for sheathing ships; brass, old, also in plate or sheets; coal, stone; gold and silver bullion or coin; open samples of goods under 70 lbs. weight, exported and then re-imported through the same gate; linens, with or without cotton mixture; linen bagging; malt; oats; oil cakes; potatoes; printed matter; musical and scientific maps; rags, woolen or cotton; rape-seed; rye; wool, sheep's and lamb's, raw; wheat; zinc, crude.

The following articles are free of import duties only: articles not exceeding 5 marcs-banco ($1 75) in value; those also subjected to excise duties not over 20 marcs-banco in value; timber, staves, fire-wood and turf.

Those free of export duties are: all articles under 20 marcs-banco ($7) in value, regardless of quantity; all manufactures of the city of Hamburg; all provisions for the immediate use of vessels lying in harbor; articles not exceeding 100 lbs. in weight, and not of greater value than 100 marcs-banco.

Transit duties.—All goods re-exported within three months from the date of arrival, are free of any transit duty, if yet in the hands of original importers.

Lubec.—The tariff is that of December 5th, 1851.

Moneys.—1 marc = 16 schillings Lubec courant = 28·79 cents.

Weights and Measures.—1 ship-pound = 2½ cwt. of 112 lbs. English, each=280 lbs. 1 lispound=14 lbs.

Duties on Imports.—All goods, whether of foreign or home production, pay one half of one per cent. ad valorem, as given in the invoices, except the following articles, which are free of import duties:

Transit goods re-exported within three months after entry; effects of travelers; household furniture used; wool brought for the Lubec fair, and delivered at the wool warehouse; goods on board vessels not consigned to Lubec; wares on board ships entering the port of Travemunde in distress.

Goods where the value can not be ascertained from the invoices, will be estimated at the Lubec market prices. Articles of wood, as timber, boards, shingles, planks, masts and spars, staves, and fire-wood, pay, always, one half of one per cent. on the Lubec market prices. Articles which pay an ad valorem duty, if their value does not amount to 25 marcs ($7), are free; from 25 to 75 marcs ($7 to $21), the duty is levied on 50 marcs ($14); from 75 to 125 marcs ($21 to $35), the duty is levied on 100 marcs (28), and so on. None but citizens, or their agents, have the privilege of clearing goods in the custom-house. American vessels, however, are exempted from this regulation.—*U. S., Com. Relations;* M'Culloch's *Commercial Dictionary;* see, also, *Foreign Commerce United States,* and *Quarterly Review,* vol. vii., p. 130.

Harbor, Haven, or **Port,** a piece of water communicating with the sea, or with a navigable river or lake, having depth sufficient to float ships of considerable burden, where there is convenient anchorage, and where ships may lie, load, and unload, screened from the winds, and without the reach of the tide.

Qualities of a good Harbor.—There is every variety in the form and quality of harbors. They are either natural or artificial; but, however formed, a good harbor should have sufficient depth of water to admit the largest ships at all times of the tide; it should be easy of access without having too wide an entrance; the bottom should be clean and good; and ships should be able to lie close alongside quays or piers, that the expense and inconvenience of loading and unloading by means of lighters may be avoided. Ships lying in a harbor that is land-locked, and surrounded by high grounds or buildings, are, at once, without the reach of storms, tides, and currents, and may, in most cases, be easily protected from hostile attacks. Bar harbors are those that have bars or banks at their entrances, and do not, therefore, admit of the ingress or egress of large ships except at high water. These are most commonly river harbors—the sand and mud brought down by the stream, and driven back by the waves, naturally forming a bar or bank at their mouths.

The designing of harbors constitutes confessedly one of the most difficult branches of civil engineering. In making such designs, the engineer, in order to avail himself of the advantage which is to be derived from past experience, must endeavor to the best of his power to institute a comparison between the given locality and some other, which he supposes to be in *pari casu.* Perfect identity, however, in the physical peculiarities of different stations, seldom, if ever, exists, and all that can be done is to select an existing harbor, which appears to be as nearly as possible similarly circumstanced to the proposed work.

In considering the subject of the construction of harbors in exposed situations, the first and most important subject deserving our attention is the destructive action of the element with which we have to deal—what are its energies when excited by storms, and what the direction of its forces on the barriers which have been raised to control it?

Smeaton, in his history of the Eddystone, when speaking of the objection that might be raised against the necessity for using joggles in the masonry of that building, says, "When we have to do with, and to endeavor to control *those powers of nature that are subject to no calculation*, I trust it will be deemed prudent not to omit in such a case any thing that can without difficulty be applied, and that would be likely to add to the security." This statement of our greatest marine engineer, indicates the propriety of carefully collecting any facts that may help us to a more accurate estimation of those forces which he regarded as being "subject to no calculation." We shall therefore state a few facts which have been recorded of the destructive powers of the waves in inland lakes, and in the open ocean.

At Port Sonachan, in England, where the fetch is under 14 miles, a stone, weighing a quarter of a ton, was torn out of the masonry of the landing-slip and overturned. Mr. D. Stevenson, in his *Engineering of North America*, describing the harbors in Lake Erie, mentions having seen one stone, weighing upward of half a ton, which had been taken out of its bed in the pier at Buffalo, moved several feet and overturned. The Comte de Marsilli, in his *Histoire Physique de la Mer*, published at Amsterdam in 1725, states that the highest wave observed by him on the shores of Languedoc in the Mediterranean Sea, where the breadth is about 600 miles, was 14 feet 10 inches. At the mouth of a harbor on the German Ocean, with a fetch of about 600 miles, the writer had observed for him the height of the waves during south-easterly gales, and on one occasion the result was 13½ feet from the crest of the wave to the trough of the sea. In deeper water, and with a north-easterly gale, there is no doubt that the waves of the German Ocean will attain a height considerably greater than this. In November, 1817, the waves of the German Ocean overturned, just after it had been finished, a column of freestone 36 feet high and 17 feet base. The diameter at the place of fracture was about 11 feet. In the Atlantic Ocean, Dr. Scoresby stated, in a communication to the British Association in 1850, that during several hard gales he had measured many waves of about 30 feet, but the highest was 43 feet from the hollow to the crest. Waves of such magnitude could scarcely, however, reach our artificial harbors, from the shallowness of the water near the shore. To these facts it may be added, that of a block of 50 tons' weight being moved by the sea at Barrahead, one of the Hebrides; and what is far more extraordinary, blocks of nine tons' weight have been quarried, or broken out of their beds *in situ*, on the top of the Bound Skerry of Whalsey, in Zetland, which is elevated 85 feet above the level of the sea. The Bound Skerry and neighboring rocks, which are in the German Ocean, certainly furnish by far the most wonderful proof that has yet been discovered, of the great force which is developed by the billows of the ocean when suddenly checked by opposing rocks.

It has been stated (in the *Trans. Roy. Soc. Edinburg*) that, from observations which were made with the marine dynamometer (a self-registering instrument designed by him for the purpose), the force of the waves of the German Ocean, during hard gales, had been found to be 1½ *tons per superficial foot* at the Bell Rock; and of the Atlantic Ocean to be 3 *tons per superficial foot* at the Skerryvore Light-house. But these results may still be far short of the maxima. As the marine dynamometer has been often found useful in indicating the force of the waves in situations where harbors were to be built, it may be proper to give such a description of it as will enable any one to have it made.

D E F D is a cast-iron cylinder, which is firmly bolted at the protecting flanges G, to the rock where the experiments are to be made. This cylinder has a circular flange at D. L is a door which is to be opened when the observation is to be read off. A is a circular disc on which the waves impinge. Fastened to the disc are four guide-rods B, which pass through a circular plate C, which is screwed down to the flange

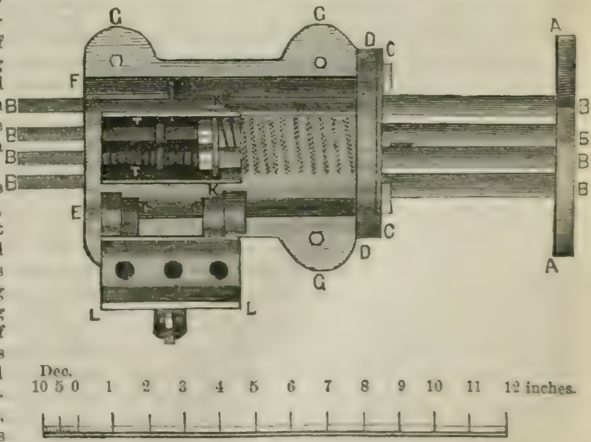


Fig. 1.

D, and also through the holes in the bottom E F. Within the cylinder there is attached to the plate C a powerful steel spring, to the other or free end of which is fastened the small circular plate K, which again is secured to the guide-rods B. There are also rings of leather, T, which slide on the guide-rods, and serve as indices for registering how far the rods have been pushed through the holes in the bottom, or, in other words, how far the spring has been drawn out by the action of the waves against the disc A.

In comparing an existing harbor with a proposed one, in order to ascertain the dimensions which are necessary to insure stability, perhaps the most obvious element is what may be termed the *line of maximum exposure*, or, in other words, the line of greatest *fetch* or *reach* of open sea, which can be easily measured from a chart. But though possessed of this information, the engineer still does not know in what ratio the height of the wave increases in relation to any given increase in the line of exposure.

As this inquiry is one of great moment in the practice of marine engineering, and has not been in any way investigated, the writer has for some time back been making occasional observations on the subject, when favorable circumstances occurred. These observations have been but limited in extent, and can not be regarded as deserving of confidence unless in cases where the two harbors are not far different in their lines of exposure. So far as these experiments have gone, the waves seem to increase in height most nearly *in the ratio of the square root of their distances from the windward shore.*

It does not follow, however, that the line of maximum exposure is in every case the line of maximum effective force of the waves; for this must depend not only on the length of *reach*, but also on the angle of incidence of the waves on the walls of the harbor. What may be termed the line of *maximum effective exposure* is that which, after being corrected for obliquity of impact of the waves, produces the maximum result, and this can only be taken from the chart after successive trials. Let x=the greatest force that can assail a pier, h=height of waves which produce (after being corrected for obliquity) the maximum effect, and which are due to the line of maximum effective exposure. Sin a=sine of azimuthal angle formed between directions of pier and line of maximum effective exposure, radius being unity. Then $x \propto h \sin^2 a$ when the force is resolved normal to the line of the pier; but if the force is resolved again in the direction of the waves themselves, the expression becomes $x \propto h \sin^3 a$.*

It should not be forgotten, in connection with this subject, that there are various qualifying elements to which special attention requires in some cases to be given. The waves, for example, may often be noticed, when approaching the land obliquely, to alter their direction when they get close to the shore (in consequence of the depth changing), so as to strike it more nearly at right angles to the general line of the beach. In this way a swell from the ocean may enter a bay which is not directly exposed to it. It should also be observed, that the lines of exposure can not be directly compared if the depths of the water through which they pass are materially different.

The tides, too, exert in many places a very decided effect on the nature of the billows, in some places causing waves of an unusually dangerous character, while at others they are found to *run down* the sea. If a marine work is situated in a *race* or rapid tideway, such, for example, as those called "roosts" in Orkney and Shetland, the masonry will be exposed to the action of a very trying and dangerous high-cresting sea. As an example of this, we may refer to Port-Patrick in Wigtonshire, where the violence of the waves is, we have no doubt, much due to the rapidity of the tides. If, on the other hand, the race or roost runs in such a direction as to be entirely outside of the harbor, and at some distance off, it will have a decided tendency to shelter the works, and to act as a breakwater. Thus it appears, from observations at Sumburg Head Light-house in Shetland during a south-westerly storm, that so long as the Sumburg roost (one of the most formidable in those seas), was cresting and breaking heavily, one could have easily landed in a small boat at a creek or bay called the West Voe; but no sooner did the roost disappear toward high water than there came in towering billows that totally submerged cliffs of very considerable height. The study of the modifying and intensifying effects of tide-currents on the waves of the sea seems to have been entirely neglected in the late discussions regarding the merits of vertical and sloping walls, which will be referred to in another section of this article.

From careful inquiries, as well as from actual personal experience, of such formidable breaking waters as the Boar of Duncansbay, and the Merry Men of Mey in the Pentland Firth, and several others, we are of opinion that the true cause is the *swell of the sea encountering a tidal current running in a direction more or less opposed to that of the waves.* While it is obvious that two rapid tides may meet each other without any dangerous effects, it is also quite true that when two tides meet each other in a rough sea, as in coming round such islands as Stroma or Swona in the Pentland Firth, the effect of their union being to increase the current at that place, there will be produced a highly dangerous sea; but the fact of their meeting, though calculated to aggravate, is not, we think, the primary cause. The races which occur in open seas, as, for instance, off headlands and turning-points of the coast, are certain portions of those seas in which the waves *break* to a greater or less extent, although the water may be very deep, and there may be no wind at the time. At all such places it will be found that there are rapid tides. The roosts on the west coast of Orkney or of the Pentland Firth, for example, are worst with *ebb* tides and *westerly* swells, because the Atlantic swell and current of ebb are opposed. Those again on the east coast are worst with *flood* tides and *easterly* swells from a similar cause. Thus at the east end of the Pentland Firth the Boar of Duncansbay is well known to rage with easterly swells and a flood tide; whereas, at the west end of the same firth, the Merry Men of Mey are equally well known to be worst with ebb tide and a westerly swell, at which time no boat could enter them without the risk of being overturned. The dangerous surf which exists at the mouths of some rivers is, we believe, not solely due to the want of depth at the bar, but also to the meeting of the outward current with the waves of the sea.

When a swell encounters a rapid opposing current, the onward motion of the waves seems to be arrested, and their width becomes visibly decreased. They get higher and steeper, crest, and at last break, sometimes very partially, and at other times almost as they would on a shelving beach. It appears to us possible that several waves may ultimately combine in such disturbed waters into one mountainous billow; for the wave that has partially broken may have its onward motion so much checked as to allow the wave behind to overtake it, and having thus coalesced, they may, as one large wave, acquire a superior velocity, so as to overtake those in front and be further augmented by the union of other waves which have reflected from the shore.

It is to this cause we are inclined to refer such wonderful effects as that to which we have already alluded, where blocks of 9 tons' weight were quarried out of the solid rock at an elevation of 85 feet above the sea. Were such violent action common to all the shores of the German Ocean, instead of being restricted to one or two similar places, half of the eastern sea-port towns in England would, without any doubt, be washed into the sea during the first stormy winter. As a further proof of the great effect of the tides in exasperating the waves, we may mention that the time when most damage is done to sea-works which are in tolerably deep water, is from one to two hours before and after high water, which nearly corresponds to the time when the tide runs strongest outside. We have found this to hold true at many different parts of the English coast, and refer to one well-marked instance. At Peterhead harbor, which projects prominently into the sea on an isthmus, the tides, at but a short distance seaward of the harbor, run very rapidly. On the 10th of January, 1849, there was a very heavy sea, and a crowd of people were down, about *two hours before high water*, helping to secure the whalers and other vessels in the harbor, when three successive waves carried away 315 feet of a bulwark, founded 9½ feet above high-water springs, which had stood for many years. One piece of this wall, weighing 13 tons, was moved 50 feet. After this outbreak of the sea the waves became more moderate, until about *two hours after high water*, by which time the large whalers had taken the ground, when other three enormous waves again swept over the harbor, submerging the quays to the depth of from 6 to 7 feet of solid water, by which 16 people were drowned. These waves filled the harbor to such a depth as to set all the whalers afloat again, and they continued so for several minutes, until the excess of water had run out through the harbor mouth. These gigantic waves were, in our opinion, clearly the result of some such action as has been attempted to be described. We should not have dwelt at such length on this subject were it not that we might again refer to the facts when we come to treat of the subject of vertical and sloping walls for harbors of refuge, where it is of importance to show that even in the deepest water, the waves are not purely oscillatory, but that wherever there is a tide-way the waves will more or less partake of the qualities of waves of translation.

---

* For experimental results *vide* article HYDRODYNAMICS, E.B.

Relation between height of waves and depth of water. Another circumstance affecting the exposure of any marine work is the depth of water in front of it. The great mountainous billows so commonly met with in the Atlantic Ocean can not be generated in the shallower waters of the German Ocean, unless perhaps in such peculiar circumstances as have just been adverted to. It becomes, therefore, of great consequence to ascertain the maximum possible wave in a given depth of water.

Mr. Scott Russell, whose observations on what may be called the marine branch of hydrodynamics are of such great value, has stated that if waves be propagated in a channel whose depth diminishes uniformly, the waves will break when their height above the surface of the level fluid becomes equal to the depth at the bottom below the surface (p. 425 *Brit. Assoc. Rep. on Waves*). This statement, the meaning of which seems doubtful, Mr. Russell elsewhere (*Instit. Civ. Eng.*, p. 136), defines thus: "The author has never noticed a wave so much as 10 feet high in 10 feet of water, nor so much as 20 feet high in 20 feet water, nor 30 feet high in 5 fathoms water; but he has seen waves approach very nearly to those limits." It is presumed that the datum here referred to is the mean level of the surface of the sea. We have had no opportunities of verifying these observations; but as the subject is very important—because the depth of water in front of a work may be said to be the ruling element which determines the amount of force which it has to resist, whatever be the line of maximum exposure—we shall simply state what has come within our own knowledge and observation. We have repeatedly seen at different parts of the coast breaking waves of from 4 to 5 feet, measuring from hollow to crest, in from 7 feet 8 inches to 10 or 11 feet of water, measuring from the bottom up to the mean level; and on one occasion we were told of waves which were estimated at 9½ feet in 13 feet water. It must, however, be borne in mind that these observations, and we conceive also those of Mr. Russell, apply only to common waves of the sea, or those short, steep, and superficial waves which are due to an existing wind, and not to the ground swells which are almost constantly to be found in the open ocean, and which may be the result of former gales, or are the telegraph, as Mr. Russell terms them, of those which are yet to come.

From what has been stated, it would appear that in most cases the heaviest waves should assail any tide-work at high water. This, however, as mentioned in the last section, is not always the case, the greatest damage being often found to occur at the time when the tide runs strongest. Mr. Leslie found that the Arbroath Harbor-works were in general less severely tried by the very heaviest waves than by a class of waves somewhat smaller than these, owing to the outlying rocks, which, from the small depth over them, had the effect of *tripping* up the heavier seas, and thus destroying them before they reached the harbor, while the depth was sufficient to allow the smaller waves to pass over the shoals unbroken. In some cases of severe exposure the waves might to some extent be reduced by dropping very large stones outside of the harbor, so as, by forming an artificial shoal, to cause them to crest and break. One great difficulty connected with the subject of the generation of waves still remains unsolved, viz.:—What are the minimum line of exposure and area of sea which are compatible with the existence of a ground swell? This question, we fear, can not be answered in the present state of our knowledge.

Deep Water Harbors.—Harbors of refuge are distinguished from tidal harbors mainly by the superior depth of water which they possess, and the larger area which they inclose. The requisites are shelter during storms, and easy access for shipping at any time of tide. There has been much discussion as to whether piers for harbors of refuge should be *vertical* or *sloping.* Col. Jones, R.E., has especially advocated the superior merits of the vertical wall; and the discussions on his plan at the Institution of Civil Engineers, and the able protest by Sir Howard Douglas, will be found, from their interest and importance, to merit a careful perusal.

The principle which is asserted is, that oceanic waves in deep water are purely oscillatory, and would occasion no impact against vertical barriers, which would be the most eligible, as they would only have to encounter the simple hydrostatic pressure due to the height of the approaching billow, and would reflect the waves without causing them to break. Were it even admitted that the waves were purely oscillatory, and were reflected by a vertical barrier, would no force, it may be asked, be expended when the motion of the particles was reversed? The reflection of a wave is equivalent to the nearly instantaneous creation of a wave in the opposite direction, for which a very considerable force must surely be required.

We believe, however, that from the effect of tide currents, to which we have already referred, and perhaps from other causes whose action seems to have been overlooked by the advocates of the upright wall, any form of barrier, in whatever depth it may have been erected, must be occasionally subjected to heavy impact. We conceive that the possibility of waves of translation being generated in the deepest water has been already established, if we succeeded in satisfying the reader of the truth of the following assertions:—*First*, That waves break in deep water during calm weather; a fact which is apparent to the eye, and familiar to all sailors: and, *secondly*, and negatively, That to leeward of these races or portions of broken water, which certainly do not reflect the incoming waves, there is comparatively smooth water both at sea and on the adjoining shores, until such time as the strength of the tide is exhausted, and the roost has disappeared, when violent action is again fully manifested.

It may be argued that these are extreme cases, and that such high velocities in the current of the tide are seldom met with. This objection has, no doubt, truth in it; but still the tendency is shown, and though the velocities may be less in other quarters, there may yet be quite enough to destroy the condition of *stagnation* which the oscillatory theory assumes. The breaking of waves at sea, and the existence of races, seem to prove beyond question that waves of translation are possible in the deepest water. Is it not also a probable case that waves which have been reflected by a vertical wall, and have (irrespective of the question of tide currents) combined with the advancing waves may then become waves of translation, possessing all the elements which endanger the stability of a sea-work? Or, again, how much more damage would result to a vertical wall than to a slope of loose stones, from the sinking of the foundations, or from their getting underwashed by the reaction of the waves? It therefore appears that the method generally resorted to of forming deep water harbors of masses of rubble stone with long slopes, so as to form an artificial beach for the waves to spend on, is, in most circumstances, the best and cheapest kind of construction. We incline, however, to the adoption of an upright wall, founded on the rubble as a basis (similar to that at Cherbourg, about to be described), in preference to long paved slopes, as there is always experienced a great difficulty in founding the toe of such talus walls among the loose rubble. When pitched slopes are adopted, great benefit will be found to accrue from leaving at the bottom or toe of the slope a wide foreshore. Much, however, depends on local peculiarities in selecting the best design for any work; and the nature of the bottom is all-important. Where the bottom is soft, a vertical wall can hardly, if ever, be attempted.

In making these remarks, we must not be understood as condemning the adoption of vertical walls in cases where the foundation is good. All that we assert is the opinion, that waves of translation do exist in deep water, and, therefore, that harbors of refuge will prove failures unless they are built in such a manner as to resist the impact of those waves of translation. The Cherbourg breakwater has been often referred to as a successful instance of the application of a vertical wall, and has been contrasted with the Plymouth breakwater, which has a long slope. But this appeal is quite fallacious, as the profile of that work is, as already hinted, of a composite character, consisting of a talus wall sloping at the rate of 10 horizontal to one perpendicular, surmounted by a plumb wall; so that whatever merit may be supposed to belong to the vertical profile is entirely nullified at Cherbourg by the strong talus wall in front, on which the violence of the waves is much broken. Moreover, the heaviest waves at Cherbourg come from the north-west, and do not assail the breakwater at right-angles to its direction, but come more nearly *end on* to the work, so as to a great extent to run along the outer wall. The north-west waves are propagated from the Atlantic, while the waves which are most trying to the work come from the north, in which direction the line of exposure is only about 21 leagues. These facts we obtained during a recent visit to Cherbourg, undertaken for the special purpose of ascertaining the physical characteristics of the place. The attempt to make out a parallelism between Plymouth, which faces the Atlantic directly, and Cherbourg, which is comparatively land-locked, can not, in our opinion, stand the test of a candid inquiry.

Other comparisons may be referred to which have been advanced on equally untenable grounds. Thus, the old pier of Dunleary, which is vertical, and has stood well, has been compared with the talus walls of Kingstown harbor, which now protect Dunleary, and which have often received much damage. The all-important element of depth of water has been in this instance entirely overlooked; for at Kingstown there is a depth of 27 feet, while Dunleary is all but dry. An able writer on the same *questio vexata*, in comparing different sea walls in the Firth of Forth, has, in like manner, not sufficiently adverted to the great differences in the depths opposite the works to which he refers.

An important advantage of the sloping wall is the small resistance which it offers to the impinging wave, but it should also be borne in mind that the weight resting on the face stones in a talus wall is decreased in proportion to the sine of the angle of the slope. If we suppose the waves which assail a sloping wall to act in the horizontal plane, their direct impulse, when resolved into the force acting at right angles to the sloping surface of the talus wall, will be proportional to the sine of the angle of incidence. The effective force when estimated in the horizontal plane, will be proportional to the square of the sine of the angle of incidence. But if we assume the motion of the impinging particles to be horizontal, the number of them which will be intercepted by the sloping surface will be also reduced in the ratio of the sine of the angle of incidence, or of elevation of the talus wall. Hence the tendency of the waves to produce horizontal displacement of the wall, on the assumption that the direction of the impinging particles is horizontal, will be proportional to the cube of the sine of angle of elevation of the wall.

If it further happens that there is obliquity of action in the azimuthal as well as in the vertical plane arising from the relative direction of the pier and of the waves, there will be another similar reduction in the ratio of the squares or cubes of the angle of incidence according as the force is resolved into that at right angles to the line of the pier, or to that of the direction of the waves.

Let ϕ = vertical angle of incidence or angle of elevation of wall;
ϕ' = azimuthal angle of incidence;
f = horizontal force exerted on unit of surface at right angles to the line of harbor wall;
h = height of greatest assailing waves;

$$f \propto h\,(\sin\phi \sin\phi')^2.$$

The above expression assigns, we think, too great a reduction, as the motion of the particles may not be horizontal, and no account is taken of the effects of friction against the rough surface of the masonry. Experiments are therefore wanting to determine the constant for correcting the theoretical results due to this expression.

Parabolic Profile.—Mr. Scott Russell recommends the parabolic curve as that best suited for the profile where the object is to *break* the waves, and not to reflect them, as is the case in sloping breakwaters. This curve possesses, according to Mr. Russell, the advantages of superior strength, of economy in the materials, of breaking the wave early, and of continuing an uniform action over the longest period of time. When the tide is low, the toe of the slope, which springs out of the foreshore and forms the vertex of the parabola, would, we fear, be found rather weak, and perhaps difficult to form. On the whole, we rather incline in such cases simply to throw in the materials, and to allow the sea to form is own slope.

According to Sir John Rennie (*Account of Plymouth Breakwater*), rubble breakwaters with slopes formed at the angle of repose, were adopted by the Greeks in the moles of Tyre and Carthage, and by the Romans at Athens and Halicarnassus. The same design was also followed at Venice, Genoa, Rochelle, Barcelona, and other places. In this kingdom the first example on a large scale which we find is at Howth. Kingstown, Holyhead, and the noble breakwater at Plymouth, were afterward carried out on the same principle, and chiefly under the direction of the late Mr. Rennie. The great national harbors of refuge at present in progress in Great Britain, according to Mr. Rendel's designs, at Holyhead and Portland, are on a similar principle; while those under Messrs. Walker, Burgess, and Cooper, at Dover, Alderney, and Jersey, are more nearly vertical.

Forms of Walls for Tidal Harbors.—Having now considered the few facts of which we are in possession, regarding the disputed nature of the impulse of the waves in deep waters, we shall direct the reader's attention to their effects in shallow water. Those in deep water were chiefly *whole waves*, and regarded by many as being purely oscillatory, while those in shoal waters are breaking waves, and therefore regarded by all as waves of translation. We have hitherto been considering breakwaters erected in deep water, and which were constantly exposed to the waves; we now turn to piers and sea-walls which are placed within the range of the surf, and which are exposed to its force for a limited period only, being sometimes left nearly, or altogether dry by the receding tide.

The impulse of the waves against a sea-wall or pier may be resolved practically into four directions:—1st. The direct horizontal force which tends to shake loose, or carry before it, the blocks of which the opposing masonry consists. This force may also blow up the pitching, or overturn the inner or quay-wall by condensing the air, or pressing upon the water which occupies the interstices of the rubble. We know two cases in the German Ocean where, in consequence of want of width in the pier, coupled, in one instance, with insufficient workmanship, the inner or quay-walls were observed first to bulge and fall, before the sea-wall was injured. One of these piers measured 26 feet 4 inches, and the other 24 feet, on the roadway. 2d. The vertical upward force which may act on any projecting stone or protuberance. 3d. The vertical downward force of the water which results either from the wave breaking upon the toe of a talus wall, or from the wave passing over the parapet, and falling upon the pitching behind, so as to plow it up. 4th. The *back-draught*, which tends by reaction from the wall to plow up the soft bottom, and thus to undermine the lower courses of the work, or perhaps by *suction* to pull out the face-work. We may conclude from the above, that the points which require to be carefully attended to are—1st. The contour and quality of masonry of the wall itself; 2d. The parapet, which, if not of sufficient height, or built in a proper direction, leads to damage in the pitching behind it; and 3d. The foundation-courses, in the design and construction of which, if similar precautions be not attended to, underwashing of the bottom may in some situations take place, so as to leave the lowest courses without protection.

We shall in the first place consider how far these remarks are applicable where the bottom is solid rock. Such a supposition will render unnecessary any precautions arising from the wasting of the bottom, and, *cæteris paribus*, there does not seem to be any reason for preferring a talus to a vertical wall. The question of preference in such a case will in the main depend upon the kind of material which can be obtained. Should the stone be scarce or costly, and the quality such as to warrant the introduction of masonry of the best description, the vertical wall may be found to be the most economical. Where freestone is to be used, it is not only desirable that it should be got in large blocks, but that the face stones should possess considerable hardness. This precaution is particularly necessary in selecting the stones, for the lower courses, and especially where the beach consists of hard gravel. For the same reason, it is highly important that all stones which are subject to decay from atmospheric influence should be either entirely rejected or assembled in the upper courses of the parapet.

Where the materials are abundant, but of an unworkable nature, a long talus wall will generally be found most economical. For such walls the rate of slope must depend very much upon the exposure of the place, and upon the plentifulness of rubble-stone hearting. The easily-dressed and naturally flat-bedded materials, which the stratified rocks of the secondary formation very often furnish, are especially applicable for the construction of vertical walls; while the uncouth blocks of the primary and igneous formations are better suited for talus walls. Such rocks as gneiss, the schists, basalts, greenstones, amygdaloids, and the tougher kinds of granite, are best fitted for this purpose. With some of those rocks the angularity of the pieces, and the excessive difficulty of dressing, render it necessary to assemble them without almost any alteration of their shape, by an adaptation of their salient and re-entrant angles, so as to make a kind of random rubble face-work. In this kind of work, mortar is very seldom employed. The parapet generally consists of squared masonry, surmounted by a heavy cope, and it should in every case be set in good lime mortar.

Where the materials are light and of small sizes it is desirable to equalize the action of the sea over the whole work, and not to concentrate it against any particular place. Mr. Russell states that the cycloidal form was recommended for this purpose by Franz Gerstner, of Bohemia. The only instance with which we are acquainted of the adoption of this curve was in a sea-wall erected at Trinity, near Edinburg, by the late Mr. Robert Stevenson, in 1822. It has been already stated that irrespective of the quality of the masonry, the two points in the structure which are weak or dangerous are the top and bottom of the wall. With a rocky bottom the risk of failure at the foundations is removed; on the other hand, where the shore consists of rotten rock, moving shingle, or sand, it is obvious that provision must be made for both those sources of evil. In fact, if we consult the history of our harbors, we shall find that by far the most frequent cause of damage is the reaction of the sea against the shore.

The general slope of a fragmentary beach must depend upon the size and nature of the particles and the force of the sea. The dissimilarity between the slopes of a beach near the levels of high and low water, arises from a decrease in the force of the waves, owing to their being broken before they reach the high-water mark. The great object, therefore, is to design the profile of our wall so as to alter as little as possible the symmetry of the beach. Where isolated rocks or large boulders are seen projecting above the surface of a sandy beach, there will generally be formed around them hollows, corresponding in depth to the kind of obstruction which the rocks present. The principal point in the design, therefore, must be to avoid great and sudden obstructions to the movement of the water. The best form which could be adopted in any situation would of course be the same as the cross section of the beach itself, but this would answer no possible purpose; and, as the wall is to consist of heavy blocks of stone instead of minute particles of sand, it is clear that a much steeper slope may be adopted than *the profile of conservancy* of the coast, provided the lower part of the slope be flattened out so as to meet the sand at a low angle. The action of a bulwark is to arrest the waves before they reach the general high-water mark, and to change the horizontal motion of the fluid particles to the vertical plane, or to compel the waves to destroy themselves on an artificial beach consisting of heavy stones. To prevent underwashing, the two following requisites should therefore be as far as possible secured:—1st. The foundation courses or bottom of the wall should rise at a very small angle with the beach, so that their top surfaces may be coincident with the profile of conservation of that portion of the beach out of which the wall springs; 2d. The outline of the wall should be such as to allow the wave to pass onward without any sudden check till it shall have reached the strongest part of the wall, which should be as far from the foundation as possible.

Those two requisites show clearly how inapplicable a vertical wall must in most cases be for a sandy beach. Instead of altering the direction of the wave at a distance from its foundation, the whole charge is produced at that very point; and unless the wall be founded at a great depth, its destruction is all but certain. Where the materials are costly, but admit of being easily dressed, we are disposed to think that a horizontal, or nearly horizontal, wall, connected with a vertical one by a quadrant of a circle, may be found suitable. Such a form will prevent, to a considerable extent, the danger of reaction, by causing an alteration in the form of the wave at that part where the wall is strongest and at the greatest distance from the toe or curb-course. Where the materials are abundant and of a rougher nature, a cycloidal wall, with vertical and horizontal tangents, somewhat similar to that erected at Trinity, to which we have already referred, may be adopted with advantage.

A special caution may not be out of place regarding clayey bottoms. Many are apt to suppose that there can be no better foundation than clay; and it is indeed true that some kinds of hard clay form a satisfactory subsoil. But there are others of a softer kind, and permeated by sandy beds, which are extremely treacherous. If there be the slightest dip seaward, there is always a risk of any pier that may be built on such a base slipping bodily into the sea. This holds especially true of inland locks, where the sides very often slope suddenly. In one instance, the particulars of which we got on the spot shortly after the accident, a pier built on a clayey beach, sloping below water at the rate of one in 12½, suddenly began to move, and after two hours it had slipped seaward 150 feet, and had by that time descended bodily a height of 34 feet, the top of the pier being then no less than 23 feet below low-water spring tides.

Construction of Harbors.—Our space will not admit of our going much further into the subject of the construction of harbors than the few remarks we have already made. A knowledge of such matters may, to some extent, be acquired by a careful perusal of the published histories of marine works; but, after all, it must be confessed that the only valuable teacher in this wide practical field is *experience*. It is, in truth, impossible to lay down any general rules of guidance as to matters of this kind. All that can be done within our space is to notice very briefly some of the more important methods of working. And first, with regard to that invaluable piece of apparatus, the diving-bell, we would refer to the article on the subject in this work, and to SMEATON'S *Account of Ramsgate Harbor*, published in 1721, where it was first applied by him to harbor works. The diving-helmet is a most useful and convenient modification of the diving-bell, and is now very generally employed.

Of late years, the use of *beton* as a substitute for backing has been introduced. This artificial concrete is sometimes used in enormous masses. We have seen at Cherbourg blocks of 50 tons prepared in boxes, whose sides and tops are removed after the concrete has set, in order to be again similarly employed. The proportions used at Cherbourg by M. Rebeille were two of sand or fine gravel to one of Portland cement.

We may also mention that the method of assembling stones on their edges, instead of on their beds, which formerly was in use in some old Scottish harbors and sea-walls, as at St. Andrews, Prestonpans, etc., deserves to be more generally known and adopted from its superior strength.

The proposal of Mr. Bremner, of Wick, for putting in the foundations of low-water piers also merits notice. Mr. Bremner proposes to construct, in some adjoining place of shelter, enormous pontoons of timber, on which the under parts of the work are built, and afterward floated to the desired spot in favorable weather, and carefully grounded. Such a plan might, we have no doubt, be found economical and useful in some situations.

Mr. Rendel's Method.—Mr. Rendel has introduced an improved method of assembling the *pierres perdues* or rubble used in the construction of large breakwaters; this method he employed at Millbay Pier, near Plymouth, in 1838, in a depth of 38 feet; and he is at present carrying out the same principle on a still larger scale, in the construction of the breakwaters at Holyhead and Portland. The improvement consists in depositing the rough materials from stagings elevated a considerable height above high water. The stones are brought on the staging in wagons, through the bottoms of which they are discharged into the sea. The principle on which the stagings are designed is that of offering the smallest possible resistance to the sea, the under-structure consisting of nothing more than single upright piles, there being only one line of piles for each roadway.

Harbors of Refuge.—Mr. Rendel states: "I use no timber braces of any kind, as these offer more resistance to the sea than strength to the staging. At Portland, England, where any accident would be a serious evil, owing to our employing convicts in the quarries, we stay the piles with iron guys, fixed to Mitchel's crew moorings, and also truss the outer piles in each row with iron rods. We also fix the piles in the ground with a screw. At Holyhead, however, we only attach to each pile boxes filled with small stones, for the purpose of getting them into a vertical position, and use no stays or guys of any kind. The superstructure consists simply of balks of timber, with rails laid on them to carry the wagons. The piles are placed in rows 30 feet apart; and the ease and certainty with which the staging is constructed is such that a length of 30 feet, including the screwing in of the piles, the laying down of the roadways, and all minor works necessary to make them fit to carry the wagons, never occupies more than one working day and a half, and often less. The length of the piles that we are now using varies from 84 to 90 feet, the depth of water at both Holyhead and Portland being about 11 fathoms.

"Of the strength of the stage you may judge from its carrying on each roadway as much as three wagons, weighing in the gross 12 tons each. The advantages of the staging are obvious. It contributes greatly to the consolidation of the stone, it makes a greater length of breakwater to be under construction at the same time, and it enables the deposits to be carried on without interruption almost in the heaviest weather. As an instance of this, I may remark that my resident at Portland informs me that the wagons and locomotives were engaged yesterday at a time when such a sea was running that large bodies of spray were thrown 55 feet above the water-level. As a proof of the facilities which the stage affords for rapidity of construction, I should state that we have deposited this year at Holyhead, where free labor is employed, nearly 1,000,000 tons of stones. The loss from accident to the stage is comparatively small on its first cost, and when spread over the cost of the whole work it is a mere trifle. I find the sea-slopes are, in the deep water and exposed parts, from five and a half or six to one between six feet above high-water, and from 12 to 15 below low-water, from which point they rapidly become about one to one. The inside slopes are never more than one and a quarter to one, and seldom more than one to one. The materials are excellent for our purpose."

Alderney, Jersey, Dover, and Plymouth.—Mr. Walker has also contributed some facts connected with the construction of the great works now going on at Jersey, Alderney, and Dover. At Alderney, which is a very exposed place, the *base*, up to 12 feet below low-water, is formed by stones thrown, or rather dropped, in from barges. Up to low-water, the work is all done by diving-helmets. The wall is faced with granite, backed with blocks of *beton* made of sand, shingle, and Portland cement. Above low-water it is faced with stone of the island, a kind of millstone-grit, and is backed with blocks of rubble set in Roman cement. The millstone-grit is raised in very large blocks. The profile is to consist of a quay, an esplande, and a parapet. Jersey is much the same as Alderney, but the *pell-mell* work is carried to low-water, having nearly vertical walls of conglomerate built above. Dover has nearly vertical walls, faced with granite from the very bottom, which is now 45 feet below low-water. This work was done with diving-bells. Sir J. Rennie, in his *Account of the Plymouth Breakwater*, says: "From the bottom to within eight feet of low-water springs, we find that the slope is two and a half or three to one. Here the effect of the waves is comparatively small, being neutralized by the mass of water. From thence to low-water of spring-tides the slope increases from three or four to one, but between low-water of spring-tides and high-water, when the effect of the waves is greatest, there we found that the rubble would not lie at less than five to one, while on the inside, the slope stands generally at from one and a half or two to one." The above interesting details regarding these national works show, from the variety which they exhibit, how difficult it is to lay down any general rules for the construction of harbors, and confirm the principle that each work must be judged of *per se*.

Miscellaneous Observations.—The ultimate object of constructing harbors is, by lowering the height of the waves, to preserve the tranquillity of the area of water which is inclosed by the piers; and this property is variously possessed by harbors of different forms, and depends much upon the relative widths of the entrance, and of the interior, the depth of water, the shape of the entrance, and the relation between the direction of its opening and that of the line of *maximum exposure*.

The only formula of which we are aware is that by the writer in this article (*Edin. New Phil. Journal*, 1853), which gives an approximation to the *reductive power*, or is, in other words, a numerical form of expressing how much a wave of given height becomes reduced after it has entered a harbor. Though the results obtained by the formula may not be absolutely correct, this will be no objection where the object is merely to obtain a comparative value; as, for example, in comparing one design for a harbor with another. When the piers are high enough to screen the inner area from the wind, where the depth is uniform, the width of entrance not very great in comparison with the width of the wave, and when the quay walls are vertical, and the distance not less than 50 feet—let

H = height in feet of waves in the open sea.

x = reduced height of waves in feet at place of observation in the interior of the harbor.

b = breadth of entrance to harbor in feet.

B = breadth of harbor at place of observation in feet.

D = distance from mouth of harbor to place of observation in feet.

$$x = H\left\{\sqrt{\frac{b}{B}} - \frac{1}{50}\left(1+\sqrt{\frac{b}{B}}\right)\sqrt[4]{D}\right\}$$

This formula has been found to give good approximations at several harbors where the heights of the waves were registered. When H is assumed as unity, *x* will represent the *reductive power* of the harbor. In situations where the highest waves cross the harbor mouth at an oblique angle, a further reduction is due to this cause. We have been unable to find any observations that have been made on this subject by others, and for want of better, we shall give three observations made under our directions at Latheronwheel harbor:

Angle of obliquity.	Distances run through by waves.	Height of wave after passing through angle.
0°	16 feet.	1·00
50	32 "	0·68
140	68 "	0·21

These must however be regarded as but approximations. It is obvious that as the wave may be deflected through more than 360°, the curve representing the reduction must be spiral; but more observations are wanted to determine of what kind.

Booms are logs of timber placed across the mouth of a harbor, or the entrance to an inner basin or dock, having their ends secured by projecting into grooves cut in the masonry on each side of the entrance. The booms are dropped into the grooves to the number of from 10 to 20, or as many more as will insure close contact of the lowest one with a sill-piece placed in the bottom of the harbor, without which precaution the swell is found to enter the harbor from below the booms. By this contrivance, which forms a temporary wall, the waves are completely checked and prevented from spreading into the interior basin. The longest booms we have seen are about 45 feet; and in some places, as at Hartlepool and Seaham, in Durhamshire, they are taken out and in by steam-power. Though perfectly successful in their tranquillizing effect (provided they are kept in contact with the sill-piece at the bottom), booms are not suited for the mouths of harbors where there is much traffic, as the shipping and unshipping of so many logs of timber can hardly take less than a quarter of an hour—a delay which might in may cases be attended with serious consequences.

It is very desirable, and in some cases essential, that there be either a considerable internal area, or else a separate basin opposite the entrance for the waves to destroy or *spend* themselves. Such a basin should, if possible, be made so as to preserve a portion of the original shore for the waves to break upon; and when circumstances rendered this impossible, there should at least be a flat talus of two or three to one. Talus walls of one to one, or steeper, will not allow the waves to break fully, but will reflect them in such a manner as might in some cases make the entrance difficult, or even dangerous, of access, and the berthage within unsafe. There are many instances of harbors being materially injured by the erection of a quay-wall across a beach where the waves were formerly allowed to expend their force. It may be observed that when there is an inner harbor or stilling-basin, the elliptical form seems to be the most promising. Let one focus be supposed to be on the middle line of the entrance, and to coincide with the point from which the waves in expanding into the interior radiate as from a centre (which they do approximately); and if the other focus is situated inland of high-water mark, the waves will tend to reassemble at the landward focus, and on their way will be destroyed by breaking on the beach. This appears from the well-known property of the ellipse, that if two *radii vectores* be drawn from the two foci to any point in the curve they will make equal angles with the tangent at that point; and as the angles of incidence and reflection of a wave from any obstacle are practically equal, each wave will be nearly concentrated at the focus opposite to that from which it emanated.

Indiscriminate Deepening.—Another cause of disturbance in harbors, which is often not sufficiently considered, is the indiscriminate deepening of the entrance without a proportionate enlargement of the internal area, or the execution of other works for counteracting the effect. As the depth of the water is more and more increased, waves of greater height become possible at the entrance, so that larger waves gain admission to the interior. The writer has had repeated proofs of this in the course of his practice. At the port of Sunderland Mr. D. Stevenson recommended the removal of nearly the whole of the south stone pier, and the substitution of works of open frame-work in order to tranquillize the interior. These works, which have been quite successful, were rendered necessary by the frequent dredging of the channel at and near the entrance.

Artificial Scouring.—The preservation of the depth of harbors where there is a tendency to deposit is often attended with great difficulty and expense. Where the deposit of silt is confined to the space between high and low water marks, the scouring by means of salt or fresh water is in general comparatively easy, but where there is a bar outside of the entrance the case becomes most materially changed. The efficacy of the scour, so long as it is not impeded by encountering stagnant water, is kept up for great distances, but soon comes to an end on its meeting the sea. Probably the only way in which this difficulty might to some extent be obviated would be by conducting the water in iron pipes to the bar, a plan which the author proposed in 1843 for Hynish harbor, but the expense was considerable and the success doubtful. When the volume of water liberated is great compared with the *alveus* or channel through which it has to pass, the objection based on the stagnancy of the water originally occupying the channel does not hold to the same extent as when the scouring is to be produced by a sudden *finite momentum.* In the one case the scouring power depends simply on the quantity liberated in a given space of time, while in the other it depends on the propelling head and the direction in which the water leaves the sluice. Mr. Rendel's scheme for Birkenhead was on the former principle. The first example of artificial scouring in this country seems to be due to Smeaton, who used it effectually at Ramsgate in 1779.

At Bute Docks, Cardiff, Wales, designed by Sir W. Cubitt, the access to the outer basin is kept open most successfully by means of artificial scouring on a gigantic scale. The entrance was cut through mud banks for a distance of about three fourths of a mile seaward of high-water mark. The initial discharge when the reservoir is full, is stated to be 2500 tons per minute. The writer has known even so limited a discharge for an hour or two as one ton a minute, produce very useful effects in keeping a small tidal harbor clear of sand.

Floating Breakwaters.—Many proposals have from time to time been made for mooring in the open sea floating frameworks of timber with the view of sheltering the space inclosed by them. The objections to floating breakwaters are so great and obvious that there seems little chance of their ever being much used. From what was stated on the subject of booms, it will be recollected that it is a requisite that they should fit closely to a sill piece at the bottom, otherwise the *run* is found to extend into the harbor. From what will be afterward stated regarding the liability of timber to speedy destruction from the marine worm, and to iron by chemical action, it is obvious that floating structures of wood, connected by iron and moored by iron chains, can not possibly be of long duration. If to all these sources of evil we add the risk of their being broken by the sea, we think the case may be almost regarded as hopeless. No doubt green-heart might be employed so as to resist the ravages of the worm, but its high specific gravity and its great expense would prove bars to its employment.

Suspension Piers.—In some situations where there is a long shallow beach, a harbor or pier of timber or masonry may be made at or near the low-water mark, which may be connected with the shore by means of a suspension bridge. The inducements to adopt the suspension principle are its economy, and the free passage it affords to the currents which in this way are prevented from forming accumulations of sand, silt, or gravel. These advantages are, however, much reduced by the great wear and tear consequent upon the perishable nature of the structure. The late Sir Samuel Brown erected two chain piers, the one at Brighton, and the other at Newhaven, near Edinburg, both of which are still in existence.

Advantages of two Entrances to a Harbor.—In every situation where it is easily practicable to make two entrances to a harbor, it will be found well worth the extra expense, provided they can be so placed that the one shall be available when the other has become difficult of access. In harbors which have but one mouth, vessels are often detained for a great length of time by the continuance of the wind in the direction which throws a heavy sea into the entrance. Whereas if there are two entrances situated as we have supposed, vessels are at once able to take their departure by the sheltered side. At the port of Peterhead, the north and south harbors were some years ago united by a canal, according to the writer's plans, and there the advantage has been of the most marked description. Vessels can now clear out as soon as loaded, either by the north or south mouth, according to the state of the sea. Some caution is necessary, however, as the *run* is apt to extend from the one harbor to the other unless there be a considerable area.

Harbor Repairs.—There is generally much prudence required in the alteration or repairs of existing marine works. The risk of having the whole structure destroyed by a gale coming suddenly on while there is an open breach in the works, must be obvious; and in one instance, where the exposure of the place was great, and the evil was a hidden one, the writer could not recommend the facework being disturbed. The cause of failure in this instance was supposed to be the decay of the backing, which having deprived the face-stones of support allowed them to be driven inward by the force of the waves. Instead of removing the face-work, the only recommendation that could be given was to inject the whole pier with fluid cement, so as, if possible, to render the mass *monolithic.* An alternative of this kind is obviously of very doubtful success, and can be regarded as nothing short of a last resort, for there is but a small chance of getting the injected fluid to permeate the whole mass of the pier. The system of permeating the masonry with fluid matter could, however, be employed with more chance of success in the *formation* of a pier, while each course lies open to view. In 1844, at a harbor that had stood for very many years, two or three faulty stones had been incautiously taken out of the facework by a mason who intended to replace them by others, when a sudden gale came on, and nearly the whole of the work was leveled with the beach.

As an example of the suddenness with which the eastern coast of England is visited by gales, and as indicating graphically the relative eligibility of the summer and winter months for carrying on harbor works, we give the accompanying diagram of the heights of waves, as observed for the writer, by Mr. William Middlemiss, resident engineer at Lybster harbor. (See next page.)

Timber Piers.—In landlocked bays, where a deep-water landing-place is all that is required, and where the bottom is sandy or soft, timber may be employed with great advantage. Even in exposed situations, timber can also be used, but the fatal disadvantage attending its employment in most places where there is no admixture of fresh water, is the rapid destruction occasioned by marine worms. The damage occasioned to harbors in this way is noticed by Semple in his treatise *On Building in Water*, in 1776, and very probably by much earlier writers. Indeed, the ravages of the *Teredo navalis* are very ludicrously described by Hector Boece in his *Croniklis of Scotland*, printed at Edinburg *circa* 1536. In the Atlantic Ocean the *Teredo navalis*, and at many places in the German

Register of Height of Waves for 1852, observed at Lybster, Caithness-shire.

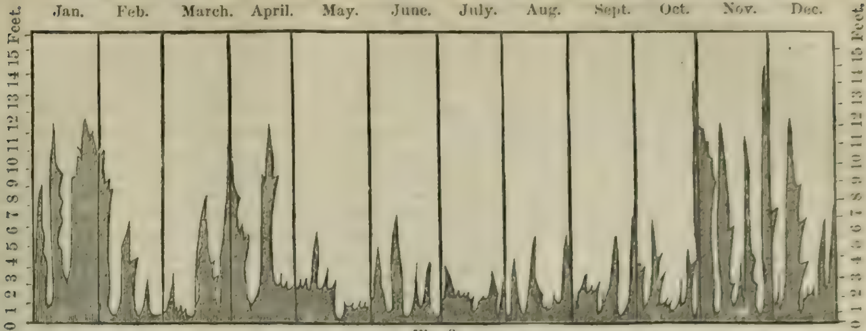


Fig. 2.

Ocean the *Limnoria terebrans*, are the animals which are found to destroy any structure of timber which is exposed to the water. They are found to eat most rapidly between the bottom and low-water mark, but above low-water the damage is not so great; and what is singular, they do not appear to exist at all below the bottom where the pile is covered with sand. These observations do not, however, quadrate with Mr. Hartley's at Liverpool, for he found the parts which were alternately wet and dry to decay faster than the parts which were constantly immersed. Even solid limestone is often destroyed by the persevering efforts of another marine animal called the *Pholas*.

The late Mr. R. Stevenson made several experiments on the ravages of the *Limnoria terebrans* at the Bell Rock, in 1814, 1821, 1837, and 1843, by fixing pieces of different kinds of timber to the rock, and getting regular reports on their decay. From those experiments it appeared that green-heart, beef-wood, and bullet-tree, were not attacked by the worms, while teak stood remarkably well, although suffering at last. The kyanizing fluid and other preparations have been tried, but were not found to be of permanent service. In addition to these experiments on timber, no fewer than 25 different kinds and combinations of iron were tried, including specimens of galvanized irons. Although separate specimens of each were tried in places where they were always under water, and also in places where they were alternately wet and dry, yet all the ungalvanized specimens were found to oxydize with much the same readiness. The galvanized specimens resisted oxydation for three or four years, after which the chemical action went on as quickly as in the others.

Green-heart timber is now generally had recourse to in places where the worms are destructive. It appears to have been first used by Mr. J. Hartley of Liverpool, who published in the *Minutes of Institution of Civil Engineers* an account of its virtues in 1840, as ascertained at the Liverpool Docks. Its cost is considerably greater than memel or than most of the other timbers generally used. Memel logs for the inner piles of piers might, perhaps, from their not being exposed to abrasion from ships, be clad with green-heart planking at those parts which are exposed to the worm. Copper sheathing and scupper nailing are often and successfully employed as protections for piles in exposed situations. *Breaming* or scorching the wood, and afterward saturating it with train oil, also forms a partial protection.

It is much to be regretted that timber is so expensive in Great Britain, and that some simple and economical specific against the worm has not been discovered for protecting memel and the cheaper kinds of pine. The grand desideratum in the harbor works, which is the *want of continuity in the structure*, would then be supplied. It follows, from the known laws of fluids, that each individual stone in a pier which is equally exposed throughout its whole length, is subjected to a force which it can only resist by its own inertia, and the friction due to its contact with the adjoining stones. The stability of a whole hydraulic work may therefore be periled by the use of small stones in one part of the fabric, while it is in no way increased by the introduction of heavier stones into other parts. By the use of long logs of timber carefully bolted together a new element of strength is obviously obtained. A pier could be erected almost free of sea risk if constructed of rectangular or other shaped prisms, consisting of logs of timber treenailed and bolted together, so as to form boxes, say 10 feet square and 30 or 40 feet long. The interior of the boxes would be filled with rubble or *beton*. The first layer would be arranged across the pier, so as to fit the irregularities of the bottom, and above that, they might be arranged lengthwise of the pier, so as to form its outer and inner walls, the space between being filled with common rubble or *beton*.

In many ports the original depth has been decreased by the deposit of silt, sand, and gravel. This is, indeed, a great evil, and one which unfortunately is most difficult of cure. So obscure and apparently capricious are the causes which lead to the formation of shoals, that in the present state of our knowledge it would be little short of *quackery* to lay down any general rules for the guidance of the engineer. In fixing on the site for a harbor, all existing obstructions should be examined to ascertain whether there be a tendency to deposit, and the works should be kept as far as possible from places where the tendency is most strongly developed. The agents which occasion bars at the mouths of harbors are the waves, the tide currents, and land streams, where they exist. Rivers are often more pernicious than beneficial in their effects, especially where they intersect a gravelly soil; but in some cases the descending gravel may be successfully intersected by the erection of weirs from which the accumulations must be from time to time removed. We agree with Sir H. De la Beche in believing that the bars at the mouths of rivers are most generally formed by the constant tendency of the waves to preserve the *continuity* of the beach profile. It is, therefore, not to be wondered at, that heavy gales should distort and fill up the narrow trench which the back waters cut in gravelly or sandy beaches. The erection of breakwaters on each side has undoubtedly a good effect in protecting the channel, but still a bar is very apt to form outside of the breakwaters. In some cases the depth of the track might probably be maintained by driving, on each side of the mid-channel, dwarf piles to which contiguous wallings should be attached so as to confine the current at low water. The timber frame-work should not project more than a foot or two above the bottom, which in some cases might be planked. This, however, is but a hint, and has, so far as the author is aware, never been tried. The principle on which the proposal is based is that of contracting the low-water channel to a smaller width than that of the high-water channel, and thus by fixing the low-water track, to prevent a tortuous channel. The same principle was adopted by the writer with success in controlling and fixing the meanderings of a gravelly river, which is subject to very sudden and heavy freshets.

THE FOLLOWING TABLE SHOWS THE DIFFERENT KINDS OF WOOD WHICH WERE MADE THE SUBJECT OF EXPERIMENT AT THE BELL ROCK IN 1814, 1821, 1837, AND 1843, WITH THEIR RELATIVE DURABILITIES.

Kind of Timber.	Decay first observed.		Unsound and quite decayed.		Quite sound for	
	Yrs.	Mo.	Yrs.	Mo.	Yrs.	Mo.
Green-heart	....		....		13	0
Teak-wood	....		....		13	0[a]
“	5	6[b]	....		....	
“	4	7	12	0	....	
Treenail of locust	....		5	0	3	0
Beef-wood	....		....		13	0
Treenail of Bullet-wood	....		....		5	0
African Oak	4	11	10	0	....	
“ “	5	6[c]	....		....	
English “	1	1	3	1	....	
“ “	2	4	4	7	....	
British “	1	6	5	0	....	
English “ kyanized	4	7	10	0	....	
American Oak	2	11	4	7	....	
“ “	1	6	5	0	....	
“ “ kyanized	4	3[e]	....		....	
Italian “	1	1	3	6	....	
Dantzic “	1	1	2	6	....	
Scotch “	2	4[d]	....		....	
Baltic “	2	4	4	3	....	
Plane-tree	2	11[f]	....		....	
“	1	6	5	0	....	
British Ash	3	0	5	0	....	
Ash	2	11	4	3	....	
English Elm	2	11	4	7	....	
“ “	1	1	1	6	....	
Scotch “	3	0	5	0	....	
American “	1	9	3	1	....	
Canada Rock Elm	1	1	1	6	....	
Honduras Mahogany	2	1[g]	....		....	
“ teak treenails	1	6	5	0	....	
Beech	1	6	5	0	....	
“	1	9	3	1	....	
“ Payne’s patent process	10	7[h]	....		....	
Cedar of Lebanon	1	1	2	6	....	
Scotch Fir, teak treenails	1	6	3	0	....	
“ from Lanarkshire	1	6	3	0	....	
“ “ “	1	6	3	0	....	
“ locust treenails	1	6	3	0	....	
Memel Fir	1	6	5	0	....	
Riga “	1	1	1	6	....	
Dantzic “	1	1	1	6	....	
Norway “	2	4	3	1	....	
Baltic Red Pine	2	9[i]	4	3	....	
“ “ kyanized	2	4	4	7	....	
Pitch Pine	2	4	4	3	....	
“	1	6[j]	2	6	....	
Virginia Pine	1	1	1	6	....	
Yellow “	1	1[k]	1	6	....	
Red “	1	1	1	6	....	
Cawdie “	1	1[l]	1	6	....	
American Yellow Pine	2	4	3	7	....	
“ locust treenails	0	8	3	0	....	
“ Red Pine	2	4	3	1	....	
“ “ kyanized	2	4	4	7	....	
Larch	2	4	4	3	....	
Polish Larch	1	1[m]	1	6	....	
Birch, Payne’s patent process	0	10	1	10	....	

[a] Affected in one corner.

[b] Nearly sound 7½ years after being laid down.

[c] Nearly sound 7½ years after being laid down.

[d] Decaying but slowly 5 years and 7 months after being laid down.

[e] Much decayed when first observed.

[f] Decaying but slowly 5 years and 7 months after being laid down.

[g] Nearly sound 3½ years after being laid down. Washed away 6 months later.

[h] A little holed at one end underneath.

[i] A good deal decayed when first observed.

[j] Going fast when first observed.

[k] A good deal gone 18 months after being laid down. Swept away by the sea 7 months afterward.

[l] A good deal decayed when first observed.

[m] Going fast when first observed.

The want of sufficient funds occasions a great national loss in the construction of English harbors. The history of a large majority of those ports which have been erected by private or local enterprise, presents but a record of the building of piers at one period when the funds were small, and of taking them down at another when the trade had increased and more room and accommodation were required. Want of funds often prevents the original works from being carried within deep water, and in consequence the most expensive part of the protecting breakwater is often put down just in the very place which has afterward to be converted, at great expense, into a deep water access or berthage. Sometimes, indeed, a whole line of pier is, from motives of economy, placed in such a manner as to interfere most materially with what might have been by far the best and safest berths for shipping, so that in the further extension of the works a great part of the old harbor has to be demolished. Want of a proper marine survey has also often led to very serious errors in the position of the piers. To such an extent has this system prevailed, that were an engineer called on to value many of the works as they exist at present, his estimate, however fairly and fully made out, would fall lamentably short of the actual cost. This estimate would proceed on a measurement of what he sees, while the actual cost would include the building of piers and jetties which had long since ceased to exist. For these reasons we conceive there could hardly be a more advisable expenditure of the public money than by a system of grants for supplementing the local funds on a liberal scale. With such aid the authorities on the spot would be enabled to protect and improve the existing physical advantages which the shores possess, by preventing the construction of proposed improvements on too narrow a scale. But a comparatively slight increase of the means would, in instances of which the writer is aware, have inclosed a great extra area, and secured a deeper access with superior internal tranquillity, the want of which now cripples the trade, and is the subject of lasting regret to all frequenting the harbors.

For this article we are indebted to the pen of Thomas Stevenson, Esq., Civil Engineer, written for the *Ency. Brit.*, 8th ed., 1857. See vol. xi.

For other subjects connected with harbors *vide* articles on DOCKS and PORTS. Reference may be made to *Brit. Assoc. Rep.*, 1850, SCORESBY; *Min. Inst. Civ. Eng.*, 1848, RANKINE; do., 1847, SCOTT RUSSELL; Do., 1844, BREMNER; SMEATON'S *Reports, passim.*; *Rep. Com. on Waves by Brit. Assoc.*, J. S. RUSSELL, London, 1848; *Researches on Hydrodynamics*, J. S. RUSSELL; *Trans. Roy. Soc. Edin.*, vol. xiv., 1837; *Account of Experiments on Force of Waves of Atlantic and German Oceans*, THOMAS STEVENSON; *Trans. Roy. Soc. Edin.*, vol. xvi., 1845; *On Reduction of Height of Waves after passing into Harbors*, T. STEVENSON; *Edin. New Phil. Journ.*, 1852; *Account of the Plymouth Breakwater*, by Sir J. RENNIE, London, 1848; BELIDOR'S *Architecture Hydraulique*, Paris; SEMPLE'S *Treatise on Building in Water*, Dublin, 1776; *Royal Tidal Harbor Commissions' Reports*, Captain WASHINGTON, London, 1845-6; the article on *Tides and Waves* in the *Encyclopedia Metropolitana*, by G. B. AIREY, Astronomer Royal; *Report by Commissioners of Harbors of Refuge*, with the *Protest*, by Sir HOWARD DOUGLAS.

Good harbors are of essential importance to a maritime nation; and immense sums have been expended in all countries ambitious of naval or commercial greatness in their improvement and formation. *British Harbors.*—Portsmouth, Milford Haven, and the Cove of Cork, are the finest harbors in the British islands, being surpassed by very few, if any, in the world. Of these, Portsmouth is entitled to the pre-eminence. This admirable harbor is about as wide at its mouth as the Thames at Westminster Bridge, expanding within into a noble basin, almost sufficient to contain the whole navy of Great Britain. Its entrance is unobstructed by any bar or shallow; and it has, throughout, water adequate to float the largest men of war at the lowest tides. The anchorage ground is excellent, and it is entirely free from sunken rocks, sand-banks, or any similar obstructions. The western side of the harbor is formed by the island of Portsea; and on its south-western extremity, at the entrance to the harbor, is situated the town of Portsmouth, and its large and important suburb Portsea. Here are docks and other establishments for the building, repair, and outfit of ships of war, constructed upon a very large scale, and furnished with every convenience. The fortifications that protect this great naval dépôt are superior, both as respects strength and extent, to any other in the kingdom. "Thus," to use the words of Dr. Campbell, "it appears that Portsmouth derives from nature all the prerogatives the most fertile wits and most intelligent judges could devise or desire; and that these have been well seconded by art, without consideration of expense, which, in national improvements, is little to be regarded. Add to all this the striking excellence of its situation, which is such as if Providence had expressly determined it for that use to which we see it applied, the bridling the power of France, and, if I may so speak, the peculiar residence of Neptune." Portsmouth harbor has the additional and important advantage of opening into the celebrated road of Spithead, between the Hampshire coast and the Isle of Wight, forming a safe and convenient retreat for the largest fleets. Milford Haven deeply indents the southern part of Pembrokeshire. It is of great extent, and has many subordinate bays, creeks, and roads. The water is deep, and the anchorage ground excellent; and being completely land-locked, ships lie as safely as if they were in dock. Cork harbor has a striking resemblance to that of Portsmouth, but is of larger extent; it has, like it, a narrow entrance, leading into a capacious basin, affording a secure asylum for any number of ships. Plymouth, which, after Portsmouth, is the principal naval dépôt of England, has an admirable double harbor. The roadstead in Plymouth Sound has recently been much improved by the construction, at a vast expense, of a stupendous breakwater more than 1,700 yards in length. This artificial bulwark protects the ship lying inside from the effects of the heavy swell thrown into the Sound by southerly and south-easterly winds.

London stands at the head of the river ports of Great Britain. Considering the limited course of the Thames, there is, probably, no river that is navigable for large ships to so great a distance from sea, or whose mouth is less obstructed by banks. London is mainly indebted for her unrivaled magnitude to her favorable situation on this noble river; which not only gives her all the advantages of an excellent port, accessible at all times to the largest ships, but renders her the emporium of the extensive, rich, and populous country comprised in the basin of the Thames. The Mersey, now the first commercial river in the empire, is more incommoded by banks than the Thames; and is in all respects inferior, as a channel of navigation, to the latter. Still, however, it gives to Liverpool very great advantages; and the channels being well buoyed and marked, the largest ships have little difficulty in reaching the port. The principal channels are laid down in the map of Liverpool and its environs attached to the article DOCKS, *Ency. Brit.*

Bristol and Hull are both river ports. Owing to the extraordinary rise of the tide in the Bristol Channel, the former is accessible to the largest ships. The Humber is a good deal impeded by banks; but it also is navigable as far as Hull, by large vessels. The Tyne admits vessels of very considerable burden as far as Newcastle. Sunderland, at the mouth of the Weir, is the principal ship-building port in the United Kingdom and has, after Liverpool and London, the greatest amount of shipping. The shallowness of the Clyde from Greenock up to Glasgow has been a serious drawback upon the commercial progress of the latter. Large sums have been expended in attempts to contract the course and to deepen the bed of the river; and they have been so far successful, that ships drawing 19 and even 20 feet have come up to the city at high water. In 1852, 74 vessels drawing 17 feet of water, and 18 drawing 18 feet, arrived at Glasgow, which is now one of the principal commercial ports in the empire. Generally speaking, the harbors on the east coasts, both of Great Britain and Ireland, are, with the exception of the Thames, very inferior to those on their south and west coast. Several harbors on the shores of Sussex, Kent, Lincoln, etc., that once admitted pretty large ships, are now completely choked up by sand. Large sums have been expended upon the ports of Yarmouth, Boston, Sunderland, Leith, Dundee, Aberdeen, etc. Dublin harbor being naturally bad, and obstructed by a bar, a new harbor has been formed, at a great expense, at Kingstown, without the bar, in deep water.—*See* TIDES.

Ports.—The reader will find the principal commercial harbors described in this work at considerable length under their respective titles. The principal French ports for the accommodation of men-of-war are Brest, Toulon, and Cherbourg. The latter has been very greatly improved by the construction of a gigantic breakwater, and the excavation of immense basins. Besides Cadiz, the principal ports for the Spanish navy are Ferrol and Carthagena. Cronstadt is the principal rendezvous of the Russian navy; Landscrona, of that of Sweden; and the Helder, of that of Holland.

NUMBER OF HARBORS IN THE DIFFERENT STATES ON THE COAST, AND THE PRINCIPAL ONES ON RIVERS TO THE HEAD OF TIDE.

States.	No. of harbors.	States.	No. of harbors.
Maine	52	North Carolina	52
New Hampshire	3	South Carolina	21
Massachusetts	51	Georgia	15
Rhode Island	7	Florida	66
Connecticut	32	Alabama	4
New York	27	Mississippi	10
New Jersey	14	Louisiana	33
Pennsylvania	3	Texas	12
	189		249
Delaware	8		
Maryland	11	Total	438
Virginia	22		

TABLE SHOWING THE SHORE LINE OF STATES ON THE ATLANTIC COAST AND GULF OF MEXICO.

States.	Shore line of coast washed by sea.	Shore line of coast washed by bays, sounds, etc.	Shore line of rivers to the head of tide.	Total sea coast, and shores of bays, sounds, etc.	Total sea coast, and shores of bays, sounds, etc., and of rivers to head of tide.
	Miles.	Miles.	Miles.	Miles.	Miles.
Maine	427	1,599	427	2,026	2,453
New Hampshire	13	37	24	50	74
Massachusetts	209	865	832	1,074	1,906
Rhode Island	55	153	232	208	440
Connecticut	14	239	1,074	253	1,327
New York	114	886	1,057	1,000	2,057
New Jersey	118	702	151	820	971
Pennsylvania	....	....	106	....	106
Delaware	29	136	506	165	671
Maryland	44	1,008	3,401	1,052	4,453
Virginia	148	735	1,690	883	2,573
North Carolina	299	1,549	932	1,848	2,780
South Carolina	192	356	708	548	1,256
Georgia	76	410	468	486	954
Florida	1,020	3,005	860	4,025	4,885
Alabama	33	284	313	317	630
Mississippi	42	206	137	248	385
Louisiana	616	1,595	936	2,211	3,147
Texas	353	1,284	432	1,637	2,069
Total	....	....	14,286	18,851	33,137

	Miles.
Total northern	9,284
Total southern	23,853
Total	33,137

For full description of the various harbors in the United States showing depth of water, accessibility, shoals, lights, etc., the reader is referred to the cities described separately in this work. See article COAST SURVEY: see, also, HUNT'S *Mer. Mag.*, ix., vol. ii., 309; *South. Lit. Mess.*, xx., p. 25, vol. xi.

According to an act of Congress, 1813, the President of the United States, with the consent of the State authorities, is authorized, for the defense or security of any of the ports or harbors of the United States in time of war, to sink hulks and other impediments at the mouth of such harbors, to prevent the ingress of the enemy. Dunlap's *Digest*, p. 500.

Harburg, a sea-port town of Hanover, province of Luneburg, on the left bank of the southern branch of the Elbe, opposite Hamburg, which stands on the right bank of the northern branch of that river. The distance between Harburg and Hamburg is about 4½ miles, and regular steam communication is maintained between them at least six or eight times a day. Harburg communicates also with Hanover by a railway, and carries on a considerable trade, chiefly transit, between Hamburg and the countries south of the Elbe. It has manufactures of linen, hosiery, soap, starch, refined wax, leather, etc. It is a place of some strength, being surrounded by walls, and defended by a citadel. Population, 5500.

Hardness, that property in bodies by which they resist abrasion from the impression of any other substance. The method pursued in constructing tables of the hardness of different substances is by observing the order in which the articles tried are capable of cutting or scratching one another. The following table, extracted from Magellan's edition of Cronstedt's *Mineralogy*, was taken from Quist, Bergman, and Kirwan:

	Hardness.	Spec. grav.		Hardness.	Spec. grav.
Diamond, Ormus..	20	3·7	Sardonyx.........	12	2 6
Pink diamond.....	19	3.4	Occi. amethyst....	11	2·7
Bluish do..........	19	3·3	Crystal...........	11	2·6
Yellowish do......	19	3 3	Cornelian.........	11	2·7
Cubic do...........	18	3·2	Green jasper......	11	2·7
Ruby..............	17	4·2	Red. Yel do......	9	2 6
Pale Ruby, Brazil.	16	3·5	Schoerl...........	10	3·6
Ruby spinell......	13	3·4	Tourmalin.........	10	3·0
D'p blue sapphire.	16	3·8	Quartz............	10	2·7
Ditto paler........	17	3 8	Opal..............	10	2·6
Topaz	15	4 2	Chrysolite........	10	3·7
Whitish do........	14	3·5	Zeolite	8	2·1
Bohemian do......	11	2·8	Fluor.............	7	3·5
Emerald...........	12	2.8	Calcareous spar...	6	2·7
Garnet	12	4·4	Gypsum..........	5	2·3
Agate.............	12	2·6	Chalk.............	3	2·7
Onyx..............	12	2.6			

A similar but shorter table is now generally used, in which diamond is rated at 10.

Hardware (Ger. *Kurze waaren*; Du. *Yzerkramery*; Da. *Isenkramvarer*; Sw. *Järnkram*; Fr. *Clinquaillerie, Quincaillerie*; It. *Chincaglio*; Sp. *Quinquilleria*; Port. *Quincalharia*; Rus. *Mjelotzchnue towarii*) includes every kind of goods manufactured from metals, comprising iron, brass, steel, and copper articles of all descriptions. Birmingham and Sheffield are the principal seats of the British hardware manufactures; and from these, immense quantities of knives, razors, scissors, gilt and plated ware, fire-arms, etc., are supplied, as well for exportation to most parts of the world, as for home consumption. The hardware manufacture is one of the most important carried on in Great Britain, and from the abundance of iron, tin, and copper ores in the country, and the inexhaustible coal mines, it is one which seems to be established on a very secure foundation. The late Mr. Stevenson, in his elaborate and excellent article on the statistics of England, in the *Edinburg Encyclopædia*, published in 1815, estimated the value of all the articles made of iron in Great Britain, at £10,000,000, and the persons employed in the trade at 200,000. Mr. Stevenson estimated the value of all the articles made of brass and copper at £3,000,000, and the persons employed at 50,000: and he further estimated the value of steel, plated, and hardware articles, including toys, at £4,000,000, and the persons employed at 70,000. So that, assuming these estimates to be nearly correct, the total value of the goods produced from different sorts of metals in England and Wales, in 1815, must have amounted to the sum of £17,000,000, and the persons employed to 320,000. There is reason to believe that this estimate, in so far, at least, as respects the value of the manufacture, was at the time decidedly too high; but at this moment it is most probably within the mark. There has been a very extraordinary augmentation of the quantity of bar and pig iron produced within the last 15 years; and the rapid increase of Birmingham and Sheffield, as well as of the smaller seats of the hardware manufacture, shows that it has been increased in a corresponding proportion. We have been assured, by those well acquainted with most departments of the trade, that if to the iron and other hardware manufactures of England be added those of Scotland, their total aggregate value can not now be reckoned at less than £17,500,000 a year, affording *direct* employment, in the various departments of the trade, for at least 360,000 persons.

Fall of Prices.—Owing partly to the reduced cost of iron, but incomparably more to improvements in manufacturing, a very extraordinary fall has taken place in the price of most hardware articles during the last 15 or 18 years. In some articles the fall exceeds 80 per cent.; and there are but few in which it does not exceed 30 per cent. In consequence, the poorest individuals are now able to supply themselves with an infinite variety of commodious and useful articles, which, half a century ago, were either wholly unknown, or were too dear to be purchased by any but the richer classes. And those who reflect on the importance of the prevalence of habits of cleanliness and neatness, will readily agree with us in thinking that the substitution of the convenient and beautiful hardware and earthenware household articles, that are now everywhere to be met with, for the wooden and horn articles used by our ancestors, has been in no ordinary degree advantageous. But it is not in this respect only that the cheapness and improvement of hardware is essential. Many of the most powerful and indispensable tools and instruments used by the laborer come under this description; and every one is aware how important it is that they should be at once cheap and efficient. See Cutlery and Iron.

Dr. Friedenberg in his German translation of *Babbage's Economy of Machinery and Manufactures* gives some curious information concerning the Berlin castings. Such are the fineness and delicacy of the separate arabesques, rosettes, medallions, etc., of which the larger ornaments are composed, that it sometimes requires nearly 10,000 of them to make a pound weight. The gray iron from which they are made may be taken as being worth about 6s. per cwt.; and the following table drawn up from the price-list of a Berlin manufacturer, a few years ago, will show to what an almost incredible height this value per cwt. is increased:

Articles.	Number to 1 cwt.	Price each.		Price per cwt.
		s.	d.	£
Buckles, 3½ inches long by 2½ broad.	2,640	2	6	330
Neck-chains, 18 inches long by 1 broad, in 40 pieces............	2,310	6	0	693
Bracelets, 7 inches long by 2 broad, in 72 pieces... ....pairs	2,090	8	6	880
Diadems, 7½ inches high by 5¼ broad..........................	1,100	16	6	907
Sevigne points, 2½ inches long by 1½ broad......................	9,020	4	6	2,029
Sevigne ear-rings, 3 inches long by ⅘ broad, in 24 pieces......pairs	10,450	5	8	2,743
Shirt buttons........................	88,440	0	8	2,948

We here find that iron in the form of shirt buttons commanded a market at a price nearly 10,000 times as great as that which it sold for as gray iron! And about the year 1820, when the fashion was at its height, the value was still greater; for these iron ornaments then sold for nearly their weight in gold. The great saleable value of these productions has led to a result similar to that which so many other branches of industry exhibit; obscure manufacturers make molds from the casts which others had been at the expense of designing and modeling, and produce inferior and cheap specimens from these molds. The real Berlin castings worthy of the name (such we may presume as those which graced the Great Exhibition), must always command a high price if sold at all, from the extraordinary care required in their production.—DODD's *Curiosities of Industry*, London, 1856.

Harmonica, a musical instrument, consisting of a number of glass cups fixed upon a revolving spindle, and made to vibrate by friction applied to their edges. Mr. Puckeridge, an Irishman, is said to have been the first to use a set of drinking-glasses, fixed on a table, and tuned to form a scale by putting more or less water into each. They were made to sound by passing a wet finger round their edges. These were improved by Mr. Delaval, and still further by Dr. Franklin, and were called "the musical glasses." Their tone is sweet and melancholy, and of a peculiar *timbre*, which produces a painful effect on the nerves of some persons. It appears, however, that the use of musical drinking-glasses was described in a work (*Mathematische und Philosophische Erquickstunden*), published by G. P. Harsdorfer, at Nuremberg in 1677. What was called a harpsichord-harmonica, in which finger-keys like those of a piano-forte were used instead of direct contact of the fingers with the revolving glasses, was invented by Rölling at Vienna, and Klein at Presburg. Another harmonica was invented by the Abate Mazzucshi, who employed the friction of a hair-bow to produce the sounds of the glasses. A stringed harmonica was invented at Augusta, in 1788, by John Stein, an eminent organ-builder. It consisted of a double stringed (wired) piano-forte, combined with a sort of spinnet, to be used together or separately. Its effects are said to have been remarkable.

Harp. It is traced to the earliest nations. David played on the harp before Saul.—1 *Sam.* xvi. 23. The lyre of the Greeks is the harp of the moderns. The Romans had their harp; so had the Jews, but it had very few strings. The Cimbri or English Saxons had this instrument. The celebrated Welsh harp was strung with gut; and the Irish harp, like the more ancient harps, with wire.

Harpagines (ἁρπάγη), in *Antiquity*, grappling-irons which were flung with violence against the rigging of an enemy's ship, and, when entangled there, were used to drag the ship within reach, so that it might be boarded to more advantage, or destroyed.

Harpings, the fore part of the wales which encompass the bow of a ship, and are fastened to the stem, being thicker than the after-part of the wales, in order to strengthen the ship in this place, where she sustains the greatest shock of resistance in plunging into the sea, or dividing it, under a great pressure of sail.

Harpoon, or **Harping-Iron**, a spear or javelin used for striking whales, etc. The *gun-harpoon* is a weapon used for the same purpose, but it is fired from a gun instead of being thrown by the hand. It is formed entirely of metal, and has a chain attached to it, to which the line is fastened. See SCORESBY's *Arctic Regions*. *Harpooner*, the man that throws the harpoon in fishing for whales.

Hats (Ger. *Hüte;* Du. *Hoeden;* Fr. *Chapeaux;* It. *Capelli;* Sp. *Sombreros;* Rus. *Schlopü*), coverings for the head in very general use. They are made of very various forms and sorts of material. They may, however, be divided into two great classes, viz. those made of fur, wool, silk, etc., and those made of straw; the former being principally worn by men, and the latter by women. Hat is a term of Saxon derivation, from *haet*, a cover for the head. It is sometimes called *castor*, from its being made of the fur of the castor or beaver. As a piece of dress, the period of its introduction is not certain, although it may with great probability be referred to the early distinctions of Roman Catholic dignitaries. Froissart chronicles, that it was "saide to the cardynals, Sirs, advyse you if ye delyvere us a Pope Romayne, we be content, or els we woll maike your heddes reeder than your hattes be;" from which, and from many other documents, it appears that at this period, as well as for some centuries after, hats were generally of a scarlet or red color, and made of "a fine kinde of haire matted thegither." A "hatte of biever," about the middle of the 12th century, was worn by some one of the "nobels of the lande, mett at Clarendom;" and Froissart describes hats and plumes which were worn at Edward's court in 1340, when the Garter order was instituted. In the diary of Henry's secretary, there is "ane scarlet beever hatte" presented on New Year's day, 1443. Even at this early period hats were of various shapes, both in the crowns and the brims—the latter being chiefly broad, sometimes narrowing toward the back, and a little bent up and scooped in front. In Henry's privy purse expenses, during his congress with Francis I. in 1520 or 1521, there is "peid for a hatte and plume for the king, in Boleyn, xv$^{s.}$;" and in Wolsey's inventory, taken on his resigning the great seal to Sir Thomas More, there are no fewer than five mentioned. The fashion of this article was then much more diversely capricious than even now, as will appear from an extract from STUBB's *Anatomie of Abuses*, published about 1585: "Sometimes they use them sharpe on the crowne, pearking up like the spire or shaft of a steeple, standing a quarter of a yard above the crowne of theire heads; some more, some lesse, as please the fantasies of their inconstant mindes. Othersome be flat, and broade on the crowne, like the battlements of a house. Another sorte have rounde crownes, sometimes with one kind of bande, sometimes with another; now black, now white, now russed, now redde, now grene, now yellow; now this, now that; never content with one colour or fashion two daies to an end. And as the fashions be rare and strange, so is the stuffe whereof their hattes be made divers also; for some are silk, some of velvet, some of taffetie, some of sarsnet, some of wool, and which is more curious, some of a certaine kinde of fine haire; these they call bever hattes, of xx. xxx. or xl. shillings price, fetched from beyonde the seas, from whence great sorte of other vanities doe come besides; and so common a thing it is, that every servyng man, countreiman, and other, even all indifferently, doe weare of these hattes." About the beginning of 1700, the crowns of hats were mostly round, much lower than before, and had very broad brims, resembling what are now occasionally called Quakers' hats, the protusive incumbrance of which soon suggested the convenience of their being turned up in front; fashion dictated the upbending of another side or flap, and ultimately a third, so that by this progress, in 1704, the regular three-cocked hat became the order of the day, when feathers ceased to be usually worn. Near the middle of the 18th century, a round-edged but flat-topped and full-brimmed hat got into very general use, and the flat and other cocked hats now dwindled almost into a mere distinction of real or assumed rank. 25 years after this, a very near approach to that of the present times became fashionable, and, within 10 years, altogether superseded the ordinary use of the cumbrous and antique cock.

Plumes, jewels, silk loops, rosettes, badges, gold and silver bands and loops, have at various periods ornamented this article of dress: metal bands and loops being now esteemed proper only to naval and military "men of honor," and the humble liveried attendants on state, rank, and official dignity. The *opera* or soft-folding hat is the only relic at present in general use of the hats worn by our grandfathers, although it is not improbable that the mutations of fashion may re-introduce the elegant Spanish hat as the precursor, perhaps, of various other styles, as well as the cocked hat, which are not yet entirely discarded.

In the Great Exhibition of 1851 several very novel styles of hat were introduced by exhibitors. It is remarked in the Jury Report respecting them that "in an article of fashion and of such constant use as hats, it does not appear to be easy to change the habits and tastes of the wearers, or to induce them to adopt a new costume."

Until recent times hats were chiefly produced by the art of felting, an art which some persons suppose to have been practiced by the nations of antiquity. It is thought that *lana coacta*, used for soldiers' cloaks and for Lacedemonian hats, was felted wool, but others state that it was only knitted wool. In Roman Catholic countries, St. Clement is the reputed inventor of felt. This personage is said to have put carded wool into his sandals to protect his feet during a pilgrimage, and that the effect of the moisture, warmth, and friction converted the wool into a felted cloth. The hatters' annual festival is on the 23d November, St. Clement's day.

Hat-making embraces two distinct kinds of manufacture, viz., of *felted* and *covered* hats—the covering of the latter being generally plush. *Felted* hats comprehend two classes, differing chiefly in the materials used in making—the processes being nearly identical. The lower class is marked by inferior ingredients, unmixed with beaver, and embraces *wool*, *plated* and *short nap* hats. *Wool* hats are made entirely of coarse native wool and hair stiffened with glue. Before the emancipation act these hats were largely exported for negroes' wear; but the manufacture is now almost extinct. *Plates* have a *nap* or pile rather finer than their body, and are sometimes *waterproof* stiffened. *Short naps* are distinguished from *plates* by additional kinds of wool, viz., hare's back, seal, neuter or nutria, musquash (Muscovy cat), and are all waterproof stiffened.

The second class may be said to comprehend two orders, called *stuff* and *beaver* hats. The first includes mottled and stuff bodies. The latter term is not used generally, as all *stuffs* are understood to be of this sort when *mottled* is not expressed. *Mottled bodies* are made chiefly of fine Spanish wool, and inferior rabbit down or coney wool. *Stuff bodies* consist of the best hare, Saxony, and red wools, mixed with Cashmere hair and silks. *Stuff* hats are *napped*, that is, covered with pile of mixed seal, neuter, hare's back, inferior beaver, and musquash. *Beaver* hats are, or ought to be, napped with beaver only; the lower-priced qualities with *brown wooms* taken from the back; the more valuable kinds with *cheek* and *white wooms*, such being the finest parts of the fur found on the belly and cheeks of the beaver.

The manufacture of a beaver hat involves a number of curious and interesting processes, the most important of which is *felting*, or the art of combining animal fibres in such a way as to form, without weaving, a thick compact cloth. The felting property of animal fibres depends on their peculiar structure, which, as revealed by the microscope, appears to be notched or jagged at the edges, with teeth directed from the root toward the extremity. Wool in the yolk, or with the natural grease adhering to it, does not readily felt, the jagged portions being smoothed over or filled up with the oil; but when the fibres of clean wool or hair are made to undergo a gentle friction under the influence of moisture and heat, they readily felt together.

Several of the furs mentioned above are used for hats. The beaver has been so assiduously hunted during many years that it is now becoming a rarity, and the fur of other animals is substituted for it. The coypu furnishes nutria skin; the musquash or musk-rat, the hare, and the rabbit, yield fur for the nap of the hat, while the body is made of lamb's wool, or of the woolly hair of the llama or vicuna. A beaver hat, properly so called, has a body or foundation of rabbits' fur, with a beaver nap, although the beaver, for the reason above stated, is often mixed with a more common fur. Such a hat has a pleasant softness and plasticity, and readily molds itself to the shape of the head, presenting a marked contrast to the hard, horny, silk hat, which has nearly superseded it. Still, however, there must always be certain persons who, not objecting to the price, will continue to keep alive this, the most interesting branch of the hat manufacture. See FUR TRADE.

STATEMENT OF THE FOREIGN EXPORTS OF HATS FROM THE UNITED STATES FOR THE YEAR ENDING JUNE 30TH, 1856.

Whither exported.	Hats, caps, and bonnets, flats, braids, plaits, etc.	Silk and manufactures of silk.		
	Of Leghorn, straw, chip, or grass, etc.	Hats of fur or silk.	Hats of palm-leaf.	Hats and bonnets.
Danish West Indies.	....	$205	$2,026	....
Dutch West Indies..	$796	258	148	....
Dutch Guiana.......	....	30	....	....
Belgium............	200	....	....	....
England............	22,134	....	7,678	....
Canada.............	7,878	113,488	2,962	$14,117
Other Bri. N. A. Pos.	....	29,764	645	....
British West Indies.	....	1,814	1,789	....
British Honduras....	....	1,187	30	....
British Guiana.......	....	....	320	....
Br. Pos. in Africa....	....	2,554	198	....
British Australia.....	4,444	1,710	....	....
France on the At....	2,872	....	....	....
France on the Med...	160	....	....	....
Fr. Nor. Am. Pos....	....	65	34	....
Cuba...............	3,699	1,680	19,057	....
Porto Rico..........	....	....	1,088	....
Portugal............	....	....	120	....
Madeira.............	....	....	189	....
Cape de Verd Isls....	....	47	1,030	....
Ports in Africa.......	....	....	3,734	....
Hayti...............	....	1,494	1,473	....
San Domingo........	....	....	27	....
Mexico.............	495	1,456	601	120
Central Republic....	709	699	2,366	....
New Granada.......	2,564	1,095	1,065	....
Venezuela..........	....	81	1,429	....
Brazil..............	....	1,042	9,619	....
Uruguay............	700	....	870	....
Buenos Ayres......	6,603	....	....	....
Chili...............	2,805	3,947	563	....
Peru...............	....	955	120	....
Sandwich Islands....	3,821	....	....	....
China..............	....	2,853	40	....
Whale Fisheries.....	295			....
Total............	$60,175			$14,237
From warehouse.....	$27,847			$14,117
Not from warehouse,	32,328			120

STATEMENT SHOWING THE FOREIGN IMPORTS OF HATS INTO THE UNITED STATES FOR THE YEAR ENDING, JUNE 30TH, 1856.

Whence imported.	Silk and manufactures of silk.	
	Hats and bonnets.	Hats, caps, and bonnets, flats, braids, plaits, etc., of Leghorn, straw, chip, or grass, etc.
Danish West Indies.............	....	$16,634
Hamburg.........................	$28	954
Bremen..........................	2,381	51,468
Holland..........................	....	37
Dutch West Indies..............	....	101,549
Dutch Guiana....................	....	2,248
Belgium..........................	454	6,463
England..........................	16,629	381,828
Scotland.........................	275	1,427
Gibraltar.........................	....	3,886
Canada...........................	....	5,262
Other Brit. N. Amer. Pos.......	....	48
British West Indies..............	....	16,965
British East Indies...............	....	235
France on the Atlantic...........	79,937	387,798
France on the Mediterranean.....	282	616
Spain on the Atlantic............	....	149
Spain on the Mediterranean......	....	15,811
Philippine Islands................	....	8
Portugal.........................	....	82
Tuscany..........................	21	51
Other ports in Africa............	....	27
Mexico...........................	267	....
Central Republic.................	....	81
New Granada....................	2,553	....
China............................	....	184,769
Total........................	$102,827	$221,795

Straw Hats.—It is most probable that the idea of *plaiting straws* was first suggested by the making of baskets of oziers and willow, alluded to by Virgil, in his

Pastorals, as one of the pursuits of the agricultural population of Italy. We are ignorant of the period when the manufacture of straw plait first became of importance in that country; but it appears from CORYAT'S *Crudities*, published in 1611, that "the most delicate strawen hats" were worn by both men and women in many places of Piedmont, "many of them having at least an hundred seames." It is evident, therefore, that the art of straw plaiting must have arrived at great perfection upward of two centuries since; but it does not appear to have been followed in England for more than 70 or 80 years, as it is within the remembrance of some of the old inhabitants of the straw districts, now alive, that the wives and daughters of the farmers used to plait straw for making their own bonnets, before straw-plaiting became established as a manufacture. In fact, the custom, among the women of England, of wearing bonnets, is comparatively modern. It is scarcely 100 years since "*hoods and pinners*" were generally worn, and it was only the ladies of quality who wore small silk hats. See MALCOLM'S *Manners and Customs*.

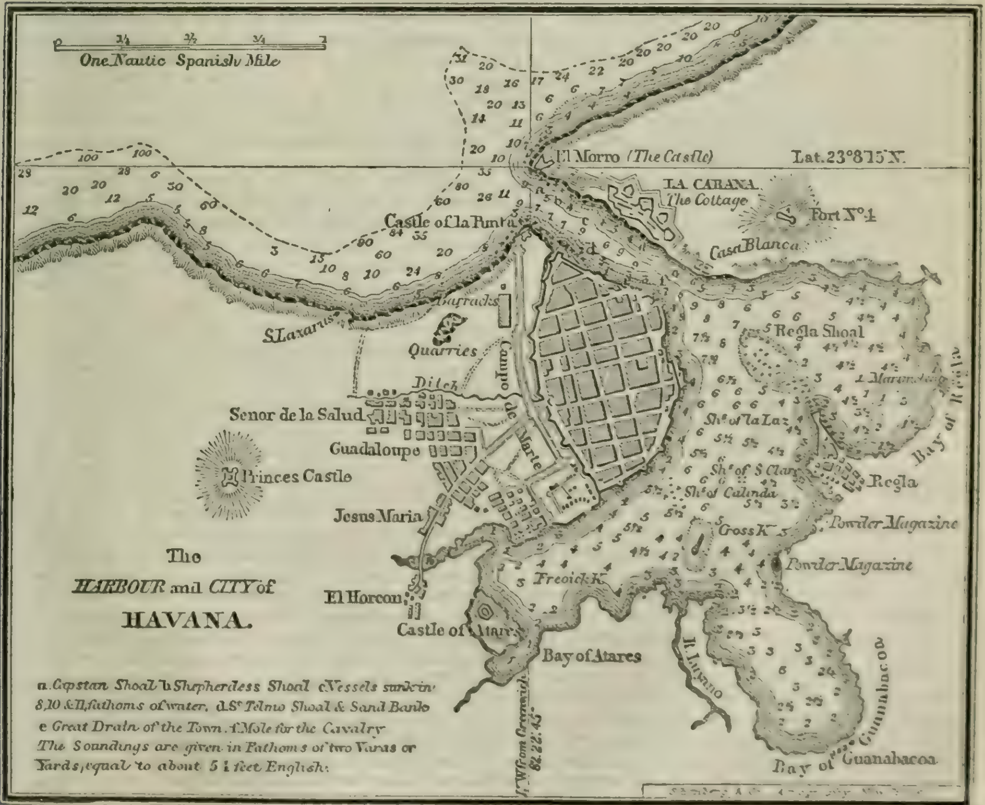
Hatch, in mining, an opening into a mine, or in search of one. The term *hatches* is also applied to the earthen dams used in Cornwall to prevent the water that issues from the stream-works and tin-washes from running into the fresh rivers. *Hatch*, or *hatches*, properly the grate or frame of cross-bars laid over a ship's deck, now denominated "hatch-bars." The lid or cover of a hatchway is also called hatches. Hatch is sometimes applied to the opening in the ship's deck; but this is properly called the hatchway.

Hatchway, a square or oblong opening in the deck of a ship, affording a passage into the hold, or from one deck to another. Hatchway is also applied to the passage through a falling door in the top of a house. In ships, the main-hatchway is placed before the mainmast, and is the largest in the ship; the fore-hatchway is a little abaft the foremast, or at the break of the forecastle; and the after-hatchway between the mainmast and the mizzen.

Haul, the sea term for pulling upon a rope directly. *To haul the wind*, to bring a ship to sail close by the wind after running in some other direction.

Havana, or **Havannah**, on the north coast of the noble island of Cuba, of which it is the capital, the Moro castle being, according to Humboldt, in lat. 23° 8′ 15″ N., long. 82° 22′ 45″ W. The population of the city and suburbs is said to be (1851), little short of 200,000. In 1827, the resident population amounted to 94,023; viz., 46,621 whites, 8,215 free colored, 15,347 free blacks, 1,010 colored slaves, and 22,830 black slaves. The port of Havana is the finest in the West Indies, or, perhaps, in the world. The entrance is narrow, but the water is deep, without bar or obstruction of any sort, and within it expands into a magnificent bay, capable of accommodating 1000 large ships; vessels of the greatest draught of water coming close to the quays. The city lies along the entrance to, and on the west side of, the bay.

From its position, which commands both inlets to the Gulf of Mexico, its great strength, and excellent harbor, Havana is, in a political point of view, by far the most important maritime station in the West Indies. As a commercial city, it also ranks in the first class; being, in this respect, second to none in the New World, New York only excepted. For a long period, Havana engrossed almost the whole foreign trade of Cuba; but since the relaxation of the old colonial system, various ports, such, for instance, as Matanzas, that were hardly known 30 years ago, have become places of great commercial importance. The rapid extension of the commerce of Havana is, therefore, entirely to be ascribed to the freedom it now enjoys, and to the great increase of wealth and population in the city, and generally throughout the island.



The suburb Regla is on the opposite side. The Moro and Punta castles, the former on the east, and the latter on the west side of the entrance of the harbor, are strongly fortified, as is the entire city; the citadel is also a place of great strength; the fortifications have been erected on such of the neighboring heights as command the city or port. The arsenal and dockyard lie toward the western angle of the bay, to the south of the city. In the city, the streets are narrow, inconvenient, and filthy; but in the suburbs, now as extensive as the city, they are wider and better laid out. Latterly, too, the police and cleanliness of all parts of the town have been materially improved.

The advance of Cuba, during the last half century, has been very great; though not more, perhaps, than might have been expected, from its natural advantages, at least since its ports were freely opened to foreigners in 1809. It is at once the largest and the best situated of the West India Islands. It is about 605 miles in length; but its breadth from north to south nowhere exceeds 117 miles, and is in many places much less. Its total area, exclusive of that of the numerous keys and islands attached to it, is about 33,000 square miles. The climate is, generally speaking, delightful; the refreshing sea-breezes preventing the heat from becoming excessive, and fitting it for the growth of a vast variety of products. Hurricanes, which are so destructive in Jamaica and the Caribbee Islands, are here comparatively rare; and, when they do occur, far less violent. The soil is of very various qualities: there is a considerable extent of swampy marshes and rocks unfit for any sort of cultivation; but there is much soil that is very superior, and capable of affording the most luxuriant crops of sugar, coffee, maize, etc. The ancient policy of restricting trade to two or three ports, caused all the population to congregate in their vicinity, neglecting the rest of the island, and allowing some of the finest land and best situations for planting to remain unoccupied. But since a different and more liberal policy has been followed, population has begun to extend itself over all the most fertile districts, wherever they are to be met with. Still, however, only a very small proportion of the best land of the island is under cultivation, and its products and population might be doubled or trebled with the utmost facility. The first regular census of Cuba was taken in 1775, when the whole resident population amounted to 170,370 souls. Since this period the increase has been as follows: 1791, 272,140; 1817, 551,998; and 1827, 704,867; exclusive of strangers. We subjoin a

Classification of the Population of Cuba according to the Censuses of 1775 and 1827.

	1775.			1827.		
	Male.	Female	Total.	Male.	Female.	Total.
Whites.......	54,555	40,864	95,419	168,653	142,398	311,051
Free mulattoes	10,021	9,006	19,027	28,058	29,456	57,514
Free blacks...	5,959	5,629	11,558	23,904	25,079	48,980
Slaves.........	28,774	15,062	44,336	183,290	103,652	286,942
Total.......	99,309	71,061	170,370	403,905	300,582	704,487

Another census was taken in 1842, according to which the population is said to amount to 1,007,620, viz.: whites, 418,291; free colored, 152,838; and slaves, 436,491. But it is alleged that both the slave and white population, especially the former, is underrated in this census, and that the population is, at present (1851), little, if at all, short of 1,430,000 or 1,450,000.

The rapid increase of the slave population is principally to be ascribed to the continued importation of slaves from Africa. In some years, since the peace of 1815, as many as 40,000 blacks are believed to have been imported into Cuba in a single year. Spain had indeed agreed by treaty in 1820 to abolish the trade; but this treaty was little better than a dead letter, and it is only since 1835, when a more efficient treaty with Spain was entered into that the trade has sustained any considerable diminution. But though it be no longer under the Spanish flag, it is continued, though to a much less extent, under other flags. At present, however, not more than from 2000 to 3000 negroes are supposed to be annually imported. But though it were to be wished, as well for the interests of the island as of humanity, that the further importation of slaves should be put a stop to, we are not of the number of those who think that it would be good policy rashly to agitate the question of the emancipation of slaves in Cuba. Their treatment in that island, as in all the other colonies of Spain, has always been singularly humane; and the results of their emancipation in Hayti and the British islands have not been such as to offer much inducement to the authorities in Cuba to take up this difficult question. It may, no doubt, be forced on their consideration; and the emancipation of so many slaves in their immediate vicinity will materially increase the difficulty of maintaining the existing order of things. Under these circumstances, good policy would seem to suggest that timely provision should be made for the gradual bringing about of that emancipation which is, perhaps, inevitable, coupling it, if that be practicable, with some scheme for insuring the supply of some sort of compulsory labor.

Whatever opinion may be formed of slavery in the abstract, we believe it would not be difficult to show that it has contributed, in no ordinary degree, to the rapid advancement of Cuba. Industry will always be proportioned to the strength of the motives by which it is occasioned; and in countries like Cuba, of great natural fertility and under a tropical sun, where a half or more of the articles indispensable in Europe would be useless, it were absurd to imagine that the inhabitants, supposing them to be free, should exhibit the persevering industry of free laborers in the temperate zone. The *dolce far niente* is in such countries the *summum bonum*; and we believe it will be found that the extensive cultivation of sugar, and of most other commercial products within the tropics, depends on the maintenance of slavery, or of compulsory labor of one kind or other. The people of England may be but little affected, at least directly, by these considerations, and may, therefore, on the principle of *fiat justitia, ruat cœlum*, think themselves warranted in using their influence to enforce the abolition of slavery wherever it exists. But to the Cubans, Brazilians, the inhabitants of the southern States of America, and a host of others, this question is of the last importance. Were the slaves emancipated, not in law merely, but practically and in fact, the probability is that neither Cuba nor Brazil would, in a dozen years, export a single cwt. of sugar. Why should they do so any more than Hayti? The blacks, were they really emancipated, would be able to support themselves in that state in which they wish to live, without engaging in any thing like the severe labor of sugar planting; and under such circumstances it would be a contradiction to suppose they should engage in it. But it might be difficult, perhaps, to show what good consequences would result from such a change. It is at all events clear that the commerce of the world and the comforts of all civilized nations would be seriously impaired; and it is by no means clear that the condition of the blacks would be sensibly, or at all, improved. Besides slaves, the planters employ free laborers, mostly of an Indian mixed breed, who work for moderate wages. These, however, are little engaged in the fields, but in other branches of labor, and particularly in bringing sugar from the interior to the shipping ports. The articles principally exported from Cuba are, sugar of the finest quality, coffee, copper ore, tobacco, beeswax, honey, molasses, etc. Of these, the first is decidedly the most important.

But, exclusive of the exports from Havana and Matanzas, considerable quantities sugar is shipped from

Cienfuegos, Nuevitas, Holguin, Manzanilla, and other ports; and a good deal is also shipped without entry or payment of duty. We may, therefore, safely add 10 per cent. to the other quantities for the omissions now referred to; which will make the total exports in 1846, 403,200,000 lbs. or 180,000 tons. Since then the production has considerably increased; and the total exports may at present (1856) be safely estimated at above 335,000 tons. The consumption of the island is supposed to amount to about 20,000, so that its total produce may be taken at from 350,000 to 360,000 tons.

Next to sugar, coffee was the most valuable vegetable production of Cuba. Its cultivation increased, for a while, with unprecedented rapidity. In 1800, there were but 80 plantations in the island; in 1817, there were 779; and in 1827, there were no fewer than 2,067, of at least 40,000 trees each! In 1804, the exportation from Havana was 1,250,000 lbs.; in 1809, it amounted to 8,000,000 lbs.; from 1815 to 1820, it averaged annually 18,186,200 lbs.; and in 1827 it amounted to 35,837,175 lbs.! The exports from the other ports increased with equal rapidity. They amounted, in 1827, to 14,202,406 lbs.; making the total exportation for that year 50,039,581 lbs. But the subsequent low prices, or rather, perhaps, the greater attention paid to the culture of sugar, not only checked the further increase of the coffee plantations, but made several of them be abandoned. More recently, however, the increase in the price of coffee and the low price of sugar has occasioned a reaction. and the culture of coffee is again extending. The exports of it in 1848 amounted to 17,354,425 lbs., to which 10 per cent. may be added for deficient entries.

Tobacco differs much in quality: but the segars of Cuba are esteemed the finest in the world. (See TOBACCO). Formerly, the culture and sale of this important plant were monopolized by government; but since 1821, this monopoly has been wholly relinquished, there being no longer any restrictions either on the growth or sale of the article. The cultivator pays a duty, which, however, is to a great extent evaded, of 1 per cent. *ad valorem* upon his crop. In consequence of the freedom thus given to the business, the culture and exportation of tobacco are both rapidly extending; so much so, that the value of the produce of tobacco in 1849 was estimated at above 5,000,000 dollars, being considerably more than double the value of the coffee produced. Molasses, rum (tafia), wax, and honey, are also largely produced, and form important articles of trade. See CUBA.

STATEMENT OF IMPORTS AT THE PORT OF HAVANA, FROM JANUARY 1 TO SEPTEMBER 30, 1855, COMPARED WITH THE SAME, FOR THE SAME PERIODS, IN 1854 AND 1853. [FROM CUSTOM-HOUSE RETURNS.]

Countries.		1855.	1854.	1853.		1855.	1854.	1853.
United States... ...	FLOUR, Barrels.	864	2,808	175	RICE. Quintals.	77,905	93,998	60,089
Spain..............		109,434	117,519	120,852		93,945	28,420	28,458
Other Countries.....		....	....	....		29,746	1,474	7,092
Total............	....	110,298	120,327	121,027	....	201,596	123,892	95,639
United States.......	LUMBER. M feet.	9,635	10,004	8,015	CODFISH, Quintals.	19,241	18,199	21,249
British Provinces....		1,273	388	109		29,185	23,171	24,940
European...........		....	....	....		11,737	9,259	10,327
Total...........	....	10,908	10,392	8,124	....	60,163	50,629	56,516
United States.......	LARD. Quintals.	64,477	68,536	45,636	JERKED BEEF. Quintals.	....	....	....
South America......		....	....	....		185,739	150,477	148,477
United States.......	HHD. SHOOKS Number.	87,310	46,026	49,054	BOX SHOOKS Number.	568,495	385,740	386,732
British Provinces....		....	....	....		39,257	12,755	20,092
Total...........	....	87,319	46,026	49,054	....	607,752	398,495	406,824
Spain..............	OIL. Jars......	365,828	177,786	190,993	WINE. Pipes...	26,574	28,294	16,403

NUMBER AND TONNAGE OF VESSELS WHICH ENTERED THE PORT OF HAVANA FROM JAN. 1 TO SEPT. 30, 1855.

Nationality.	No. of vessels.	Tonnage.	Nationality.	No. of vessels.	Tonnage.
American....	708	299,127	Danish.......	12	3,040
Spanish......	398	87,827	Bremen......	14	4,493
British.......	92	39,675	Hamburg....	4	860
French......	110	29,967	Other nations	42	9,819
Belgian......	13	5,217	Total.....	1,406	482,867
Dutch.......	13	2,842			

The table which we subjoin gives the amount of American, Spanish and English tonnage employed, with the per centage which each comprises of the entire commerce of the port:

Years.	American.	per ct.	Spanish.	per ct.	British.	per ct.
1846	125,343	38	96,583	29	68,206	21
1847	151,174	40	100,868	27	72,275	19
1848	170,817	44	107,707	28	65,214	17
1849	200,069	49	106,135	26	65,274	16
1850	298,299	57	107,230	20	65,136	12
1851	344,046	60	114,216	20	58,808	10
1852	308,120	59	114,338	22	55,427	11
1853	304,138	57	111,029	21	58,324	11
1854	336,998	60	111,823	20	59,556	11
1855	379,327	62	120,881	20	49,963	08

This table shows that the American tonnage employed in the Havana trade, has increased threefold during the last ten years, and that its amount, relative to the entire tonnage, has nearly doubled, while both the Spanish and English proportions have diminished in relative importance, and even the absolute amount of British tonnage employed in this business, has fallen off more than 25 per cent. The only other nation which enjoys any considerable share of this trade is France. The French tonnage in 1846 was 7,213 or 225 per cent. of the whole, and in 1855, 33,522 or 5½ per cent. It would appear from these facts, that the United States are rapidly advancing toward a comparative monopoly of the carrying trade from Havana.

The rates of freights for the last ten years have been subject to great fluctuation, rates to New York varying from 4 rials in September 1849, and August 1855, to 19 rials in March 1854. March and April seem to have been the most favorable months for American freights, and February and March for European. The yearly averages of freight show that while 1854 saw the rates at their highest point, 1855 found them depressed almost to the lowest. From March 1855, when the rate to Cowes and a market was £5 12s. 6d. and to New York 19 rials. there was a regular and rapid fall, hardly checked even by the spring months, until in August 1855, the rate to Cowes was £1 15s., and to New York, 4 rials. At this point rates began to recover.

The price of sugar has fluctuated from 3 3-5 rials in August 1848, to 9 rials in December 1855. From March of last year when the price of brown sugar was 5 3-8 rials, there was a steady rise to the end of the year, so that the average price for the year, 6.65 rials, was higher than for any of the previous years, the lowest yearly average being 4.50 rials for 1848.

Moneys.—One dollar=8 reals plate=20 reals vellon. One doubloon=17 dollars. The merchants reckon 444 dollars=£100, or 1 dollar=4s. 6d. very nearly. There is an export duty of 1¾ per cent. on gold, and 2¾ per cent. on silver. It is a curious fact that no description of paper money has ever circulated in Cuba.

Weights and Measures.—One quintal=100 lbs., or 4 arrobas of 25 lbs.; 100 lbs. Spanish=101¾ lbs. English, or 46 kilogrammes. 108 varas=100 yards; 140 varas=100 French ells or aunes; 81 varas=100 Brabant ells; 108 varas=160 Hamburg ells. 1 fanega =3 bushels nearly, or 100 lbs. Spanish. An arroba of wine or spirits=4·1 English wine gallons nearly. A hogshead of sugar=1300 lbs.; a bag of coffee= 150 lbs.; a hogshead of molasses=110 gallons; a pipe of tafia or rum=120 gallons; and a bale of tobacco= 100 lbs.

The usual commission charged by merchants on the sale of goods is 5 per cent., with a *del credere* of 2½ per cent. if the sales are on credit and guarantied, and a further commission of 2½ per cent. for the returns, whether in bills or produce. On purchases the commission is 2½ per cent., and a further 2½ per cent. if drawn for in bills of exchange. For procuring freight 5 per cent. is charged, and 2½ for insuring the amount. For advances of money the rate is 5 per cent. when no other commission is chargeable. Bill business is done at various rates, from 1 to 2½ per cent. according to its magnitude. These are the rates of the foreign houses; those of the Spanish and Creole merchants are generally higher. There is no obstacle whatever to the establishment of foreigners as merchants in the island. The law says that those who are naturalized in Spain may freely carry on trade with the same rights and obligations as the natives of the kingdom, and that those who have not been naturalized, or have a legal domicile, may still carry on trade under the regulations stipulated in the treaties in force between the respective governments; and in default of such conventional regulations, the same privileges are to be conceded as those enjoyed by Spaniards carrying on trade in the country of which such foreigners are natives. In practice, this last condition is not much attended to; as foreigners are allowed to establish themselves as merchants without any inquiry as to the rights and privileges enjoyed by Spaniards in the country they come from. As to manufacturers and mechanics, the only difficulty that can arise regards their religion. On entering the island every stranger is required to find security in the following terms: "I am responsible and become security in every case for the person and conduct of A. B., arrived from C. in the ship D., binding myself to present him if called on by the government, and to conduct him at my expense to any place that may be designated." This security is easily obtained, and, in fact, encouragement is given to mechanics, and white people of all classes to settle in the island. After landing it is only necessary to apply for a letter of domicile, and to present a certificate that the applicant is of a respectable character, and professes the Roman Catholic religion. Free colored people, however, by a royal order of the 12th March, 1837, are prohibited from landing under any pretense whatever; and so rigorously is this order enforced, that such persons, though acting as seamen, are, on their arrival, taken out of the vessel in which they have come, and are kept in custody until her departure, when they are compelled to proceed again on board and leave the island. The business of a broker is exercised under a royal license, and no foreigner is eligible to the office unless naturalized in the form prescribed by law. In every commercial town a certain number only is allowed, corresponding with the population and trade of the place. In the great cities, the business of merchant is often combined with that of planter; and sometimes, also, the importing merchant keeps a shop or store, where he sells his goods by retail. The foreign merchants are generally regarded as transient visitors, who go there for the purpose of accumulating such a fortune as may enable them to live with some degree of comfort in their own country. As a class they are not considered wealthy, but they are almost all in the full enjoyment of credit. The mercantile capital, as well as the proprietary wealth of the island, may be said to be concentrated in the hands of the Creoles. When the emigrants from the Peninsula make fortunes in the island, they seldom think of returning to Europe. See CUBA.

Haven. (Germ. *hafen.*) The same as *harbor.* See article HARBOR.

Havre, or **Havre de Grace**, a commercial and strongly-fortified sea-port town of France, on the English Channel, near the mouth of the Seine, on its northern bank, lat. 49° 20′ 14″ N., long. 0° 6′ 38″ E. Population, in 1851, 28,954, to which may be added 5,000 or 6,000 more for the crews of the shipping constantly in the port. It was a saying of Napoleon that "*Paris, Rouen, Le Havre, ne forment qu'une seule ville, dont la Seine est la grande rue.*" Havre being, in fact, the sea-port of Paris, most of the colonial and foreign products destined for its consumption are imported thither. Nearly double the quantity of goods, estimated by weight, is annually imported at Marseilles; but the total value of the imports at Havre amounts very nearly to that of those at the former port. The principal imports are cotton, sugar, coffee, linen thread and linen goods, rice, indigo, tobacco, hides, dyewoods, spices, drugs, timber, iron, tin, dried fish, etc.: grain and flour are sometimes imported and sometimes exported. The principal exports are silks, woolen and cotton stuffs, lace, gloves, and shoes, trinkets, perfumery, champagne and other wines, brandy, glass, furniture, books, etc.

The Harbor, which is the best and most accessible on this part of the French coast, consists of 3 basins separated from each other and from the outer port by 4 locks, and capable of accommodating about 450 ships. A large body of water being retained by a sluice, and discharged at ebb tide, clears the entrance to the harbor and prevents the accumulation of filth, sand, etc. Cape de la Heve, forming the northern extremity of the Seine, lies N.N.W. from Havre, distant about 2½ miles. It is elevated 390 feet above the level of the sea, and is surmounted by 2 light-houses 50 feet high. These, which are 325 feet apart, exhibit powerful fixed lights. There is also a brilliant harbor light at the entrance to the port, on the extremity of the western jetty. Havre has 2 roadsteads. The greater or out road is about a league from the port, and rather more than ½ league W.S.W. from Cape de la Heve; the little or inner road is about ½ league from the port, and about ¾ of a mile S.S.E. from Cape de la Heve. They are separated by the sand bank called Leclat; between which and the bank called *Les Hautes de la Rade* is the north-west passage to the port. The Hoc, or southern passage, lies between the last mentioned bank and that of Amfar. In the great road there is from 6 to 7½ fathoms water at ebb; and in the little, from 3 to 3½. Large ships always lie in the former. The rise of the tide is from 22 to 27 feet: and by taking advantage of it, the largest class of merchantmen enter the port. The water in the harbor does not begin perceptibly to subside till about 3 hours after high water—a peculiarity ascribed to the current down the Seine across the entrance to the harbor being sufficiently powerful to dam up for a while the water in the latter. Large fleets, taking advantage of this circumstance, are able to leave the port in a single tide, and get to sea, even though the wind should be unfavorable. See *Plan of Havre*, published by Laurie; *Annuaire du Commerce Maritime; Coulier sur les Phares*, p. 59, etc. The *Chamber of Commerce* of Havre have recently published the following information and instructions for the use of vessels frequenting the port:

"Five buoys have been moored in the shallows Ruvun, under the designation of the Banc de l'Eclat, and Hautes de la Rade.

"These buoys are similar in form, but of different colors, viz.: The first to the northward is white; the second, white with a black top; the third is black; the fourth is black with a white top; the fifth is red.

"Vessels must always come to anchor at a distance of at least five cables' length outside the line of these buoys, which they may not pass without danger before one hour and a half prior to high water, or four hours after ebb; and they must at all times pass at a distance of five cables' length from the black as well as from the red buoy, both of which are moored on the shallowest parts of these banks. Nevertheless ships may at all hours of the tide frequent the north-western passage, comprised between Cape La Heve and the two northernmost buoys.

"All vessels using the north-western passage, and bound into the inner roadstead (Petit Rade), must steer for the white buoy, the furthest north, and after leaving it a little distance on the starboard hand, should then stand toward the second white buoy, taking care never to come so close to the shore as altogether to lose sight of the lantern of the northernmost lighthouse on Cape La Heve. When the light of the north-western pier head bears by compass S.E., and the light-houses on the Heve bear by compass N.N.E., the ship may be brought to an anchor.

"Besides the five buoys herein described, one of lesser dimensions has been moored on the shallows of the inner roadstead, at about five cables' length W.N.W. of the north-west pier head. Vessels of light draught of water coming to an anchor in that part of the road, should give this buoy an offing of at least one cable's length."

Most part of the goods imported into Havre are destined for the internal consumption of France. The coasting trade has increased very largely of late years, as is proved by the great increase of French wines, soaps, and other produce imported at Paris from Havre, instead of being sent to the capital by land. The coasting vessels transfer their cargoes partly to steamers and partly to large barges, called *chalands*, which are towed by steam tugs as far as Rouen, and thence by horses to Paris. The foreign trade of the port is also very extensive. There annually enter the port about 800 ships from ports out of Europe. Lines of sailing packets are established between Havre and New York, New Orleans, etc. A regular intercourse by means of steam packets is kept up with London, Southampton, and other ports. The entrances to the basins are too narrow to admit the passage of the largest steamers, which have, in consequence, to remain in the outer port imperfectly sheltered from the winds. Indeed the port is at present inadequate to the proper accommodation of the great and growing trade of which it is the centre, and extensive works have been undertaken for its improvement. There belonged to the port, on the 31st December, 1851, 368 sailing vessels of the aggregate burden of 71,363 tons, and 32 steamers, aggregate burden 4,259 tons. The customs duties which in 1837 produced 18,123,993 francs, had increased in 1851 to 26,164,000 francs. *The Moneys, Weights, and Measures* of Havre are the same as those of the rest of France; for which, see articles BORDEAUX, COINS, FRANCE, and WEIGHTS AND MEASURES.

Pilotage.—From the outer roadstead 28 francs per 1st 100 tons; 25 francs 2d do.; 23 francs 3d do.; and the pilot to be fed. If the vessel be boarded nearer the port the charge is lessened accordingly. Boats, from 9 to 30 francs according to the distance.

Port Charges.—With coals, 75 per cent. per ton in dock; 37½ do. in harbor. General cargo, 2 francs 50 centimes if in dock; 1 franc 65 centimes if in harbor. Salvage dues, 5 centimes, and 10 per cent. Tonnage do. 66⅔ centimes and 10 per cent. No charge for lights, buoys, or beacons.

Ballast delivered alongside.—Clean, 1 franc 95 centimes per ton; common do. 1 franc 14 centimes do. The ton of clean ballast may be estimated to weigh about 15 or 16 cwt. The ton of common ballast, about 20 cwt.; a cart marked ½ metre is one ton; a cart marked 1 metre is two tons. Cost of removal of ballast landed from ship, 64 centimes per ton, without distinction of quality.

Harbor Rules.—1. It is forbidden to have fire, or lighted candle, or to smoke on board ships in the harbor.

2. Vessels coming into and lying in the docks must have the lower and topyards topped up, jib-booms and martingales rigged in, and anchors taken in. The wharf alongside the vessel must be swept every evening.

3. No gunpowder (whatever may be the quantity), is allowed to remain on board, and must be deposited in the gunpowder warehouse.

4. All foreign sailors found away from their ships after 10 o'clock at night, from the 1st of April to the 1st of October, and after 9 o'clock from the 1st of October to the 1st of April, shall be conveyed to prison and fined. Sailors are forbidden to wear sheathing knives ashore.

5. The manifest of the cargo, signed by the captain, must be exhibited to and signed by the custom-house officers before being taken ashore. The vessel must be reported at the custom-house within 24 hours after arrival.

6. Tobacco, snuff, segars loose or in boxes, belonging to the captain, officers, and mariners, to be declared as exactly as possible. All the tobacco, snuff, and segars declared or not declared, to be exhibited to the custom-house officers, when they come and make the visit on board. After such exhibition, if any quantity of tobacco and segars be found on board, it shall be seized, the captain shall be condemned to pay a fine which may be as high as 500 francs, and the ship shall be confiscated.

PORT CHARGES.

	f.	c.		
Pilotage in			28 fr for the 1st hundred tons.	
"			25 fr. for the 2d hundred tons.	
"			23 fr for the 3d hundred tons and above.	
"			1½ per cent for the head pilot.	
Boats of help in			24 fr. outside the banks.	
" "			12 fr. outside the piers.	
" "			9 fr in the harbor.	
Weighing anchors	2	50	per each cwt.	
Weighing chains	0	50	" " and one third more if there be no buoy ropes.	
Haulers	0	30	per man, besides 1 fr. 50 c. for the hawsers.	
Bridges	3	60	for each bridge.	
Ballast unshipped	0	64	per half metre.	
" shipped	1	14	" " for sand.	
" "	1	95	" " for clean ballast.	
Board of health	2	50	for a vessel of 50 tons' measurement & under.	from Europe.
" "	5	0	for a vessel of 51 tons' measurement & above.	
" "	10	0	for a vessel from other countries.	
Tonnage dues	0	66	per ton and 10 per cent	for vessels with coals only and 1-20th of their cargoes with bricks or grindstones.
" "	0	37½	per ton harbor dues.	
" "	0	75	per ton dock dues.	
" "	1	65	per ton harbor dues, with other cargoes	
" "	2	50	per ton dock dues with other cargo's	
" "	0	5	per ton salvage duty, & 10 per ct.	
" "	1	25	stamps.	
" "			From 3 fr. 80 c to 18 fr 15 c. for clearances according to his tonnage	
Pilotage out			One third of the pilotage in if the vessel is in ballast	
"			One half of the pilotage in if the vessel takes goods	
Protest before the court	9	5		
Affirmation before the court	5	50		
Gunpowder shipped and unshipped	8	0		
Brokerage in	0	50	per ton of goods landed.	
" out	0	25	" " shipped.	
" on ballast	0	12	" " measurement.	

Account of the Annual Imports of Coffee into Havre, with the Annual Sales thereof, and Stocks on Hand on the 31st December in each Year, from 1852 to 1828, both inclusive, in ½ Kilog. or pounds.

Years.	Imports.	Sales.	Stock.
1852	32,379,395	30,188.570	5,781,775
1851	26,571,340	26,840,940	3,590,950
1850	24,401,980	26,165,270	3,860,550
1849	25.814,190	25,325,650	5,623.840
1848	20.685,510	19,552,210	5,135,300
1847	26,330,000	24,528,500	4,002,000
1846	17,000,000	18,300,000	2,200,000
1845	18.850,000	18,850,000	3,500,000
1844	22,600,000	22,100,000	3,500,000
1843	16,800,000	17,100,000	3,000,000
1842	19,250,000	20,500,000	3,300,000
1841	17,650,000	15.200,000	4,550,000
1840	23,600,000	23,250,000	2,100.000
1839	14.600,000	15,550,000	1,750,000
1838	19,720,000	20,044,000	2,700,000
1837	18.559,000	20,410,300	3,024,000
1836	17,726,545	15.171.545	4,875.000
1835	15,440,000	16,820,000	2,320,000
1834	15,500,000	13,980,000	3,700,000
1833	14,300.000	15,300,000	4.000.000
1832	16,850,000	13,650,000	5,000.000
1831	8,000,000	9,000,000	1,800,000
1830	13,300,000	13,000,000	2,800,000
1829	13,680,000	13.980,000	2,500,000
1828	16,600,000	18,800,000	2,800,000

Account of the Annual imports of Cotton into Havre, with the Annual Sales thereof, and the Stocks on Hand on the 31st December in each Year from 1852 to 1826, both inclusive.

Years.	Imports.	Sales.	Stock.	Years.	Imports.	Sales.	Stock.
	Bales.	Bales.	Bales.		Bales.	Bales.	Bales.
1852	395,001	393,771	23,830	1838	295,246	292,746	35,500
1851	303,975	223,775	22,600	1837	248,859	261,359	33,000
1850	312,827	308,427	42,400	1836	262,086	233,586	45,500
1849	367,178	348,178	38,000	1835	214,509	217,709	18,800
1848	237,935	260,435	19,000	1834	201,419	213,419	22,000
1847	267,500	251,500	41,500	1833	210,593	193,593	34,000
1846	325,935	350,435	25,500	1832	184,228	185,228	17,000
1845	331,287	334,287	50,000	1831	157,501	164,501	18,000
1844	279.651	326,651	53,000	1830	119,186	165,686	45,000
1843	325,965	333.965	100,000	1829	175,930	185,430	17,500
1842	370,427	352,927	108,000	1828	114,735	161,235	27,000
1841	357,327	344,027	96,300	1827	169,274	166,274	46,500
1840	376,156	356,156	77,000	1826	214,035	183,535	44,000
1839	265,243	242,043	57,000				

Account of the Annual Imports of Sugar into Havre, with the Annual Sales thereof, and the Stocks on Hand on the 31st December in each Year, from 1852 to 1828, both inclusive.

Years.	Imports.	Sales.	Sales.	Years.	Imports.	Sales.	Stock.
	Hhds.	Hhds.	Hhds.		Hhds.	Hhds.	Hhds.
1852	35.127	24.127	12,400	1839	46,350	51,850	1.500
1851	28.208	27.098	1.400	1838	53,590	47,290	7,000
1850	21.740	27,150	290	1837	31,753	42,453	800
1849	36.420	41,720	5,700	1836	45,287	42,787	11,500
1848	33,065	29.065	11,000	1835	55,549	58.549	9,000
1847	67,850	63.350	7,000	1834	69,430	60,430	12.000
1846	53,000	58.500	2,500	1833	50,300	51,300	3,000
1845	66,500	63,500	8,000	1832	46,000	57,000	4,000
1844	49,600	58,600	5,000	1831	58,450	56.450	14,000
1843	54,200	54,200	14,000	1830	49,820	44,820	12,000
1842	64.000	60,000	14,000	1829	60,560	63,560	7,000
1841	54,760	51.260	14,000	1828	60,770	62,270	10,000
1840	51,900	46,900	6,500				

Prices of Commodities, Duty paid and in Bond, Duties, Tares, Commercial Allowances, etc.—These important particulars may be learned by the inspection of the subjoined price current for the 25th of May, 1853. The duties on some of the articles mentioned in it will, most probably, at no very distant period, be varied. But the other particulars embodied in it will always render it an important document.

	Duty paid. Fr. ct. Fr. ct.	In Bond. Fr. ct. Fr. ct.
Ashes, per 50 kil.		
Pot, New York	42 0—43 0	0 0— 0 0
do. Casan	38 0—38 25	0 0— 0 0
Pearl, American	47 0—48 0	0 0— 0 0

Duty on nett weight: by French vessels from European ports, 9 francs 90 cent.; from elsewhere, 8 francs 25 cent. By foreign vessels, 11 francs 55 cent. See exceptions at Note A.

Commercial and custom-house tare: 12 per cent.

Beeswax, per ½ kil.		
North American yellow.	1 85— 2 0	0 0— 0 0
West India fair	1 50— 0 0	0 0— 0 0
Senegal	1 60— 1 75	0 0— 0 0

Duty on gross weight: yellow, by French vessels from European ports, 5½ cent.; from elsewhere, 4 2-5 cent. See Note A.

Commercial tare: real.

	Duty Paid. Fr. ct. Fr. ct.	In Bond. Fr. ct. Fr. ct.
Cochineal, per ½ kil.		
silver from ord. to fine	0 0— 0 0	4 25— 5 0
black, ditto	0 0— 0 0	4 75— 5 25

Duty on nett weight: by French vessels from places out of Europe, 27½ cent.; from elsewhere, 55 cent. By foreign vessels, 82½ cent. See Note A.

Custom-house tare: in casks, 12 per cent.; in seroons, 2 per cent.

Commercial tare: real.

Cocoa Caraccas, per ½ kil.	0 0— 0 0	0 90— 1 25
St. Domingo	0 0— 3 0	0 30— 0 31
Maranham and Para	by a French vessel	0 50— 0 52
Maracaibo	0 0— 0 0	0 0— 0 0

Duty on nett weight: by French vessels from the French colonies, 22 cent.; from countries west of Cape Horn, 27½ cent.; from European ports, 52½ cent; from elsewhere, 30¼ cent. By foreign vessels from any port whatever, 57¾. See Note A.

Custom-house tare: on casks, 12 per cent.; on bags, 3 per cent.

Commercial tare: on casks, real; on bags, 2 per cent.

Coffee, per ½ kil.		
St. Domingo, from ordinary to fine	0 0— 0 0	0 53— 7 0
Porto Rico	0 0— 0 0	0 57— 0 70
Havana, from ord. to fine	0 0— 0 0	0 55— 0 60
Laguyra and Port Cabel	0 0— 0 0	0 55— 0 72
Rio, ordinary to fine	0 0— 0 0	0 50— 0 70
Java	1 2— 1 15	0 0— 0 0
Ceylon, native	1 2— 1 7	0 0— 0 0
Do. plantation	1 12— 1 26	0 0— 0 0
Padang and Sumatra	1 7— 1 12	0 0— 0 0
Mocha	1 20— 1 35	0 0— 0 0

Duty on nett weight: by French vessels from the East Indies, 42 9-10 cent.; from European ports, 55 cent.; from elsewhere, 52½ cent. By foreign vessels from any port whatever, 57¾ cent. See Note A.

Custom-house tare: on casks, 12 per cent.; on bags, 3 per cent.

Commercial tare: on casks, real; on bags, 2 per cent.; on Mocha coffee the tare runs from 4½ to 12½ kil. upon bales of 75 to 200 kils.

Copper, American, ½ kil.	1 43— 1 55	0 0— 0 0
Russian and British	1 60— 1 65	0 0— 0 0

Duty on gross weight: by French vessels from European ports, 1 1-10 cent.; from elsewhere, 11-20 cent. By foreign vessels from any port whatever, 1 13-20 cents. See Exceptions at Note A.

Commercial tare: real.

Cotton, per ½ kil.		
Upland	0 77— 1 0	0 0— 0 0
Mobile	0 77— 1 0	0 0— 0 0
New Orleans	0 77— 1 0	0 0— 0 0
Sea Island	1 50— 3 0	0 0— 0 0
Pernambuco	1 0— 1 15	0 0— 0 0

Duty on nett weight: on long or short staple, by French vessels from the French colonies, 2¾ cent.; from European ports (Turkey excepted), 16½ cent.; from the East Indies and countries beyond Cape Horn, 5½ cent.; from other countries, 11 cent. By foreign vessels (except from Turkey), 19¼ cent. By French vessels from Turkey, 8¼ cent.; by foreign vessels from Turkey, 13 3-5 cent. See Note A.

Custom-house tare: on United States' cotton, 6 per cent.; Brazil cotton, 4 per cent.; on St. Domingo, in bales, 5 per cent.; on Cumana and Caraccas, 7 kil. per seroon above 40 kil., and 6 kil. per seroon, at 40 kil. and under.

Draft: 2 kil. on Sea Island and Bengal; 3 per cent. on Brazil; 3 kil. on all other descriptions in bales exceeding 50 kil., and 1½ kil. upon bales under 50 kil.

Flour, American, per barrel	0 0— 0 0	27 0— 0 0
Gums, Senegal, per ½ kil.	0 80— 0 90	0 0— 0 0
East India, copal scraped	.... 0 0	0 0— 0 0
Shell-lac, orange	0 65—72 0	0 0— 0 0
ditto, garnet	0 50—70 0	0 0— 0 0
ditto, liver	0 55—65 0	0 0— 0 0

Duty on Senegal, gross weight: by French vessels from Senegal, 5½ cent.; from European ports, 13¾ cent.; from elsewhere, 11 cent. By foreign vessels from any port whatever, 16½ cent. See Note A.

Commercial tare; on casks, real; on bags, 2 per cent.

Duty on copal, gross weight per 50 kil.: by French vessels from the East Indies, 55 cent.; from elsewhere, 11 francs. By foreign vessels from any port whatever, 16 francs 50 cent. See Note A.

Commercial tare: real.

Duty on shell-lac, nett weight: by French vessels from the

East Indies, 27-100 cent.; from elsewhere, 5½ cent. By foreign vessels from any port whatever, 8¼ cent. See Note A.

Commercial tare: real.

	Duty Paid.		In Bond.	
	Fr. ct.	Fr. ct.	Fr. ct.	Fr. ct.
Hides, per ½ kil.				
Buenos Ayres	0 65	0 100	0 0	0 0
Pernambuco and Bahia, dry-salted	0 55	0 80	0 0	0 0
Rio Janeiro	0 55	0 75	0 0	0 0
Carthagena and Caraccas	0 54	0 75	0 0	0 0
New Orleans, wet salted	0	0	0 0	0 0

Duty on gross weight: by French vessels from European ports, 5½ cent.; from elsewhere 2¾ cent. By foreign vessels from any port whatever, 8¼ cent. See Note A.

Five bull hides are admitted among 100 hides without allowance, and 1 kil. is allowed for every bull hide above that number to the extent of 12; when more than 12 the allowance is conditional.

Hops, American, 1851	262 50	0 0	0 0	0 0

Duty on nett weight: by French vessels from any port whatever, 33 francs per 50 kil. By foreign vessels, 36 francs 2½ cent. See Note A.

Commercial tare: on bales, 2 per cent.

Horse-hair per ½ kil.				
Buenos Ayres, mixed	0 90	0 115	0 0	0 0
Russia	0	0	0 0	0 0

Duty on gross weight: by French vessels, 55-100 cent. By foreign vessels, 2¾ cent. See Note A.

Commercial tare: real.

Indigo, per ½ kil.				
Bengal	0 0	0 0	0 0	0 0
superfine violet and blue	11 25	11 50	0 0	0 0
sup'fine violet and purp.	10 25	10 50	0 0	0 0
fine violet and purple	9 75	10 0	0 0	0 0
good violet	9 25	9 50	0 0	0 0
middle violet	7 75	8 0	0 0	0 0
fine red	8 70	0 0	0 0	0 0
good red	7 0	7 25	0 0	0 0
good to fine copper	6 25	6 75	0 0	0 0
ordinary to low copper	5 50	6 25	0 0	0 0
Java	7 0	11 75	0 0	0 0
Kurpah	5 0	8 0	0	.....
Madras	4 50	6 75	0 0	0 0
Manilla	4 0	6 50	0 0	0 0
Caraccas	4 0	7 0	0 0	0 0
Guatemala flores	6 75	7 25	0 0	0 0
sobre saliente	6 25	6 50	0 0	0 0
cortes	5 0	5 75	0 0	0 0
ordinary and low	4 25	4 75	0 0	0 0

Duty on nett weight: by French vessels from places of growth out of Europe, 27½ cent.; from European ports, 1 franc 65 cent.; from Manilla direct, 22 cent; from elsewhere, 1 franc 10 cent. By foreign vessels from any port whatever, 2 francs 20 cent. See Exceptions at Note A.

Custom-house tare: on chests, casks, and seroons, real, or at the option of the importer, 12 per cent. on chests or casks, and 9 per cent. on seroons.

Commercial tare: on casks or chests, real; on seroons of 100 to 110 kil., 11 kil.; on do. of 85 to 90 kil., 10 kil.; on do. of 70 to 84 kil., 9 kil.; on do. of 50 to 69 kil., 7 kil. Allowance, 1 kil. per chest.

Lac-dye, per ½ kil.	3 0	3 10	0 0	0 0

Duty on nett weight: by French vessels from the East Indies, 13¾ cent.; from elsewhere, 41¼ cent. By foreign vessels from any port whatever, 55 cent. See Exceptions at Note A.

Commercial and custom-house tare: real.

Lead, American, per 50 kil.	.....		0 0	0 0
Spanish and British	25 0	28 0	0 0	0 0

Duty on gross weight: by French vessels from any port whatever, 2 francs 75 cent. By foreign vessels, 3 francs 85 cent. See Note A.

Pepper, light, per ½ kil.	0 72	0 75	0 0	0 0
half heavy	0 78	0 80	0 0	0 0

Duty on nett weight: by French vessels from the East Indies, and from countries west of Cape Horn, 22 cent.; from elsewhere, 44 cents. By foreign vessels from any port whatever, 57¾ cent. See Note A.

Custom-house tare: on bags, 5 per cent.

Commercial tare: on single bags, 2 per cent.

Pimento, per ½ kil.				
Jamaica	0 0	0 0	0 70	0 75
Tobago	0 0	0 54	0 54	0 0

Duty: by French vessels from the East Indies, and from countries west of Cape Horn, 24¾ cent.; from elsewhere, 49½ cent. By foreign vessels, 63¼ cent.

Tares: as for pepper.

Quercitron, per 50 kil.				
Philadelphia, 1st sort	11 50	14 60	0 0	0 0
Baltimore	10 50	11 0	......	0

Duty on gross weight: by French vessels from European ports, 3 francs 85 cent.; from other countries, 2 francs 20 cent. By foreign vessels from any port whatever, 4 francs 95 cent. See Note A.

Commercial tare: 12 per cent. on casks; 2 per cent. on bags.

	Duty Paid.		In Bond.	
	Fr. ct.	Fr. ct.	Fr. ct.	Fr. ct.
Quicksilver, per ½ kil.	......		0 0	0 0

Duty on gross weight: by French vessels from any port whatever, 11 cent; by foreign vessels, 12 1-10 cents. See Exceptions at Note A.

Commercial tare: real.

Rice, Carolina, 1853, per 50 kil.	23 50	32 50	0 0	0 0
Bengal, white	15 0	16 25	0 0	0 0

Duty on gross weight: from India, by French vessels, ½ cent.; by foreign vessels, 4 francs 95 cent.; from elsewhere out of Europe, 1 franc 37½ cent.; from European ports, 3 francs 50 cent.

Commercial tare: 12 per cent. on casks, and 2 per cent. on bags.

Saltpetre, E. I., per 50 kil.	0 0	0 0	36 0	37 0
Nitrate of soda	0 0	0 0	25 55	26 0

Duty on gross weight: by French vessels from East Indies or the South Seas, 55 cent.; from European ports, 11 cent. By foreign vessels from any port whatever, 13 francs 75 cent.; by foreign vessels from countries out of Europe, 4 francs 12½ cent.

Commercial tare: 6 kil. per double bale of the customary form, for saltpetre. For nitrate of soda, 2 per cent., and 2 per cent. allowance for dampness of bags.

Skins, deer, each	0 0	0 0	0 0	0 0

Duty per 50 kil. on gross weight: by French vessels from any port whatever, 55 cent. By foreign vessels, 60½ cent. See Note A.

Spelter, per 50 kil.	18 0	19 0	......	

Duty on gross weight: 5½ cents. per 50 kil.

Sugar, per 50 kil.				
Mart. and Guad. bonne 4e.	55 0	55 50	34 0	34 50
Havana, white	0 0	0 0	33 0	34 0
yellow	0 0	0 0	29 0	32 0
brown	0 0	0 0	23 0	28 0
Porto Rico, Cuba b. 4e.	0 0	0 0	28 0	0 0
Brazil, white	0 0	0 0	29 0	31 0
brown and yellow	0 0	0 0	22 0	28 0
Manilla	0 0	0 0	23 0	28 0

Duty on nett weight: foreign sugars by French vessels from the East Indies above type, 31 francs 35 cent.; at and under type, 29 francs 70 cent.; from European ports, 8 francs 30 cent. more; from elsewhere, above the type, 33 francs; at and under type, 31 francs 25 cent. per 50 kil. 10e. included. By foreign vessels above type, 41 francs 25 cent.; at and under type, 39 francs 6 cent.; from everywhere, per 50 kil., 10e included.

Custom-house tare: on chests, 12 per cent.; on single bags, 2 per cent.; on double bags, 4 per cent.

Commercial tare: Havana and St. Yago chests, 13 per cent.; Brazil, 15 per cent.; on casks, 15 per cent.; tierces, 6 per cent.; barrels, 19 per cent.; 2 per cent. on Brazil, and 8 per cent. on Manilla bags.

Tallow, Russian, per 30 kil.	60 0	64 0	0 0	0 0
New York	......		0 0	0 0
Plata	58 0	60 0	0 0	0 0

Duty on gross weight: by French vessels from any port whatever, 11 francs. By foreign vessels, 14 francs 30 cent. See Note A.

Commercial tare: 12 per cent.

Terra Japonica, per 50 kil.				
brown	46 0	50 0	0 0	0 0
yellow	46 0	50 0	0 0	0 0

Duty on gross weight: by French vessels from East Indies, 5½ cent.; from European ports, 19 francs 80 cent.; from elsewhere, 12 1-10. By foreign vessels, 27½ cent. See Note A.

Commercial tare: real.

Teas, Imperial, per ½ kil.	0 0	0 0	2 10	5 50
Gunpowder	0 0	0 0	2 0	7 50
Hyson	0 0	0 0	2 0	5 0
Young Hyson	0 0	0 0	1 0	2 50
Hysonskin	0 0	0 0	1 80	2 60
Pekoe	0 0	0 0	3 50	8 0
Souchong	0 0	4 0	1 25	4 50
Pouchong	0 0	0 0	1 0	2 0

Duty on nett weight: by French vessels from the East Indies, 82½ cent.; from China, 66 cent.; from elsewhere, 2 francs 75 cent. By other vessels from any port whatever, 3 francs 30 cent. See Note A.

Custom-house and commercial tare: real.

Tin, strait, and banca, p. 50 kil.	110 0	122 50	0 0	0 0
British	115 0	120 0	......	
South American	100 0	110 0	......	

Duty on gross weight: by French vessels from the East

Indies, 5½ cent.; from elsewhere, 1 franc 10 cent. By foreign vessels from any port whatever, 2 francs 20 cent. per. 30 kil. See Exceptions at Note A.

Commercial tare: on casks, real.

	Duty Paid.		In Bond.	
	Fr. ct.	Fr. ct.	Fr. ct.	Fr. ct.
Whalebone, per ½ kil.				
South	2 25—	2 17	0 0—	0 0
Polar and north-west	2 57—	2 30	0 0—	0 0

Duty on gross weight: by French vessels from any port whatever, 16½ cent. By foreign vessels, 19¼ cent.

Commercial tare: real. Allowance, 2 per cent. on slabs.

	Duty Paid.		In Bond.	
Woods, per 50 kil.				
Logwood, Campeachy	10 0—	10 50	0 0—	0 0
Honduras	7 50—	0 0	0 0—	0 0
St. Domingo	6 50—	7 50	0 0—	0 0
Fustic Cuba	9 0—	12 0	0 0—	0 0
Carthagena	6 50—	7 50	0 0—	0 0
Sta. Martha	18 0—	20 0	0 0—	0 0
Pernambuco	60 0—	75 0	0 0—	0 0
Jacaranda	0 0—	0 0	0 0—	0 0

Duty on gross weight: Brazil, by French vessels from European ports, 4 francs 95 cent.; from elsewhere, 2 francs 75 cent. By foreign vessels, 6 francs 60 cent. Other dye-woods by French vessels from the French colonies, 44 cent.; from European ports, 2 francs 75 cent.; from elsewhere, 82½ cent. By foreign vessels, 3 francs 30 cent. See Note A. Allowance, 1 to 2 per cent.

Explanatory Remarks.—The above duties include the surtax of 10 per cent.; the custom-house admits the real tare whenever the importer desires it.

Note A.—The treaties of reciprocity entered into with the countries hereafter mentioned, introduce the following deviations from the above rates of duty:

United States.—The produce of the United States, except that of the fisheries, direct from the United States in United States' vessels, pays the same duty as if imported by French vessels from the United States.

Brazils and Mexico.—The produce of the Brazils and Mexico, imported direct in national vessels, enjoys also the above privilege.

England.—The produce of Africa, Asia, or America, imported from any country whatever in British vessels, or from any port of the British dominions in Europe either in French or foreign vessels can only be admitted in bond for re-exportation.

The same regulation is applicable to all European produce (except that of Great Britain and its possessions in Europe) imported by British vessels from other ports than those of Great Britain or its possessions in Europe.

The weight of 50 kilogrammes is equal to 110¼ pounds English, or 100 pounds English are equal to 45 35-100 kilogrammes, and the cwt. equal to 50 79-100 kilogrammes.

Credit.—Four and a half months, exception coffee, pimento, peppers, quicksilver, and clayed sugars, which are sold at 3½ months, and wheat at 2½ months.

China, and places beyond the Sunda Islands.—All natural produce, sugar excepted, imported direct, by French vessels, from countries situated beyond the Straits and the Sunda Islands, either to the north of the 3d degree of northern latitude, or to the east of the 106th degree of eastern longitude, is admitted at four fifths of the lowest rates of duty of the tariff, the French colonial duty alone excepted.

Hawkers and Peddlers. It is not very easy to distinguish between hawkers and peddlers. Both are a sort of itinerant retail dealers, who carry about their wares from place to place; but the former are supposed to carry on business on a larger scale than the latter.

Hawse. The part of the bows close to the cables. The cables pass through the *hawse-holes*, which are made in the timbers, and in the *hawse-piece* outside. When the ship has two anchors down, and the cables diverge from each other, the hawse is said to be *clear;* when crossed by the ship turning half round, there is a *cross* in the hawse. Another cross makes an *elbow;* then a *round turn:* in the last two cases the hawse is said to be *foul.* The process of disengaging the cable is called *clearing hawse.* The danger of a foul hawse is, that if it comes on to blow the cables can not be veered from their friction against each other. This term also denotes any small distance a-head of a ship, or between her head and the anchors, employed to ride her; as, a vessel sails athwart the hawse, or anchors in the hawse of another vessel.

Freshening hawse is veering out a little cable to expose a new surface to the friction in the hawse-hole, or across the cutwater.

Athwart hawse implies across the bows of a vessel at anchor.

Hawse-holes, the holes in the bows of a ship on each side of the stem, through which the cables pass.

Hawser, a large rope, intermediate between the *cable* and *tow-line* of the ship to which it belongs. It is used for various purposes, as warping for a spring, etc.

Hay (Ger. *Hew;* Du. *Hovi;* Fr. *Foin;* It. *Fieno;* Sp. *Heno;* Lat. *Fœnum*), any kind of grass, cut and dried for the food of cattle. The great object in preparing grass for hay is to preserve the green color of the grass as much as possible, and to have it juicy, fresh, and free from all sorts of mustiness. The hay and fodder crops, including the dried blades, shucks, and tops of Indian corn, as well as of the succulent corn plants and other green forage, cultivated solely for *soiling*, or for drying into fodder, chopped straw, the haulm of beans, peas, potatoes, etc., which are by no means inconsiderable, are far the most valuable of any in the United States. The culture of hay is at present principally confined to the eastern, middle, and western States, from which the southern markets are mainly supplied in the form of pressed packages or bales. In the earlier settlement of the Atlantic States north of Virginia, the cattle of the inhabitants were chiefly dependent upon the wild, indigenous grasses—such as the white clover, herd's grass (red top), wire grass, Indian grass (*andropogan*), and the coarser herbage of salt marshes, beaver meadows, and other swampy grounds. In the middle and southern colonies they foraged upon the wild herbage of the country, in the same manner as the existing cattle do on the buffalo grass of Louisiana, Texas, New Mexico, etc., as well as on the leaves boughs, and fruit of trees. The principal indigenous grasses which have been successfully cultivated in the United States are—the Kentucky blue grass, the red top (herd's grass of Pennsylvania), the white clover, and the fowl meadow (or bird grass), the latter of which formerly grew in abundance around Massachusetts Bay, and was much relished by the cows, horses, hogs, and goats of the early settlers, and upon which they thrived.

Production of Hay in the United States.

States.	Clover seed.	Other grass seeds.	Hay.	
	1850.	1850.	1850.	1840.
	Bushels.	Bushels.	Tons.	Tons.
Alabama	138	547	32,685	12,718
Arkansas	90	436	3,976	586
Connecticut	13,841	16,628	516,131	426.704
Delaware	2,525	1,403	30,159	22,483
Florida	....	2	2,510	1,197
Georgia	132	428	23,449	16,970
Illinois	3,427	14,380	601.952	164,932
Indiana	18,320	11,951	403,230	178,029
Iowa	342	2.098	89,055	17,958
Kentucky	3,230	21,481	113,747	88,306
Louisiana	2	97	25,752	24,651
Maine	9,097	9,214	755.889	691,358
Maryland	15,217	2,561	157,956	106,687
Massachusetts	1,002	5,085	651,807	569,395
Michigan	16,989	9,285	404,934	130,805
Missouri	619	4,346	116,925	49,083
New Hampshire	829	8,071	598,854	496,107
New Jersey	28,280	63,051	435,950	334,861
New York	88,222	96,493	3,728,797	3,127,047
North Carolina	576	1,275	145,653	101.369
Ohio	103,197	87,310	1,443,142	1,022,037
Pennsylvania	125,030	53,913	1,842,970	1,311,643
Rhode Island	1,328	3,708	74 418	63,449
South Carolina	376	30	20,925	24,618
Tennessee	5,096	9,118	74,091	31,238
Vermont	760	14,936	866.153	836,739
Virginia	29,727	23.428	369,098	364.708
Wisconsin	483	5,003	275,662	30,938
Total	468,875	416,278	13,805,870	10,248,606

Among the foreign cultivated grasses in this country, the Timothy (herd's grass of New England), ranks pre-eminent. It is said to have received the name of *Timothy* from its first introducer into Maryland, Mr. Timothy Hanson. It is a native of England, and is cultivated as a favorite in Sweden and other parts of northern Europe. The next in extent of cultivation, among our forage crops of foreign origin, is the common red clover, which is widely naturalized, and is diligently cultivated by all good farmers. The precise period of its introduction is not known; but, on the authority of Watson, in his "Annals of Philadelphia," John Bartram had fields of it prior to the American Revolution; and, according to Dr. William Darlington, it was introduced into general cultivation in Chester county, Pennsylvania, between the years 1790 and 1800. Its congener, the creeping white clover, indigenous or naturalized in Europe, is extensively cultivated in the middle and northern States from imported seed. The other Europen grasses, which have been only partially introduced into this country, and which have met with favor, are the cock's-foot, or orchard grass, and the perennial ray grass. The latter affords a tolerably good pasture, and makes a handsome sward for a yard or lawn; but as a meadow grass for hay it is regarded as inferior in value to any of the preceding. According to the census returns of 1840, the hay crop of the United States was 10,248,108 tons; of 1850, 13,838,579 tons, showing an increase of 3,590,470 tons.

Hayti, Haiti, San Domingo, or **Hispaniola,** one of the largest and most fertile of the West India Islands, extending in length from east to west 390 miles, and in breadth from 60 to 150 miles, is situated between lat. 17° 37′ and 20° 0′ N., and between long. 68° 20′ and 74° 28′ W. It is called Hayti, or the Highland country, by the natives, from the mountains with which it abounds, especially in the northern part. The country was formerly divided between the Spaniards, who were the earliest European colonists, and the French. The line of demarcation which separated these two divisions commenced on the south side from the Pedernales or Flint River, and extended in a waving direction to the River Massacre on the north side. The country to the west of this line belonged to the French, while that on the east side formed the Spanish part of the island. By far the greatest portion of the country was in the possession of the Spaniards; their division being reckoned 220 miles in length by 120 in breadth, of which, though a considerable part consists of mountains, these are said to be little inferior in fertility to the champagne country, and to be equally capable of cultivation. The French division is of an extremely irregular figure. The land is deeply penetrated by the Gulf of Gonaive, and is in some parts 170 miles in length, while in others it is not 30. It is nearly of the same breadth as the Spanish division.

A great part of the coast of this island is rocky and dangerous, affording but an imperfect shelter to vessels overtaken by storms. Many of the shipping-places on the southern shore are nothing more than open bays, which lie exposed to the storms and hurricanes of the autumnal months. The harbor of San Domingo, formerly thought so commodious and secure, has become too shallow to admit vessels of large burden. There are, however, besides roadsteads and several small harbors, the Bays of Neyba and Ocoa on this coast. Into the former flows the River Neyba, which receives vessels of 30 tons' burden: its stream before entering the ocean divides itself into various channels, which, annually changing, confound the pilot, and render the navigation difficult. Ocoa Bay is a large and convenient watering-place, with several small rivers falling into it. The entrance is two leagues across, and it gradually widens to nearly six. On the east side of this bay is the safe and capacious port of Caldera. On the south-east coast is the great Bay of Samana, which, in point of size and situation, is one of the most important on the island. From Cape Raffael, which forms the southern point of entrance into the Bay of Samana, to the opposite side of the island or peninsula of Samana, the distance is 18 miles, which is closed in by bulwarks of rocks and sand, the entrance only being left clear, with a safe and deep channel between the shore of Samana and several detached islands. This bay is about 60 miles long, and is surrounded on every side by a fertile country, suited to all the purposes of trade. Within the compass of this bay whole fleets might ride at anchor in perfect security. The River Yuna, after being joined by the Cambu, and meandering through the rich plains of La Vega Real, falls into the Bay of Samana after a course of nearly 100 miles. Bahia Ecossaise, or Scotch Bay, which is situated on the north side of the peninsula of Samana, is a dangerous rocky place. Thence to Puerto Plata the coast extends about 60 miles in a north-westerly direction, and in this space stands Balsama Bay, which has only 14 feet depth of water, and is of difficult navigation. The harbor of Puerto Plata was first discovered by Columbus: the entrance is narrow, but safe, and the neighborhood is rich in every species of timber-trees. There are several other small harbors and bays on this side of the island, but the coast is in general rocky and dangerous.

Soil and Surface.—A country of such magnitude as Hayti, containing mountains of great height, with valleys of corresponding extent, necessarily comprises great variety of soil. In general, however, it is fertile in the highest degree, being everywhere drained by copious streams, and yielding in abundance every species of vegetable produce which can minister either to the luxury or comfort of man. The soil consists principally of a rich clay, sometimes mixed with gravel, lying on a substratum of rock. That part of the island formerly occupied by the French is mountainous, but fertile and well wooded, and containing mines both of silver and iron. The Spanish part of the island is mountainous in many parts; while in other parts the country is spread out into extensive plains. These are generally in a state of nature, covered with herbage, or with woods of immense growth and the most luxuriant foliage. The mountains intersect the island in two principal chains from east to west. From these secondary and partial ridges diverge irregularly in different directions, forming beautiful and fertile valleys, with numerous streams. The highest mountains of the interior, particularly those of Cibao, rise to the height of 7200 feet above the level of the sea. To the north of the capital is the valley called Vega Real, or Royal Plain, which is by far the largest and finest in the island. Westward it extends to the old French line of demarcation, and in this part it is drained by the River Yacki; to the east, where the River Yuna flows for the space of 50 miles, it projects to the head of the Bay of Samana, and is drained by numerous smaller streams, which cross it in various directions. This valley may be said to extend in length about 140 miles, and in breadth from 20 to 30. Other plains also, of less extent, but of equal fertility, and of easy access, are everywhere found interspersed among the mountainous tracts. Westward from San Domingo, along the southern coast, is the valley of the River Banis, extending from Nisao to Ocoa. Here the pasture is good; but the country is not so well watered as in the other parts of the island; an incovenience which is sensibly felt by the cattle during the dry months. Further to the westward and to the north other valleys are found; but where the land, as in this island, is everywhere intersected by ranges of mountains, it is impossible, in any general sketch, to describe particularly that continual succession of hill and dale which diversifies the face of the country. Eastward from the capital are those immense plains called *Los Llanos*, which stretch out to a vast extent on a dead level. They are covered with herbage, and the eye wanders unobstructed over the wide expanse of waving grass, which is occasionally diversified by natural clumps of shrubs. These plains occupy almost one sixth part of the island, extending nealy to its eastern coast, being a distance of more than 90 miles, by about 30 wide. They form an immense natural meadow, covered with pasture for vast herds of cattle which belong to more than 100 different owners.

Climate.—San Domingo has a hot moist climate, but the heat is mitigated by the regularity of the sea-breeze, and by the contiguity of the mountains. In the plains the thermometer rises to 96°, sometimes to 99°, but in the mountainous tracts it seldom rises above 78°. In the most elevated part a fire is frequently necessary. In those situations meat may be kept for several days, and in the morning hoar-frost is frequent. The seasons, as in tropical countries, are divided into the wet and the dry. The rains are periodical, and are heaviest in May and June, when the rivers, which at other times scarcely supply water for a continued stream, overflow their banks, and, with an impetuous torrent, sweep over the neighboring plains. The climate of San Domingo is unhealthy to Europeans, owing to the violent heats and heavy rains; and hence all metals, however bright their original polish, soon contract a tarnished appearance. This is more observable on the sea-coast, which is also more unhealthy than the interior of the island. Hurricanes are not frequent, but in the southern parts of the island violent gales of wind, generally preceded by a closeness and sultriness in the atmosphere, frequently occur. These however are not attended with such fatal effects as the hurricanes in the Windward Islands.

Rivers.—The island of Hayti abounds in rivers and smaller streams, which flow from the mountains in the interior, in different directions, to the sea. Of these the principal are the Haina, the Nigua, the Nizao, the Ozama, the Neyba, the Ocoa, the Yane, and the Santiago or River of Monte Christi. Near the south part of the French line of demarcation is the beautiful Lake of Henriquillo, which is about 60 miles in circumference; and though it is about 25 miles from the sea, its water is perfectly salt, and of the same specific gravity as that of the ocean. The same fishes are also found in it, such as the shark, seal, porpoise, etc.

Vegetable Productions.—The fertile soil of Hayti is distinguished by the variety of its vegetable productions, many of which are rare and valuable. The mahogany-tree grows to a great size, and is of very fine quality. The manchineel-tree affords a beautiful species of wood, richly veined like marble, and susceptible of the finest polish. Several species of dye-woods are produced in the forests. There is a tree called the jagua, the fruit of which is accounted a delicacy by the natives; and of which the juice, as clear as water, makes a stain on linen which is indelible. Different kinds of guaiacum are found, as also of several other woods with the same properties, which grow unnoticed and nameless in those unexplored forests. The sideroxylon or iron-wood, remarkable for hardness, as its name implies, is abundant; and the oak also, which differs in appearance from the European oak, frequently furnishes beams of from 60 to 70 feet in length. On the north side of the island are extensive forests of pine, which is much used for the purposes of shipbuilding; and Brazil-wood is found on many parts of the coast. The satin-wood of this island is heavier than that of the East Indies, and it takes so fine a polish that it does not require to be varnished. The cotton-tree is the largest of all the vegetable productions, and is formed into the lightest and most capacious canoes. Every variety of the palm-tree is found in the woods, of which they form a principal ornament. The palmetto or mountain-cabbage is an erect and noble tree, which grows to the height of 70 feet, with esculent leaves at the top. In the congenial soil of this fertile island the sugar-cane, cotton, and coffee-plants, grow in the greatest luxuriance. There is also the calabash, the fruit of which serves as a substitute for earthenware; the plantain, the staff of life in the West Indies; vanilla, which is found indigenous in the unfrequented woods; quassia or simarouba, which is a tall and stately plant, waving gracefully in the wind; sarsaparilla, indigo, tobacco, turmeric, ginger, and rice-plants. The fruits and nutritive roots of San Domingo are nearly the same as those of Jamaica; but they are more abundant, and extremely fine. Of these may be enumerated the choux caraib, or Indian kale, with a variety of other vegetables that come under the same denomination; the avocato or vegetable marrow, the melon, sapadillo, guava, pine-apple, bread, and jack-fruit, mango, nuts, rose-apple, plums, etc., of many different species. Flowers in endless variety and splendor adorn the wild scenery of the woods, and exhale their fragrance in the desert air.

Little is known of the geological structure of the island, but a limestone containing vestiges of marine shells is the prevailing formation. Mineral springs exist in several parts. The most noted in the eastern part of the island are those of Banica, Yaya, and Pargatal; and in the west, the chalybeate of St. Rose, the saline of Jean Rabel, and the alkaline sulphur waters of Dalmarie. The mineral products are various and rich, and include gold, platina, silver, quicksilver, copper, iron, tin, sulphur, manganese, antimony, rock-salt, bitumen, jasper, marble, opal, lazulite, chalcedony, etc. The gold mines of the Chiboa Mountains, which, in the 16th century, were very productive, have been abandoned, and at the present day gold is obtained only from the washings in the northern rivers. None of the mines, indeed, are successfully worked, and hence these sources of wealth are reserved for the industry of future generations.

Animals.—The indigenous quadrupeds of this island were confined to four species, which the Indians called Hutia, Quemi, Mohuy, and Cory. Of these, all are believed to be extinct except the first. Horned cattle, hogs, sheep, goats, horses, mules, and asses, have been introduced from Europe, and have multiplied prodigiously in the wild and extensive pastures of the interior. Wild fowl are abundant, consisting of various species of ducks, pigeons, the flamingo, the wild peacock, the mimic thrush or mocking-bird, the banana bird, the Guinea fowl, the ortolan, and parrots of various species. The rivers abound with fish, some of which are very delicate. Turtle of all kinds are taken, and the land-crab is much esteemed. The serpents are not dreaded; but the centipedes, which are frequent in old buildings, are large and dangerous. The scorpion is rarely seen; but the venomous crab-spider, which is equally dangerous, is sometimes met with.

History.—This island was discovered by Columbus in 1492, and was soon filled with adventurers, who crowded from Europe to the new world for sudden wealth. The natives were reduced to slavery by these settlers, who spread themselves over the island, and by their industry the colony increased rapidly in wealth and prosperity. But as it was chiefly by the desire of gold that settlers were attracted to this distant shore, San Domingo was in its turn abandoned for other countries of greater reputed wealth; and the country gradually declined, and, instead of yielding a revenue, became a burden on the mother country. About the middle of the 16th century the island of St. Christopher was taken possession of by a mixed colony of French and English, who being attacked by the Spaniards, were forced to fly to the barren isle of Tortuga, where they established themselves, and grew formidable, under the well-known appellation of buccaneers. They at last obtained a firm footing in San Domingo, into which they had made only predatory incursions; and by the treaty of Ryswick, that part of the island of which they had obtained possession was ceded to the King of France, who acknowledged these adventurous colonists as his subjects. The French colony languished for a while under the galling restrictions imposed on its trade by the mother country; but these being removed about the year 1722, it soon attained a high degree of prosperity, and was in a very flourishing state when the French Revolution commenced in 1789.

The revenue of Hayti arises chiefly from customs and port-dues, territorial imposts, sale of lands, etc. In 1850 the customs' receipts amounted to £170,000; and in the same year the expenditure amounted to £216,856. The established religion is Roman Catholic; but other forms of worship are not prohibited. Church affairs are superintended by a vicar-general. In 1854 there were in the State 62 schools and 4 colleges, having in all about 9,000 or 10,000 pupils.

Commerce.—The foreign commerce of Hayti is in the hands of foreign merchants, who are permitted to reside only at certain ports, under irksome and injurious restrictions. The foreign commerce does not now exceed £1,000,000 of annual value. The exports are chiefly mahogany and other timber, dyewoods, coffee, tobacco, and cotton. The imports are British cotton and woolen goods, hardware, cutlery, fire-arms, gunpowder, glass, earthenware, etc. From France are imported brandy, wines, silk, and fancy goods. The population of Hayti is estimated at about 740,000.

The emperor has constituted Cape Haytien, formerly Cape Français, the capital and seat of government of the empire. It stands on the north coast, in N. lat. 19° 46′, and W. long. 72° 10′, and contains about 14,000 inhabitants.

Port-au-Prince, the capital of Hayti, or St. Domingo, in lat. 18° 33′ 42″ N., long. 72° 27′ 11″ W. Population variously estimated—probably from 18,000 to 20,000. It is situated on the west coast of the island, at the bottom of a large and deep gulf. It was founded in 1749, since when, with few intervals, it has been the capital of French St. Domingo, as it is now of the entire island. It is partially fortified—the harbor being protected by a battery on a small island, at a little distance from the shore. The country round is low and marshy; and the heat in the summer months being excessive, the climate is then exceedingly unhealthy. The buildings are principally of wood, and seldom exceed two stories in height. The entrance to the harbor is between White island and the southern shore. The depth of water varies from about 18 feet at ebb tide to about 21 feet at full tide. It is customary, but not compulsory, to employ a pilot in entering the harbor. They are always on the lookout. Ships moor head and stern, at from 100 to 500 yards from shore, loading and unloading by means of boats.

The Dominican republic claims for its territory the whole of the Spanish portion of the island. It is divided into five provinces, and has an area of about 17,500 square miles. The Dominicans are almost entirely an agricultural people. The staples of the southern provinces consist chiefly of the products of the forests. In Seybo, however, the raising of cattle is the chief occupation. But by far the most industrious part is the northern, generally called the Cibao, where the staple article is an excellent quality of tobacco. The articles of export are mahogany, satinwood, lignum-vitæ, and brazil-wood, tobacco, hides, etc. The imports are chiefly flour and provisions from the United States, and general merchandise from Europe. The constitution of the republic is based on that of Venezuela. The Congress, which assembles annually, consists of 15 deputies—three from each province—who form the Tribunado or Lower Chamber, and five senators—one from each province—constituting the Consejo Conservador or Upper Chamber. The executive power is vested in a President, who is elected for four years, and who must be a Dominican by birth, and at least 35 years of age. The judiciary is exercised by a supreme court and various inferior and local courts, and the French code has been adopted in legal proceedings. In 1852 the revenue amounted to £76,853, and the ordinary expenditures amount annually to about £51,300. No foreign debt is owing; but there exists a large home debt, on which the currency is based, and which is of low and fluctuating value. The army amounts to 12,000 men, and may be raised to 16,000. The navy consists of three corvettes and five schooners equipped as war vessels, and mounted with 44 guns. The prevailing religion is Roman Catholic, but other denominations are tolerated. Population about 136,500.

The chief seats of commerce are San Domingo city and Samana, a small town on a peninsula of the same name. The city of San Domingo is situated at the mouth of the Ozama, on the southern coast, in N. lat. 18½°, and W. long. 70°, and is the oldest European settlement in the New World, having been built by Columbus in 1504. The population is about 14,000, and the town is defended by substantial fortifications. The cathedral is more than three centuries old. The harbor is capacious, but owing to a bar at its mouth, vessels drawing above 13 feet of water are obliged to anchor in the open roadstead.

Population.—In 1789, the French part of Hayti was by far the most valuable and flourishing colony in the West Indies. The population was estimated at 524,000; of which 31,000 were white, 27,500 people of color, and 465,500 slaves. The Spanish part of the island was much less densely peopled—the number in 1785 being estimated at 152,640, of which 122,640 were free people of all colors, mostly mulattoes, and the rest slaves. The population of the entire island, in 1827, was estimated by Humboldt at 820,000, of whom 30,000 were whites; but there are good grounds for thinking that that estimate was exaggerated, and that the present population does not exceed 600,000 or 700,000.

Exports.—There has been an extraordinary decline in the quantity and value of the articles exported from Hayti since 1789. Sugar, for example, has fallen off from 141,000,000 pounds to almost nothing; coffee from about 77,000,000 pounds to little more than 25,000,000 pounds; cotton from 7,000,000 pounds to perhaps 650,000 pounds; indigo from 758,000 pounds to nothing, etc.! Mahogany is almost the only article the exports of which have increased of late years. The following table illustrates what has now been stated:

A General Table of Exports from Hayti, during the Years 1789, 1801, and from 1818 to 1826, both inclusive.

Years.	Muscovado Sugar.	Coffee.	Cotton.	Cocoa.	Dye-woods.	Tobacco.	Mahogany.	Segars.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.	Feet.	
1789	93,573,300	76,835,219	7,004,274	....	....	....	....	....
1801	18,518,572	43,420,270	2,480,340	648,518	6,768,634	....	5,217	....
1818	5,443,567	26,065,200	474,118	434,768	6,819,300	19,140	129,962	....
1819	8,790,143	29,240,919	216,103	370,439	3,094,409	39,698	141,277	....
1820	2,514,502	35,137,759	346,839	556,424	1,919,748	97,600	[illegible]	....
1821	600,934	29,925,951	820,563	264,792	3,728,186	76,400	[illegible]	....
1822	200,454	24,235,372	592,368	464,154	8,295,080	[illegible]	[illegible]	[illegible]
1823	14,920	33,802,837	332,256	335,540	6,607,308	[illegible]	[illegible]	[illegible]
1824	5,106	44,269,084	1,028,045	461,694	3,858,154	718,679	2,181,747	175,000
1825	2,020	36,034,300	815,697	339,937	3,948,190	[illegible]	[illegible]	....
1826	32,864	32,189,784	620,972	457,592	5,307,745	[illegible]	[illegible]	179,500

Gum Guaiacum, in 1822, 7,338 pounds—1823, 13,056 pounds—1824, 65,092 pounds.

Imports.—The principal articles of import are provisions: such as flour, rice, mess and cargo beef, fish, etc., and timber from the United States; cotton goods of all sorts, Irish and Sotch linens, earthenware, cutlery, ammunition, etc., from England; wines, satins, liqueurs, jewelry, toys, haberdashery, etc., from France, and linens, canvas, gin, etc., from Holland and Germany.

The destruction caused by the excesses which accompanied the revolution explains a part of this extraordinary falling off; but the greater part is to be accounted for by the change in the condition of the inhabitants. The blacks, being no longer compelled to labor, and regarding with abhorrence the culture of sugar and the other occupations in which they had been principally engaged, sunk into a state of idleness and apathy. The condition of all the great branches of industry that were formerly carried on became, in consequence, most deplorable, and the commerce of the island was reduced within the narrowest limits. Its successive rulers have endeavored, though with little success, to bring about a revival of industry. The *Code Rural*, enacted for this purpose by Boyer, 1826, is exceedingly stringent, its principal provisions being in fact copied from the regulations as to slaves embodied in the *Code Noir*. But even this code had little influence; and as a proof of the low state of industry in the island, we need only state that sugar has wholly disappeared from the list of exports, and that the exports of coffee and most other articles seem to be stationary or diminishing. And this result is, after all, only what should have been anticipated. To expect that half-civilized Africans, under a burning sun, and without the wants or desires of Europeans, should be equally industrious, is to expect what is contradictory, and all but absurd.

Commerce with the United States.—There being no treaty between the United States and Hayti, the commerce between the two countries is governed by such local laws and regulations as may from time to time be enacted. These are always subject to changes and alterations, sometimes so sudden—decrees of to-day superseding the laws in force but yesterday—that commercial interests, especially those of the United States, have been, in many instances, most seriously affected. The United States' commercial agent, in a dispatch to the Department of State, written in December, 1849, thus refers to this ruinous uncertainty of Haytien commercial legislation: "There is one subject to which I beg for a moment to draw your attention; that is, the sudden changes in the laws affecting commercial interests. 1. Within the last six months we have had the closing of the ports of Aquire, St. Marc, Miragoane, Port de Paix, and l'Ansed Hainault. 2. An additional duty of five per cent. on coffee, and of seven per cent. on logwood; and, lastly, we have had those modifications in the monopoly law. * * * Almost all these measures were enforced on the day of their publication, merchants only being apprized of the intentions of the government by a vague rumor. With such hasty legislation, the most careful and discreet are entrapped, and thus all calculation defeated, and frequently heavy loss entailed."

Advices more recently received represent but little amelioration in this unsettled state of commercial legislation. It is true, American commerce has been placed on a much better footing than it enjoyed at that period. Up to June 25, 1850, a law was in force subjecting the vessels of all nations that had not acknowledged the independence of Hayti to an additional duty of 10 per cent. The independence of the empire not having been formally recognized by the United States, American vessels were brought within the operation of this law, and could not, in consequence, compete with the vessels of such nations as had satisfied its requirements, even in exporting to Hayti our own staples. In January, 1850, the State Department was officially informed that this reciprocity duty of 10 per cent. additional, was, by a law then lately published, applied to American merchandise brought in vessels of any other nation whatever. This was an advantage to our ship-owners, as one or two vessels, under foreign flags, were then running as packets from the United States to Hayti, and also from the adjacent islands, bringing American goods under the preference of 10 per cent. over American bottoms. It placed the American flag on an equality with that of other nations in the carrying trade of our staples exported to Hayti; and an increased American tonnage engaged in the trade, and a general activity in the commercial movements between the two countries were immediately perceived.

Still, American commerce in this quarter had to encounter a difficulty no less, if not even more, formidable than the discrimination just abolished. This was a decree and accompanying tariff, which took effect January 1, 1850, the 3d article of which was in these words: "The articles designated in the tariff, annexed to the present decree can not be sold above the prices fixed by said tariff." Articles 4, 6, and 8 run thus: "There shall be established in each of the ports of Port-au-Prince, Aux Cayes, Cape Haytien, Jacmel, Gonaives, and Jeremie, warehouses, into which shall be put in dépôt, after having regularly passed through the custom-houses, such articles of merchandise as are designated in the tariff annexed to the present decree."

* * * "Coffee shall only be divided among importers of articles included in the tariff, which division shall be made pro rata, according to the acquired rights of each." * * * "The government reserves to itself the right of retaining, out of the quantity of coffee declared for division, a certain portion, to be disposed of according to the necessities of the moment; such portion shall not, however, exceed one fifth of the existing quantity." The low tariff prices fixed upon most American goods, and those to the Haytiens of the first necessity, when contrasted with the more liberal prices assigned to the merchandise of other nations, almost paralyzed for a time American trade. A dispatch from Aux Cayes, written at that period to the Department of State, says: "While the citizens of France are scarcely affected in their importations to Hayti, the Americans here import, and our merchants at home export, scarcely any article that is free." Still, in the face of these annoyances, and despite the embarrassments which they must have occasioned, one half, at least, of the foreign trade of Hayti is in the hands of American merchants. Naturally indolent, and unhappily deprived of all legislative stimulus to industry and labor, the natives have lost that spirit of emulation and agricultural enterprise which conducted them to a comparatively high state of prosperity under the administration of earlier rulers. The degree of this prosperity, thus attained, may be inferred from the following statement, exhibiting the quantities and values of the produce exported from St. Domingo to France, from January 1 to December 31, 1790. The figures and other data are derived from a rare statistical chart, published in France, by the government, that year, entitled "*Tableau de Douanes et du Commerce de la partie Françoise de St. Domingue.*"

The free population of this portion of the island in 1790 was:—whites, 38,360; blacks, 8370. The number of negroes employed in labor was 455,000. The navigation returns show the number of vessels entered to have been 763, with an aggregate measurement of 55,748 tons; and the number cleared 721, measuring 53,321 tons. The total value of agricultural property, including negroes, stock, etc., in the French division, in 1790, is stated at about $208,297,600. The number of coffee plantations was 2810; of cotton, 705; of indigo, 3097; and of cocoa, 69.

QUANTITIES AND VALUES OF PRODUCE EXPORTED FROM ST. DOMINGO (CHIEFLY FROM THE PORTION NOW COMPRISED WITHIN THE LIMITS OF HAYTI), FROM JANUARY 1 TO DECEMBER 31, 1790, WHILE A COLONY OF FRANCE.

Products.		Quantities.	Values in livres.
Sugar, white	pounds	70,227,708	67,670,781
" brown	"	93,177,512	49,041,567
Coffee	"	68,151,180	51,890,748
Cotton	"	6,286,126	17,572,252
Indigo	"	930,016	10,875,120
Cocoa	"	150,000	120,000
Sirup	jars	29,502	1,947,132
Tafia	kegs	303	21,816
Hides, tanned	sides	7,887	78,870
" raw	number	5,186	93,348
Tortoise-shell	pounds	5,000	50,000
Mahogany and Campeche	"	1,500,000	40,000
Value in colonial cur. (livres)		....	199,401,634
Value in British money		....	£5,565,600
Value in dollars		....	$27,828,000

In 1789 Hayti was a colonial possession of France; in 1801 it was under the government of Toussaint; in 1818 and 1819 it was under that of Christophe; and during the residue of the years designated in the statement, it was under that of President Boyer.

The following statement exhibits the quantities of coffee, cotton, cocoa, logwood, and tobacco exported from Hayti from 1835 to 1849 (1842 excepted), both inclusive:

Years.	Coffee.	Cotton.	Cocoa.	Logwood.	Tobacco.
	Pounds.	Pounds.	Pounds.	Pounds.	Pounds.
1835	48,352,371	1,649,717	397,321	13,293,737	2,086,606
1836	37,622,674	1,072,555	550,484	6,767,902	1,222,716
1837	30,845,400	1,013,171	266,024	6,036,238	890,569
1838	49,820,241	1,170,175	453,418	7,887,936	1,995,049
1839	37,889,092	1,635,420	477,414	25,946,068	2,102,791
1840	46,126,272	922,575	442,365	39,283,205	1,725,389
1841	34,114,117	1,591,454	640,616	65,071,391	3,219,690
1843	44,900,554	448,422	708,827	23,563,904	1,715,816
1844	45,884,908	914,835	513,448	47,405,120	171,585
1845	41.002,571	557,480	836,004	68,181,588	5,609
1846	33,508,179	570,061	630,102	59,933,868	576
1847	48,388,699	525,083	1,171,520	32,795,670	....
1848	37,630,435	411,463	905,895	36,340,072	....
1849	30,608,343	544,126	664,516	86,232,580	....
Total	566,693,856	13,026,547	8,657,954	498,740,279	14,336,346

The total quantity of acajou—a species of mahogany—exported during 11 of the years designated was 48,143,272 lbs. The exportation of pitre—a species of aloes, which furnishes a substitute for hemp and flax—appears to have commenced in 1846, and, in the four ensuing years, had amounted to an aggregate of 412,874 lbs. In 1835, 8500 cigars; 1097 lbs. sugar; 24,951 hides; 31,192 lbs. of rags; 10,993 lbs. of wax; and 8769 lbs. of ginger were exported; while the ensuing year, the figures were, respectively, 33,000, 16,891, 14,891, 275, and 15,509—sufficiently indicative of the great fluctuations to which the foreign trade of Hayti was subject.

A glance at the statements presented will show that a great change took place in the character of the exportation from Hayti during the 60 years between 1789 and 1849. Sugar, indigo, and tobacco, which were staples of export in 1789, had entirely disappeared from the table in 1849; the exportation of coffee and cocoa had (if we except two years) remained nearly stationary, while the exportation of logwood had vastly augmented, and that of cotton had greatly diminished. The quantities of the article last named, imported from Hayti into the United States during the five years ending June, 1855, was as follows:—1851, 12,000 lbs.; 1852, none; 1853, 215,799; 1854, 196,127; 1855, 189,214; exhibiting an aggregate of 613,140 lbs., and an average, each year, of 122,628 lbs.

The quantity of coffee exported in 1850 was about 45,000,000 lbs., while in 1851 it exceeded 50,000,000 lbs.; and in 1852 the quantity produced must have reached 56,000,000 pounds, as the fifth part thereof, claimed by the government, amounted to 11,200,000 lbs. As regards tobacco, since the political division of the island, its culture and its trade are in the hands of the Dominicans. There is, however, considerable traffic in this article at some of the ports of Hayti; but it is imported by the coasters from the ports of the republic. In view of the statistics of Hayti, thus presented, it is evident that the movement of the country has been vastly retrograde since it was a possession of France. In 1789 it exported, as we have seen, 150,000,000 lbs. of sugar, and nearly 1,000,000 lbs. of indigo; in 1849 it exported none; in the former year it exported 77,000,000 lbs. of coffee, and more than 7,000,000 lbs. of cotton; in 1849 the exportation of the former amounted to less than 31,000,000 lbs., and of the latter, to little more than 500,000 lbs.; while the total value of exportations from Hayti, which, in 1789, are given at 205,000,000 francs, 40 years later were but 3,500,000 francs! A foreign resident at the capital of Hayti, in view of these facts, writes as follows, under recent date:—"This country has made, since its emancipation, no progress whatever. The population partially live upon the produce of the grown-wild coffee plantations, remnants of the French dominion. Properly speaking, plantations after the model of the English in Jamaica, or the Spanish in Cuba, do not exist here. Hayti is the most beautiful and the most fertile of the Antilles. It has more mountains than Cuba, and more space than Jamaica. Nowhere the coffee-tree could better thrive than here, as it especially likes a mountainous soil. But the indolence of the negroes has brought the once splendid plantations to decay. They now gather the coffee only from the grown-wild trees. The cultivation of the sugar-cane has entirely disappeared; and the island that once supplied one half of Europe with sugar, now supplies its own wants from Jamaica and the United States."

The following statement exhibits the general navigation and trade of the port of Cape Haytien during the year 1841, and the share thereof assigned to the United States:

Nations.	No. of vessels.	Value of cargoes inward.	No. of vessels.	Value of cargoes outward
United States	40	$283,990	42	$211,620
British	19	145,480	16	161,935
Haytien	3	5,145	1	1,120
French	11	135,410	9	182,780
German	11	112,545	10	256,395
Total	84	$682,570	78	813,850

The trade of the port of Gonaives, during the same year, is given as follows:

Nations.	No. of vessels.	Value of cargoes inward	No. of vessels.	Value of cargoes outward
British	13	$6,995	12	$91,765
French	10	17,525	10	73,270
Danish	1	Ballast.	1	48,420
Hamburg	1	1,420	2	18,985
United States	30	49,850	27	161,930
Total	55	$75,790	52	$394,320

The British vessels engaged in this trade came from Turk's Island, Nassau, St. Thomas, Trinidad, Barbadoes, and Demerara, and were freighted with dry-goods, hardware, crockery, beer, bricks, and provisions; but, as these islands are supplied chiefly with the articles last named from the United States, it is evident that, unless, under positive prohibitions, or under restrictions equivalent thereto, the United States can at all times control the foreign trade of Hayti in this species of merchandise, which the natural indolence or general aversion to agricultural labor of the Haytiens necessitates them to seek from other nations, and renders as indispensable to their comforts, if not to their very existence, in 1855, as in 1841.

The following table exhibits the foreign navigation of Hayti for a period of six years, from 1847 to 1852 both inclusive:

Years.	Vessels.		Tons.
1847	830	....	150,478
1848	678	....	98,376
1849	1,065	....	155,226
1850	1,160	....	162,238
1851	897	....	117,817
1852	995	....	139,529

TABLE EXHIBITING THE NATIONS TO WHICH BELONGED THE VESSELS EMPLOYED IN THE TRADE OF 1849 AND 1850.

Nations.	1849.		1850.	
	Vessels.	Tons.	Vessels.	Tons.
United States..	486	65,554	610	81,054
Belgium.......	19	4.348	13	2,478
Denmark.......	144	23,707	162	21.409
France.........	114	22,591	84	15,797
Great Britain...	253	31,756	204	30,756
Holland........	10	580	37	1.688
Hanse-towns...	28	5,036	31	6,322
Other countries.	11	1,648	19	2,734
Total.......	1,065	155,220	1,160	162,238

The navigation of 1851, compared with that given above for 1850, shows a falling off in number of vessels of 260, measuring 44,421 tons; and the returns for 1852 show a like decrease over those of 1850 of 165 vessels, of 22,409 tons, but an increase over those of 1851 of 98 vessels and 22,012 tons.

General Remarks.—The trade between the United States and Hayti is becoming, every year, more important and necessary to both countries. Heretofore, the imports into the empire from the United States consisted almost exclusively, of provisions, for which were exchanged coffee, logwood, mahogany, etc. Articles of apparel, cotton manufactures, and fashionable goods were supplied chiefly from France, England, Germany, etc. Under the discriminating, or, rather, the reciprocity duty—namely, 10 per cent. additional duty upon the cargoes of vessels belonging to nations that have not recognized the independence of Hayti —United States' merchants offered no serious competition to those of the privileged nations, except in regard to such merchandise as was indispensable to the natural wants of the Haytiens, and in respect to which our undisputed monopoly of the trade enabled our merchants to countervail the discrimination, and still maintain a brisk and profitable trade. In cotton and other manufactures, and general cargoes, the British and French held the first rank in the Haytien markets. With the abolition of the reciprocity duty, the United States' flag entered the Haytien ports on terms of perfect equality with those of other nations; and our merchants, at once, disputed the pre-eminence hitherto held by other nations in the general trade of Hayti. American cotton and other manufactures filled the warehouses at the different ports; and, from the superiority of their quality, and the lower price at which they could be sold, were soon generally preferred and sought after by Haytien purchasers. Instead of occupying, as heretofore, the third or fourth rank among foreign nations traaing with this country, the United States now claim fully one half of its entire foreign commerce.

The French authority which has already been quoted in this Digest, says: "Favored by their proximity to Hayti, the Americans are determined on reducing the price of their salt provisions, their flour, soap, etc., to so low a figure, that European competition is out of the question. They export from their warehouses at New York,* at low prices, wines, hardwares, hats, caps, French silks, English manufactures, etc. They also furnish the Haytiens with the oils and pastes of Italy, and monopolize the sale of candles, tapers, cheese, and timber for building. They maintain the same superiority in the export trade. They take three fourths of the different woods cut in Hayti, two thirds of all the coffee exported, and are the exclusive exporters of pitre, fustic, and nearly so of tortoise-shell. In fine, the commercial superiority of the United States extends over every part of the empire, and, in its rapid progress, bids fair to exclude altogether the vessels, as well as the merchants of Europe. * * *

"Among the countries with which the United States have commercial intercourse, Hayti holds the ninth rank as respects tonnage. All the States are more or less interested in the Haytien trade. The north-eastern States find a market there for their fish and other merchandise; Pennsylvania, northern Virginia, Maryland, Ohio, Indiana, Kentucky, Illinois, and Missouri, for their salted pork; Vermont, New York, Massachusetts, Illinois, and Ohio, for their salted beef; Philadelphia and Boston, North and South Carolina, Virginia and Kentucky, for their household furniture, their rice, and tobacco. The manufacturers of New England, New York, and Pennsylvania, have already secured an extensive market in Hayti for their cheap cotton textiles, and successfully compete with European manufactures."

The extent and value of the commerce of the United States with the island of San Domingo, in the year ending 30th June, 1856, was as follows:

Imports into the United States..................		$1,924,259
Exports from the United States,		
Domestic produce and manufacture	$1,862,823	
Foreign produce and manufacture	263,621	
		2,126,454
Total value of commerce........................		$4,050,713

"The official returns of the United States show that Mexico, with a population of 8,000,000, imported from the different ports of the Union, in 1851, less by $335,507 than Hayti.* The trade of the United States with the latter country is, therefore, more profitable than that with Mexico; indeed, American vessels generally return in ballast from Mexican ports, or go to other States in search of freight; while in Hayti they always find cargoes, if not of coffee, at least of acajou, campeche, and pitre, which are always in abundance. In 1851, the United States exported to Hayti cotton goods valued at $296,000, while the value of similar merchandise exported to Cuba reached only $26,000. The soap exported from the United States to the former country exceeded 1,928,682 boxes; to the latter, only 389,748. Hayti receives from the United States three times as much flour as Cuba, and six times as much salted pork."

With the exception of the errors already noted, and a few others of the press, the article in the French statistical work, of which the preceding summary gives the substance, presents a generally accurate review of the commerce of the United States with Hayti. Notwithstanding the United States has not yet recognized the independence of Hayti, nor entered into any treaty with its government, the restrictions and petty annoyances to which our merchants and citizens in that country have heretofore been subjected are now removed, and the fruits of this more liberal and friendly feeling are witnessed in our annually increasing commerce, and the preponderance of, and preference for, American merchandise in the market of Hayti. This liberal state of things may, however, at any moment, change. In the absence of any commercial treaty between the two countries, our relations with Hayti are dependent on the will or caprice of the emperor. In this respect, France and England are on a safer footing than the United States.

It is stated, on the authority of private letters from Port-au-Prince, that the emperor has recently published an edict prohibiting the further cutting of mahogany, and also the transportation to the sea-board of what wood is now cut in the interior. The reason assigned for this measure is, that his majesty wishes to turn the attention of his people more to the cultivation of their fields and the production of provisions, the quantity of which grown in the empire is insufficient for the supply of the inhabitants.

---

* An official return of American trade at one port, "Cape Haytien," for only six months, shows that, during that period, American vessels arrived from 17 different ports of the United States!

* There is an error in the text in reference to our trade with Mexico for 1851. The book from which the figures are taken, makes this difference $15,189 more than is given above. Thus, total trade with Hayti in 1851, $3,737,258; total trade with Mexico in 1851, $3,386,652; difference in favor of Hayti, $350,606; difference as per text, $335,507; error in text, $15,189.

The importation into the United States from Hayti, of mahogany and other cabinet-makers' wood, is diminishing in value. In 1850, it reached $65,331; in 1853, $105,322; and in 1855, it fell to $49,507. In 1856 the amount was larger, and reached $60,679.—*U. S. Com. Digest.*

The commercial statistics of the empire and republic, as supplied by the Register of the United States Treasury, are not separated, and hence the commerce of the island with the United States must be considered in the aggregate.

COMMERCE OF THE UNITED STATES WITH HAYTI, FROM OCTOBER 1, 1820, TO JULY 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Export.	Import.	American.	Foreign.
Sept. 30, 1821	$1,740,383	$530,218	$2,270,601	$2,246,257	$60,164	$504,409	46,171	547
1822	1,746,107	373,704	2,119,811	2,341,817	1,525	229,439	43,167	946
1823	1,670,140	708,642	2,378,782	2,352,733	104,697	55,502	37,480	830
1824	1,901,926	463,229	2,365,155	2,247,235	51,462	169,027	46,267	489
1825	1,648,055	406,560	2,054,615	2,065,329	21,100	61,235	39,866	465
1826	1,252,910	166,584	1,414,494	1,511,836	....	126,945	32,209	1,468
1827	1,162,473	169,436	1,331,909	1,781,309	....	47,132	25,720	3,774
1828	1,123,405	209,306	1,332,711	2,163,585	20,553	69,703	24,727	5,863
1829	814,987	160,171	975,158	1,799,809	8,483	46,033	18,164	2,988
1830	714,791	108,387	823,178	1,597,140	....	81,718	19,395	1,748
Total	$13,775,177	$3,291,237	$17,066,414	$20,107,050	$267,939	$1,341,143	333,166	19,118
Sept. 30, 1831	$1,126,698	$191,677	$1,318,375	$1,580,578	$11,032	$35,714	27,807	1,066
1832	1,243,510	425,493	1,669,003	2,053,386	800	16,150	29,990	1,279
1833	1,147,809	280,154	1,427,963	1,740,058	6,395	22,073	28,425	656
1834	1,244,424	192,528	1,436,952	2,113,717	6,965	13,609	32,682	517
1835	1,538,475	277,337	1,815,812	2,347,556	....	11,270	38,274	847
1836	1,054,974	185,065	1,240,039	1,828,019	53,544	67,299	24,263	848
1837	871,938	140,043	1,011,981	1,440,856	38,347	9,940	17,642	1,332
1838	814,421	95,834	910,255	1,275,762	83,373	6,408	15,066	2,914
1839	991,265	131,294	1,122,559	1,377,989	216,458	3,102	21,031	2,047
1840	945,365	81,849	1,027,214	1,252,824	163,510	16,488	20,663	2,818
Total	$10,978,879	$2,001,274	$12,980,153	$17,010,745	$580,324	$202,053	255,843	14,264
Sept. 30, 1841	$1,093,634	$61,923	$1,155,557	$1,809,684	$187,167	$10,900	26,904	763
1842	844,452	55,514	899,966	1,266,997	68,148	36,264	21,115	363
9 mos. 1843	610,796	42,574	653,370	898,447	37,898	87,138	16,606	717
June 30, 1844	1,082,807	45,549	1,128,356	1,441,244	63,016	90,468	26,710	649
1845	1,327,891	77,849	1,405,740	1,386,367	55,544	237,617	27,919	594
1846	1,114,013	43,129	1,157,142	1,542,962	90,001	260,272	28,425	1,642
1847	1,187,017	111,756	1,298,773	1,391,580	39,062	217,725	27,959	2,500
1848	937,586	156,229	1,093,815	1,367,174	13,787	42,955	23,340	2,649
1849	532,577	70,015	602,592	901,724	37,776	42,174	16,556	4,552
1850	1,211,007	139,181	1,350,188	1,544,771	164,687	13,123	29,981	8,127
Total	$9,941,780	$803,719	$10,745,499	$13,550,950	$757,086	$1,038,636	240,515	22,496
June 30, 1851	$1,679,372	$167,918	$1,847,290	$1,889,968	$181,494	$111,183	33,152	7,586
1852	1,479,326	239,577	1,718,903	1,870,672	90,098	37,125	32,365	7,329
1853	1,738,413	260,520	1,998,933	1,985,624	134,609	34,734	31,369	6,124
1854	1,880,187	329,538	2,209,725	2,357,252	45,634	23,845	38,245	4,797
1855	1,929,334	315,718	2,245,052	2,615,525	60,373	10,956	37,193	9,051
1856	1,862,823	263,631	2,126,454	1,924,259	104,095	16,949	34,260	4,750

Port Charges.—The charges on a native and a foreign ship of 300 tons are the same, and as follows:

Tonnage duty	$300 00
Administrator	12 00
Commandante de place	12 00
Commissaire de guerre	12 00
Commandante de port	12 00
Director of customs	12 00
Interpreter	12 00
Treasurer	12 00
Doctor	12 00
Stamps for entry and clearing	16 50
Fountain tax	20 00
Pilotage	2 00
Total, currency	434 50

Custom-house Regulations.—On arrival, the master of the vessel proceeds to the custom-house with the interpreter, where he makes his declaration whether he discharges the cargo in the port. If he discharge, his invoices are translated, and the goods verified in the presence of the consignee, who is allowed to land and store them. On clearing outward, the merchant pays the duties on the cargoes both ways, and exhibits a receipt at the office of the commissaire de guerre, commandante de place, and commandante de port, who sign a certificate that the vessel may depart.

Warehousing.—The warehousing and bonding system is established by law, but there are at present no buildings appropriated to the reception of bonded goods. Until very recently, goods were permitted to be bonded under this law in the merchants' stores; a late order has, however, suspended that indulgence. The rate is 1 per cent. per year, and no allowance made for waste or loss. Goods exported in the same vessel they arrive in, pay, if landed, ½ per cent. and wharfage fees.

Money.—The weight of the dollar is 216 grains; the ½ and ¼ dollar being in proportion. But nearly ½ the weight of the coin consists of tin or other alloy; so that the value of the dollar does not exceed 1s. 6d. sterling.

Weights in Hayti are divided as in avoirdupois and apothecaries' weight; but they are about 8 per cent. heavier than British weights.

Measures.—Same as those used in France.

Regulations as to Trade.—It is enacted, that all persons exercising any trade or profession, excepting that of cultivating the soil, must be provided with a patent or license to carry on such trade or profession; that all strangers admitted as merchants into the republic must, in the first place, procure the permission of the president to take out a patent, which, when obtained, only authorizes them, under heavy penalties, to carry on a wholesale business, not with each other, but with the Haytians, in the open ports, which are Port-au-Prince, Gonaives, Cape Haytien, Port-à-Plate, Santo Domingo, Jacmel, Les Cayes, and Jérémie. The minimum quantities of goods that may be sold are fixed by the same law. The Haytian consignee may be also a retailer, on taking out a corresponding patent.

A charge of 2000 dollars is made for each patent to a foreigner trading to Port-au-Prince; $1800 for Les Cayes, Cape Haytien, and Jacmel; and $1600 for each of the remaining ports.

Duties.—The duties on all imported commodities consigned to foreign merchants are 17½ per cent. on an established tariff, whether they be brought in native or foreign ships, with the exception of those from the United States, which pay an additional 10 per cent. on the amount of the duties. Goods consigned to native merchants pay only 16½ per cent.

The following articles are duty free in all bottoms: Shot of all sizes, grenades, howitzers, bomb-shells, and other projectiles of artillery; iron and bronze cannon, mortars, muskets and bayonets, carbines, pistols, and cavalry sabres, briquets, or short swords for infantry; machines and instruments for simplifying and facilitating the cultivation of the soil, and the preparation of its products; horses and cattle, mules, asses; gold and silver coin; classical and elementary works, sewed in boards, or bound in parchment, for the instruction of youth.

The following is a list of articles absolutely prohibited, without reference to their place of growth: Mahogany, logwood, lignum vitæ, fustic, coffee, cotton, wool, cacao, raw and clayed sugar, rum, tafia, syrup, molasses; canes, whips, and umbrellas, containing swords, stilettoes, or other arms; books and other works opposed to good morals.

Besides the export, there is also a territorial duty levied equally on the produce of the soil, whether exported in national or foreign ships.

The export of the following articles is strictly prohibited: Gold and silver coin, side and fire-arms, munitions, and other articles of war; old or new iron, copper; horses, brood mares, mules, asses, and wood for ship-building.

The coasting trade is entirely confined to Haytian citizens.

The following tabular statement exhibits the foreign trade, import, and export, of Cape Haytien for the year ending December 31, 1852:

Statement of Imports at Cape Haytien, from January 1, to December 31, 1852.

Flag.	Where from.	Sloops.	Schooners.	Brigs.	Ships.	TOTAL.		Amount invoices, Spanish currency.	Total invoices, Spanish currency.	Duties paid, Spanish currency.
						No. of vessels.	Tons.			
								Dollars.	Dollars.	Dollars.
American........	United States.....	..	23	14	..	37	4,360	211,691 50	220,000 39	46,826 80
English..........	"	..	..	1	..	1	122	8,308 89		
Hanover.........	"	..	1	..	..	1	152			
Oldenburg.......	"	..	..	1	..	1	250			
						40	4,884			
Oldenburg.......	Bremen...........	..	4	..	..	4	420	40,910 04	92,966 24	10,435 94
Danish..........	Hamburg..........	..	1	..	..	1	109	52,056 20		13,148 45
Hamburg........	"	..	..	1	1	2	387			
"	Coastwise.........	..	..	..	1	1	130	....		
Danish..........	"	..	..	1	..	1	127	....		
						9	1,173			
French..........	France...........	..	..	3	2	5	796	....	55,598 88	10,907 16
"	Coastwise.........	..	..	..	3	3	610			
						8	1,406			
French..........	St. Thomas.......	..	..	1	8	9	2,079	9,838 58	38,770 10	11,368 50
English..........	"	1	1	1	..	3	209	2,527 00		
Danish..........	"	2	..	..	1	3	193	22,404 52		
Haytian...... ...	"	1	..	..	..	1	49	4,000 00		
Prussian.........	"	..	..	..	1	1	287	....		
Hamburg........	"	..	..	..	1	1	233	....		
						18	3,050			
English..........	Liverpool...	..	..	1	..	1	133	13,786 00	34,452 15	8,623 37
Belgian..........	"	..	..	1	..	1	141	20,666 15		
English..........	Coastwise.........	..	..	2	..	2	317	....		
						4	591			
English..........	Turk's Island......	2	2	..	..	4	165	....	246 00	216 95
Total........	....	6	32	27	18	88	11,269	....	442,033 76	101,527 17

Cape Haytien.—This port has not yet entirely recovered from the effects of the earthquake of 1842, nor has its general commerce regained the high rank which it held prior to that period. Still, its navigation is not unimportant. In 1850 there entered and cleared 55 vessels, with an aggregate of 8509 tons more than in 1849. In 1829 the imports at this port amounted to 2,500,000 francs, and in 1850 to 3,343,168 francs. The large bulk of this trade is in the hands of American merchants. A French statistical work, referring to this fact, offers two explanations of the great preponderance of American trade, not only at this port, but in Hayti generally, as follows: "The United States conduct about one half of the foreign navigation of Hayti. In 1850 their progress was accelerated beyond all precedent, showing an augmentation over 1849 of 124 vessels, with an aggregate of 15,000 tons. The facility with which they open with their neighbors a credit which is often refused them in Europe, together with the efforts of their propagandists of different sects scattered over the island, is eminently favorable to the increase of American influence." If there were even any plausibility in this suggestion, it would prove, perhaps, more than the author intended; for, ambitious as France confessedly is, and has ever been, to extend her commerce, and foster her mercantile interests, even by restrictions and discriminations, which are now almost universally discarded, the assertion of her statistician, above quoted, would imply that this source of American commercial preponderance in Hayti was not available to her; but some other cause must be looked for, in view of the fact, that, while American merchants do sometimes—nay, very frequently—"give credit" to their consignees and purchasers in Hayti, they invariably pay *cash*, or its equivalent, for all their exports. For such articles as are monopolized by the government, the Haytian law is peremptory as to that mode of payment.

The other explanation assigned is more reasonable. It is in these words: "Always on the look-out for new sources of trade, the Americans purchase at Cape Haytien red-peppers, and orange and lemon peel. This new branch of trade, as well as the purchase of rags, has succeeded beyond expectation. Many houses at New York receive full cargoes of these descriptions of merchandise, actually *priceless* in Hayti, on which they realize large profits." This is, at least, a more commercial explanation; and, taking it to be true, as there is no evidence to the contrary, it shows that our merchants are determined to maintain their present relations with Hayti, even if they must take in part, in exchange for their provisions, their lumber, their hardware, their cotton goods, and their French wines and haberdashery, such *valueless* goods as the raw material for the consumption of their 750 paper-mills, at any one of which their rags will always command a ready sale at four cents per pound, and raw material for the manufacture of bergamot and various useful and costly essences. These 750 mills, the number in the United States in 1852, manufacture 270,000,000 pounds of paper annually, valued at $27,000,000, and consume each year 405,000,000 pounds of rags, for which our seamen have to sail to every quarter of the globe. See article on ITALIAN STATES; see, also, article on PAPER.

STATEMENT OF EXPORTS FROM CAPE HAYTIEN, FROM JANUARY 1, TO DECEMBER 31, 1852.

Flag.	Where for.	Ships.	Brigs.	Schooners.	Sloops.	Total.		Logwood.	Coffee.	Cocoa.	Mahogany.	Tobacco.	Duties paid, Haytien currency.
						No. of vessels.	Tonnage.						
								Lbs.	Lbs.	Lbs.	Feet.	Lbs.	Dollars.
American...	United States...	..	13	24	..	87	4,439	4,433,650	2,616,602	119.191	18,846	....	
English.....	"	..	3	1	..	4	505	812,300	171,884	3.620	7,572	....	
		..	..	..	..	41	4,984	5,245,950	2,788,486	122,811	26,418	....	$252,620 42
French.....	France..........	14	5	..	..	19	4,022	6,847,550	1,786,782	56,947	29	140	164,680 21
Haytien.....	"	1	..	..	..	1	173						
Oldenburg..	Bremen.........	..	1	5	..	6	751	880,500	898,630	22,886	32,537	15,639	69,812 64
Hamburg...	Hamburg.......	1	2	..	..	3	575	526,550	683,896	16,184	31,808	68,927	48,618 07
Danish......	"	..	1	1	..	2	270						
Hanover....	"	..	..	1	..	1	152						
English.....	Liverpool.......	..	2	..	..	2	346	82,000	456,096	....	....	....	17,602 49
"	Falmouth.......	..	1	..	..	1	136	498,800	532,870	17,641	8,080	17,720	32,791 06
Prussian....	For orders......	1	..	..	..	1	287						
Danish,.....	"	1	1	..	..	2	362						
Belgian.....	"	..	1	..	..	1	141						
English.....	Nassau & Inague	..	..	..	2	2	83	4,000	9,332	....	....	....	747 46
Haytien.....	Turk's Island....	..	..	1	..	1	40						
English.....	St. Thomas......	..	..	2	1	3	141	179,000	86,874	103	323	....	7,789 03
Danish......	"	..	..	..	2	2	48						
Haytien.....	"	..	..	..	1	1	49						
Total....	....	18	30	35	6	89	12,470	13,714,350	7,242,966	236.572	99.195	102.426	594.661 38

Head. The fore extremity of a ship. It generally means the cutwater, which is adorned with a figure. *By the head*, implies that the ship's head is depressed in the water. *Head sails*, *head yards*, are the sails and yards in the fore part of the ship.

Headland. In Geography, a term nearly synonymous with cape, mull, or promontory; which see.

Heath, or Heather. In a general sense the term *heath* is applied to waste land in which the prevailing plants consist of one or more of the common species of heath—*Calluna* and *Erica*. (*Calluna vulgaris*, Sal. The *Erica communis* of Linnæus.) This plant covers many hundreds of acres in the Highlands of Scotland, in Ireland, and in similar climates on the Continent. It attains, in many places, the height of 3 or 4 feet; and is used for thatching houses, making besoms, and for a variety of other purposes. The tender tops form a substitute for mattresses in Highland cottages; and they are also eaten green and in a dried state by horses, cattle, and sheep, in countries where the grasses and clovers do not begin to grow till late in the spring.

Heave, in nautical phrase, to employ force to move great weights by the lever, etc.; as *to heave up* the anchor by the capstan or windlass; *to heave down* the ship, or pull her over on one side to get at a leak; also *to heave taught* (tight), or turn the capstan till the rope or chain applied to it becomes tight.

Hebrides, The, or Western Islands of Scotland, consist of about 200 islands or islets, lying between N. lat. 55° and 58′ 51″, and W. long. 5° and 7′ 52″. Their ancient name was *Hebudæ* or *Ebudæ*, and the alteration was simply the result of a printer's error in an early edition of the works of the venerable Bede, published in Paris. From the census returns it appears that in 1851 the number of inhabited islands in the Hebrides was 79, having a population of 116,367; from 20 to 30 more are partially inhabited during the summer and grazing season. The most southern of the group are situated on the Firth of Clyde—as Bute, Arran, the Cumbrays, Lamlash, and Inchmarnoch. The geological formation of these islands includes granite, gneiss, slate, trap, sandstone, and limestone. Arran is peculiarly rich in attractions both to the geologist and botanist, and possesses highly picturesque scenery. The other islands are usually divided into the *Outer Hebrides*, or Long Island, and the *Inner Hebrides*. The former consists of the Lewis, Harris, North and South Uist, Benbecula, Barra, and a number of smaller islands—the whole length from Barra-Head to the Butt of Lewis being about 130 miles. The Inner Hebrides include Islay, Skye, Mull, Jura, Coll, Colonsay, Rum, Tiree, Ulva, Linsmore, etc.

Heel. The after extremity of the ship's keel; also the foot of a mast. *To heel over*, to incline to one side.

Helena, St., an island in the South Atlantic, belonging to Britain; S. lat. 15° 55′ 26″; W. long. 5° 42′ 30″. It is about midway between Africa and South America, 1800 miles from the Cape of Good Hope, and 600 miles from the island of Ascension. Its extreme breadth is 7 miles; and its greatest length 11 miles; its area is 30,300 English acres. The geology of St. Helena is interesting. The island may be considered as the highest peak of a range of mountains traversing the South Atlantic, and is most probably and extinct tertiary volcano. Geologists have been unable to fix with exactness its chronological position. The volcanic forces which have produced the complicated disturbances so conspicuous throughout the island, must have ceased at a very remote period, as it has evidently retained for ages its existing conformation.

The climate of St. Helena, though within the tropics, is temperate and healthy, and not unfavorable even to European constitutions. In James Town (600 feet above sea-level), the thermometer seldom rises above 80°; but in calm weather the heat reflected from the sides of the valley is often oppressive. In the open country the temperature is more uniform and mild, scarcely so hot and never so cold as in England. During some seasons the highest point of the thermometer during the summer has been only 72° in the interior; and the ordinary range during winter from 55° to 56°.

The soil of St. Helena is clayey, and in many places of considerable depth. Vegetation is very luxuriant in the island, which is abundantly supplied with water from 160 excellent wells. In some parts of the island iron ore has been found, but the scarcity of fuel prevents it from being smelted. Gold and copper have been observed in small quantities. Concrete limestone is excellent in quality and abundant. The hills are covered with furze and various indigenous shrubs and trees. Of the latter the most abundant is the gumwood, of which there are three kinds, the common, the bastard, and the dwarf gum-tree. Other native trees are stringwood, dogwood, redwood or ebony, and the cabbage-tree, of which the last two are very durable as building timber. Oaks, cypress, and pinaster, have been introduced into the plantations, and thrive well. The ferns of St. Helena are numerous, and the myrtle grows to the height of 30 feet. The cotton plant also thrives very well. Fruits ripen best in the valleys near the coast, but every farm produces in abundance the common fruits and vegetables both of the tropical and temperate zones. The attempts to grow cereals have not succeeded. Of the 756 species of plants now found in the island only 52 are natives. The cattle, sheep, and goats on the island are of English origin.

St. Helena was discovered by the Portuguese in 1501. They succeeded in concealing the position of St. Helena from other European nations till 1588, when it was descried and visited by Captain Cavendish on his way home from a voyage round the world. Soon after this it became well known to the Dutch and Spaniards. In course of time it was abandoned by the Portuguese, and taken possession of by the Dutch, who in turn abandoned it on the establishment of their colony at the Cape of Good Hope in 1651. On their departure the English East India Company formed a settlement upon St. Helena, and about ten years afterward obtained from Charles II. a charter for its possession. In 1665 the Dutch successfully attacked the island, but in a few months were driven out of it by the English. Again, in 1672, the Dutch recaptured it, through the treachery of the planters; but it was almost immediately recovered by an English squadron, under Captain Munden, and again restored to the East India Company. As the trade of the East India Company increased, the importance of the island became daily more apparent.

But the chief historical interest of St. Helena centres in Longwood House, the residence of the exiled Emperor Napoleon from 1815 till his death, May 5, 1821. The house in which the emperor lived has been allowed to fall gradually into decay ever since his body was removed to France in 1841.—BROOKE'S *History of the Island of St. Helena;* JOHNSON'S *Account of St. Helena;* BEATSON'S *Tracts relative to the Island of St. Helena, etc.* In 1805, the population was 3078; in 1823, 4381 (composed of 1201 whites, 911 in the civil and military establishments, 1074 slaves, 729 free colored, 442 Chinese, and 24 Lascars); in 1839, 4205; in 1849, the total military force amounted to about 1500 regular troops, besides four volunteer companies of white and black militia. Soldiers are sometimes placed at St. Helena to undergo a seasoning previous to being sent to India; and this island and the Cape of Good Hope are the principal stations to which captured slaves are brought, and employed in public works.

Hell Gate, Helle Gatt, or **Hurl-Gate**, formerly a dangerous pass in the strait called the East River, between Great Barn Island and Long Island, near the city of New York. It is formed by projecting rocks, which confine the water to a narrow and crooked channel, occasioning strong eddy currents, dangerous to vessels at certain times of the tide. The channel has been deepened by blasting the rocks, so that there is now 21 feet of water at low tide throughout it.

Helm, implies the mechanism of the steerage, especially the tiller: as, to put the helm *a-starboard*, is to put the tiller over to the right side; *a-port*, to the left side; *up*, to the weather side; *down*, to the lee side.

Helmsman. The man who steers. A good helmsman opposes in time the tendency of the ship to deviate from her course by a small motion, which he relaxes as soon as the effect is felt, and thus disturbs her sailing as little as possible. A bad helmsman gives her too much helm, and keeps her perpetually yawing from one side to the other. The steerage, therefore, is of the utmost consequence in chase.

Hemlock, the *Conium maculatum* of botanists, is an umbelliferous plant possessing narcotic and powerful poisonous properties. It may readily be distinguished from most other umbelliferous plants by the numerous dark purple spots which cover its *smooth* stem and leaf stocks, and by the strong heavy odor, resembling that of mice, which it exhales. The poisonous properties reside in every part of the plant, and are owing to the presence of a peculiar volatile oleaginous alkaloid, called *conia* or *coneine*, capable of forming salts with acids, which are equally energetic as the conia itself.

Hemp (Ger. *Hanf;* Du. *Hennig, Kennip;* Da. *Hamp;* Sw. *Hampa;* Fr. *Chanvre;* It. *Canape;* Sp. *Canamo;* Rus. *Konapli, Konopel;* Pol. *Konope*), a valuable plant (the *Cannabis sativa* of Linnæus), supposed to be a native of India, but long since naturalized and extensively cultivated in Italy, and many countries of Europe, particularly Russia and Poland, where it forms an article of primary commercial importance. It is also cultivated in different parts of America, though not in such quantities as to supersede its importation. It is stronger and coarser in the fibre than flax; but its uses, culture, and management are pretty much the same. When grown for seed, it is a very exhausting crop; but when pulled green, it is considered as a cleaner of the ground. In Great Britain its cultivation is not deemed profitable; so that, notwithstanding the encouragement it has received from government, and the excellent quality of English hemp, it is but little grown, except in some few districts of Suffolk and Lincolnshire. The quantity raised in Ireland is also inconsiderable.—LOUDON'S *Encyc. of Agricult.*

Flax was first planted in England, when it was directed to be sown for fishing-nets, A.D. 1533. Bounties were paid to encourage its cultivation in 1783; and every exertion should be made by the government and legislature to accomplish such a national good. In 1785 there were imported from Russia in British ships, 17,695 tons of hemp and flax.—*Sir John Sinclair.* The annual importations of these articles now amount to about 100,000 tons. More than 180,000 lbs. of rough hemp are used in the cordage of a first-rate man-of-war, including rigging and sails. See FLAX. —*Haydn.*

Exceedingly good *huckaback* is made from hemp, for towels and common tablecloths. Low-priced hempen cloths are a general wear for husbandmen, servants, and laboring manufacturers; the better sorts for working farmers and tradesmen in the country; and the finer ones, ⅞ wide, are preferred by some gentlemen for strength and warmth. They possess this advantage over Irish and other linens—that their color improves in wearing, while that of linen deteriorates. But the great consumption of hemp is in the manufacture of sailcloth and cordage, for which purposes it is peculiarly fitted by the strength of its fibre. English hemp, when properly prepared, is said to be stronger than that of every other country, Russia not excepted; and would, therefore, make the best cordage. It is, however, but little used in that way, or in the making of sailcloth; being principally made into cloth for the uses already stated.

Hemp has been cultivated in Bengal from the remotest antiquity, but not, as in Europe, for the purpose of being manufactured into cloth and cordage.

In the Hindoo economy it serves as a substitute for malt; a favorite intoxicating liquor, called banga, being produced from it! This, also, is the use to which it is applied in Egypt.—MILBURN'S *Orient. Commerce, etc.*

The price of hemp fluctuated very much during the war of 1812. In consequence of difficulties in the way of its importation, it stood at a very high level from 1808 to 1814. This was the principal circumstance that originally brought iron cables into use; and the extent to which they are now introduced, has contributed materially to diminish the consumption and importation of hemp.—TOOKE *on High and Low Prices*, 2d ed., p. 345.

We borrow the following particulars, with respect to the hemp trade of Petersburg, from the work of Mr. Borrisow on the commerce of that city:

Hemp forms a very important article of export from Petersburg, and deserves particular notice. It is assorted, according to its quality, into *clean hemp*, or firsts; *out-shot hemp*, or seconds; *half-clean hemp*, or thirds; and *hemp codilla.* Of the first 3 sorts there are annually exported about 2,000,000 poods, the greatest part in English and American bottoms. It is brought to Petersburg, from the interior beyond Moscow, by water; and its quality depends very much on the country in which it is produced. That brought from Karatshev is the best; next to this, that produced in Belev; hemp from Gshatsk is considered inferior to the latter. As soon as the hemp is brought down in the spring, or in the course of the summer, it is selected and made up in bundles; both operations being performed by sworn selectors (*brackers*), and binders appointed by government for this purpose; and it is a well-known fact, that this is done with great impartiality and exactness. A bundle of clean hemp weighs from 55 to 65 poods; ditto out-shot, 48 to 55 ditto; ditto half-clean, 40 to 45 ditto. (1 pood =36 lbs. avoirdupois.) Binding of hemp is paid for at the rate of 2 roubles 50 copecks for *clean*, 2 roubles for *out-shot*, and 1 rouble 60 copecks for *half-clean*, per bundle; one half is paid by the seller, and the other half by the purchaser, and is charged accordingly by their agents. The expense of selecting hemp is 50 copecks per bercovitz (or 10 poods), and is the same for every sort. To every bundle of assorted hemp is attached a ticket with the names of the selector, binder, and owner, and the date and year. Every bundle has also affixed to it a piece of lead, stamped on one side with the name of the selector, and on the other with the sort of hemp and the time when it was selected. The external marks of good hemp are, its being of an equal green color and free from spills; but its good quality is proved by the strength of the fibre, which should be fine, thin, and long. The first sort should be quite clean and free from spills; the *out-shot* is less so; and the *half-clean* contains a still greater portion of spills, and is moreover of mixed qualities and colors.

As a perfect knowledge of the qualities of hemp and flax can only be acquired by experience and attention, agents usually employ men constantly occupied in this business, by which means they are sure of getting goods of the best quality, and have the best chance of giving satisfaction to their principals; because, although the hemp is selected by sworn selectors, yet, owing to the quantity of business and the speed with which it must be executed, etc., there are often great differences in the same sorts. The charges are in this way somewhat increased; but this is trifling in comparison of the advantage gained. The part separated, or picked out in cleaning hemp, is called *hemp codilla;* it is generally made up in small bundles of 1 pood, which are again, when shipped, bound together in large bundles, each consisting of about 30 small ones. Particular care must be taken to ship hemp and flax in fine dry weather; if it get wet, it heats and is totally spoiled. For this reason every vessel taking in hemp or flax is furnished with mats to prevent its getting damp. Hemp, being light and bulky, is, when stowed, forced into the hold by means of winches, which renders the operation of loading rather slow. It may be taken as a general rule, that the prices of hemp are highest in the months of May, June, July, and the early part of August; the demand for this article being then greatest, and the exportation to North America being principally effected at this season. Again, the prices of hemp are lowest in the month of September; the reason of which is, that the less opulent hemp-merchants return at the end of this month to their own country in order to make new purchases for the ensuing year; and rather than be detained, sell the remainder of their stock some roubles below the market price. This causes a general decline; although an unusual demand for the article happening at the same time, or political events or rumors, occasionally produce a contrary effect. Two large warehouses, called *ambares*, are built in Petersburg for the special purpose of housing hemp, where the greatest order is observed.

Hemp (Manilla) commonly called Manilla white rope. Mr. Crawford gives the following account of this article: "Of the wild banana, one kind (*Musa textilis*) grows in vast abundance in some of the most northerly of the spice islands. In the great island of Mindanao, in the Philippines, it fills extensive forests. From the fibrous bark or epidermis is manufactured a kind of cloth, in frequent use among the natives. It also affords the material of the most valuable cordage which the indigenous products of the Archipelago yield. This is known to our readers and navigators under the name of Manilla rope, and is equally applicable to cables, and to standing or running rigging."—*Hist. of Archipelago*, vol. i., p. 412.

Hemp (Indian), or Sunn and Jute.—Sunn consists of the fibre of the *crotolaria juncea*, a totally different plant from the *cannabis sativa*, which, as already stated, is never used by the Hindoos for cloth or cordage. Sunn is grown in various places of Hindoostan. The strongest, whitest, and most durable species is produced at Comercolly. During those periods of the late war when the intercourse with the Baltic was interrupted, and hemp bore an enormous price, large quantities of sunn were imported; but after the intercourse with the Continent was renewed, the importation of sunn ceased for several years. But within the last dozen years it has been again imported to a considerable extent. It is, however, deficient in toughness.

Jute consists of the fibres of two plants, called the chonch and isbund (*Corchorus olitorius* and *Corchorus capsularis*), extensively cultivated in Bengal, and forming, in fact, the material of which gunny bags and gunny cloth are made. It fetches nearly though not quite as high a price as sunn. It comes into competition with flax, tow, and cadilla, in the manufacture of stair and other carpets, bagging for cotton and other goods, and such like fabrics, being extensively used for these purposes in Dundee. But it is unsuitable for cordage and other articles into which hemp is manufactured, from its snapping when twisted, and rotting in water. The quantities imported, and the prices, have fluctuated very greatly during the last dozen years; but from £12 to £15 a ton appears to be a fair average price. When first introduced into this country, in 1815, the price of jute varied from £35 to £40 a ton. It was then, however, very little used, and did not, in fact, begin to come into any thing like general use as bagging till 1827 or 1828.

China-grass.—The attention of practical men has long been directed to the remarkable qualities of the China-grass, very similar to the Caloee hemp or Rhea fibre of India. This grass is very strong and beautiful in the fibre; and a simple but efficacious mode of preparing it has lately been devised. This method depends chiefly on the solvent powers of a hot solution of carbonate of soda, and is so satisfactory that mixed fabrics are now made with China-grass as one of the component fibres; and there seems scarcely any limit to the probable supply of the grass from India.

Culture in Russia.—Next to the culture of cereals and the rearing of domestic animals, the culture of flax and hemp, both as textile plants and as oleaginous grains, is the most important branch of Russian husbandry. The gross value of these products amounts, at a very moderate estimate, to about 55,500,000 of silver roubles ($43,500,000); and both soil and climate are exceedingly favorable to their culture throughout a great part of the empire. As their production greatly exceeds the wants of the home manufacture, the extension of their culture essentially depends on the facility with which they find an outlet in the foreign market. Flax and hemp have always formed two of the principal exports; and, if to these we add oleaginous grains, which consist principally of the seeds of hemp and flax, we shall find that the export of these three articles, taken as a whole, exceeds in value that of any other product. In the course of 29 years, from 1822 to 1850, inclusive, there were but four, namely, 1830, 1831, 1846, and 1847, in which the value of exported cereals was greater than that of these.

From the custom-house returns, we find that, during the period in question, the total value of exports for European commerce amounted to $1,427,586,225, about 12 4-5 per cent. of which was in flax, 10 1-5 per cent. in hemp, and 8 3-5 per cent. in oleaginous seeds. These figures forcibly show the importance of the culture of these textiles to the foreign commerce of Russia, as well as for her domestic manufactures. In this branch of agriculture, she has not hitherto met with serious competition, as the other countries of continental Europe, in which these articles are produced, not having much land to spare for that purpose, and finding it, from their greater relative population, more profitable to cultivate other crops, do not raise enough for any considerable exportation; for, nowhere in Europe can they be cultivated in such abundance as in Russia. Of other countries, it is the East Indies and the Philippine Islands that furnish England the largest supplies, say, from 10,000 to 12,500 tons per annum, and the United States, which export at present not over 5000 tons. England, moreover, imports from Egypt and other parts of Africa about 200 tons of flax and hemp, an amount comparatively insignificant.

Notwithstanding the heavy blows continuously dealt out to it, by the increasing use of cotton goods, the linen manufacture still maintains the foremost rank in Russia, in point of extent and importance. It is not, like the cotton manufacture in Great Britain, the United States, and other countries, concentrated in large establishments, which strike the eye by their size, their machinery, and the numbers of workmen collected on the premises; but, conducted within the modest walls of the peasants' cottages, it is diffused over the whole length and breadth of the land. There is scarcely a village within the wide limits of the empire, where the wheel, the distaff, and the loom are not to be found. With regard to the extent of this species of industry, it is averred that linen forms one of those articles of prime necessity which no individual in Russia, rich nor poor, can entirely dispense with. Reckoning only 10 yards, 28 inches in width, for each inhabitant, per annnm, it would require for the population of 65,500,000 (including Poland), a consumption of 655,000,000 yards. The culture of flax for commerce is most extensively carried on in the governments of Wologda, Wiatka, Jaroslaw, Wladamir, Novgorod, Pskow, Livonia, Courland, Smolensk, Wilna, and Witebsk, and that of hemp in the governments of Tschernigow, Koursk, Orel, Toula, and Tambow. This important branch of rural economy has attracted the special attention of the Russian government.

Culture in the United States.—During the last half century great efforts have been made in Europe, and, to some extent, of late, in the United States, to increase and improve the production and manufacture of flax and hemp. Formerly they were considered as indispensable crops among our planters and farmers, but their use has been superseded in a measure by the cotton of the South. Common flax is a native of Britain, where it has been cultivated from time immemorial, and from its hardihood and adaptation to a wide range of temperature, it has been grown in almost every country on the eastern continent, from Egypt to the polar circle, and in North America, from Texas to Newfoundland. Hemp, which is supposed to be a native of India, but long since acclimatized and extensively cultivated in Spain, Italy, and several other countries in Europe, particularly in Poland and Russia, as well as in different parts of America, also forms an article of primary importance in commerce, and is of extensive utility. Both of these products were introduced into the North American colonies soon after their settlement by the English. They are mentioned as growing in New England prior to 1632; and bounties were offered for their cultivation in Virginia as early as 1751. Captain Matthews sowed yearly both hemp and flax, which he caused to be spun and woven, prior to the year 1648. In 1662 an edict was passed requiring each poll in Virginia to raise annually and manufacture six pounds of linen thread; but, from the change of the laws and the cessation of the bounties, the culture declined.

In the late Exhibition at London, of the Works of Industry of All Nations, both of these materials held a conspicuous rank. Flax was exhibited, the growth of Great Britain, Ireland, Holland, Belgium, France, Spain, Portugal, Italy, Prussia, Germany, Poland, Russia, Turkey, Egypt, India, Van Dieman's Land, Canada, and the United States, and hemp from all of these countries, except Britain, Ireland, Canada, and Van Dieman's Land. The fibre of flax and hemp has never been produced in this country in sufficient abundance to form much of an article of foreign commerce, but flax-seed was formerly shipped to Europe in large quantities. There were exported from New Jersey in 1751, 14,000 lbs. of hemp; from Savannah, in 1770, 1860 lbs.; from the United States in 1850–'51, 4769 cwt. The amount of flax-seed exported from Philadelphia in 1752 was 70,000 bushels; in 1767, 84,658 bushels; in 1771, 110,412 bushels; from New York in 1755, 12,528 hhds.; from the British North American colonies, in 1770, 312,612 bushels; from the United States, in 1791, 292,460 bushels; in 1800, 289,684 bushels; in 1810, 240,579 bushels; in 1820–'21, 264,310 bushels; in 1830–'31, 120,702 bushels; in 1840–'41, 32,243 bushels; in 1850–'51, 9185 bushels.

According to the census returns of 1840, there were raised in the United States 95,251¾ tons of flax and hemp; of 1850, 35,093 tons of hemp and 7,715,961 lbs. of flax. The correctness of the returns as to hemp, in the seventh census, has not yet been fully verified. There has been some doubt whether, in a number of instances, the marshals have not written *tons* where they meant *lbs.* If, however, the returns are all allowed to stand without reduction, it would appear that the cultivation of hemp or flax has materially changed since 1840. In the returns of that year, as stated above, both of these articles were included under the same head. In 1840, those of Virginia gave 25,594 tons of hemp and flax together. In 1850, only 141 tons of hemp and 500 tons of flax were returned. Such a falling off would amount to almost an abandonment of the culture of hemp in that State, which there is no reason to suppose has taken place.

The discovery of new methods for separating the fibrous from the woody parts of the flax plant has doubtless given a vigorous stimulant to its cultivation in the United States. The process of Chevalier Clausen first attracted general attention among us in 1850. Though considerable quantities of flax have been produced in former years, it has been raised principally for the seed, which commanded a remunerating price. The want of a cheap and speedy process for separating the textile from the refuse parts of the stalk has occasioned a vast annual loss of useful material to the country. Should the attempts which have lately been made to apply Clausen's invention succeed, the production of flax in the United States may become of great importance, and be advantageously used, not only alone, but in the manufacture of mixed fabrics, as it appears capable of being spun with wool, silk, and other fibres.

Native-grown hemp is coming into use very generally. Mr. W. B. Shubrick, Chief of the Bureau of Construction, Navy Department, in a report to the Secretary of the Navy, recommends greater attention to the detail of cultivation, curing, and packing native-grown hemp, which, in the opinion of the bureau, would be found to be very beneficial in effect, and, in course of time, make the navy altogether independent of a foreign market for a material so important for naval purposes. Mr. Gardiner, Superintendent of the Rope-walk of the United States' Navy Yard at Memphis, in a report of his department, further substantiates these views, concluding, that with proper care, "American hemp may, as experiment has proved, be made to equal if not to excel, any foreign importation."

Kentucky and Missouri are our chief hemp-growing States; the former producing superior hemp as a better system of preparation prevails.

PRODUCTION OF HEMP IN THE UNITED STATES IN 1850.

States.	Dew & water rotted. Tons.	States.	Dew & water rotted. Tons.
Arkansas.........	15	Ohio...........	150
Kentucky.......	17,787	Pennsylvania...	44
Maryland........	63	Tennessee......	595
Missouri.........	16,028	Virginia........	139
North Carolina...	39	Total.......	34,860

EXPORT OF HEMP FROM THE UNITED STATES FROM 1854 TO 1856, INCLUSIVE.

Hemp.	1854.		1855.		1856.	
	Raw.	Manufac.	Raw.	Manufac.	Raw.	Manufac.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Domestic.	93,699	79,717	121,320	36,508	28,598	25,233
Foreign ..	42,614	45,626	255,441	23,718	54,249	83,315
Total...	146,313	125,343	376,761	60,266	82,847	108,548

IMPORTS OF HEMP INTO THE UNITED STATES.

1853......................	$1,920,913	Cwts. 464,070
1854......................	2,209,713	692,174
1855......................	2,158,416	249,838
1856......................	2,345,000	252,730

Hemp-seed (Fr. *Chenevis*, *Chenevi*; Ger*Hanfsaat*; It. *Cannapuccia*; Lat. *Semen cannabinum*; Rus. *Kanopljanoe Senja*), the seed of hemp. The best hemp-seed is that which is brightest, and will not break when rubbed. It is used either as seed, or for crushing for oil, or as food for fowls. Previously to 1832, it was loaded with a duty of £2 per quarter, which was then reduced to 1s. per ditto, and in 1845 was wholly repealed.

Herat or **Heraut** (anciently *Arid* or *Artacoana*), capital of Shah Mahmood's State, on the west frontier of Afghanistan, 2700 feet above the sea-level, three miles north of the Hury River, in a beautiful and fertile valley. Lat. 34° 22′ N., long. 62° 9′ E.; 360 miles west of Cabool. It is entirely surrounded by an earthen mound, 50 feet high, by two trenches, and a ditch. From the mound rises a wall 25 feet high, and upward of 100 bastions of unburnt brick. At the north end of the town is a strong citadel, defended by a ditch and massive towers. To the north of the town is the huge mound raised by Nadir Shah, and a little further the gorgeous ruins of the Moosullah of Imaum Reza. As there is no drainage, the town is extremely filthy, although in the 15th and 16th centuries it was one of the finest cities in the world. Commercially, the position of Herat is important. It receives shawls, indigo, sugar, spices, chintzes, muslins, brocades, scarfs, leather, and hides from Afghanistan; tea, sugar, porcelain, glass, silk, cotton, cloth, woolens, carpets, and hardware from Persia, Russia, and Turkey. The Herat carpets are famous. The annual revenue of Herat is estimated at, perhaps, £100,000. It was unsuccessfully besieged by the Persians in 1838. Population less than 45,000.

Herrings, and **Herring Fishery**. The herring (*Clupea harengus* of Linnaeus) is a fish too well known to require any description. It is everywhere in high esteem, both when fresh and when salted.

"Herrings are found from the highest northern latitudes yet known, as low as the northern coasts of France. They are met with in vast shoals on the coast of America as low as Carolina. In Chesapeake Bay is an annual inundation of those fish which cover the shore. We find them again in the seas of Kamschatka; and probably they reach Japan. The great winter rendezvous of the herring is within the Arctic Circle: there they continue for many months, in order to recruit themselves after the fatigue of spawning; the seas within that space swarming with insect food in a far greater degree than those of our warmer latitudes. This mighty army begins to put itself in motion in spring. They begin to appear off the Shetland Isles in April and May. These are only the forerunners of the grand shoal, which comes in June; and their appearance is marked by certain signs, such as the numbers of birds, like gannets and others, which follow to prey on them; but when the main body approaches, its breadth and depth is such as to alter the appearance of the very ocean. It is divided into distinct columns of five or six miles in length, and three or four in breadth; they drive the water before them, with a kind of rippling. Sometimes they sink for the space of 10 or 15 minutes, and then rise again to the surface; and in fine weather reflect a variety of splendid colors, like a field of the most precious gems. The first check this army meets in its march southward, is from the Shetland Isles, which divides it into two parts; one wing takes to the east, the other to the western shores of Great Britain, and fill every bay and creek with their numbers; the former proceed toward Yarmouth, the great and ancient mart of herrings; they then pass through the British Channel, and after that in a manner disappear. Those which take toward the west, after offering themselves to the Hebrides, where the great stationary fishery is, proceed to the north of Ireland, where they meet with a second interruption, and are obliged to make a second division: the one takes to the western side, and is scarcely perceived, being soon lost in the immensity of the Atlantic; but the other, that passes into the Irish Sea, rejoices and feeds the inhabitants of most of the coasts that border on it. These brigades, as we may call them, which are thus separated from the greater columns, are often capricious in their motions, and do not show an invariable attachment to their haunts. This instinct of migration was given to the herrings, that they might deposit their spawn in warmer seas, that would mature and vivify it more assuredly than those of the frozen zone. It is not from defect of food that they set themselves in motion; for they come to us full of fat, and on their return are almost universally observed to be lean and miserable. What their food is near the pole, we are not yet informed; but in our seas they feed much on the *oniscus marinus*, a crustaceous insect, and sometimes on their own fry. They are full of roe in the end of June, and continue in perfection till the beginning of winter when they deposit their spawn. The young herrings begin to approach the shores in July and August, and are then from one half an inch to two inches long. Though we have no particular authority for it, yet, as very few young herrings are found in our seas during winter, it seems most certain that they must return to their parental haunts beneath the ice. Some of the old herrings continue on our coast the whole year."—PENNANT'S *British Zoology*.

The herring was unknown to the ancients, being rarely, if ever, found within the Mediterranean. The Dutch are said to have engaged in the fishery in 1164. The invention of pickling or salting herrings is ascribed to one Beukels, or Beukelson, of Biervliet, near Sluys, who died in 1397. The emperor, Charles V., visited his grave, and ordered a magnificent tomb to be erected to his memory. Since this early period, the Dutch have uniformly maintained their ascendency in the herring fishery; but, owing to the Reformation, and the relaxed observance of Lent in Catholic countries, the demand for herrings upon the Continent is now far less than in the 14th and 15th centuries.

It is shown by a parliamentary return of 1856, that the total quantity of herring cured in Great Britain, during 1855, was 766,603 barrels; the quantity branded, 280,581 barrels; and the quantity exported, 442,264 barrels—being an increase over the preceding year of 130,141 barrels cured, 68,737 branded, and 80,567 exported. The quantity caught, but not cured, amounted in 1855 to 830,759 barrels, being an increase of 26,970 barrels over 1854. The total produce of the herring fisheries in 1855 amounted to 897,463 barrels, being 157,111 more than in 1854. Of cod and ling, during 1855, 113,561 cwt. was cured dried, and 6316 barrels cured in pickle; total quantity exported being 29,154 cwt. of the former, and 25 barrels of the latter. This was an increase as compared with 1854 of 9597 cwt. cured, and 25 barrels exported. The total quantity caught, but not cured, amounted to 63,539 cwt., being an increase over the preceding year of 5497 cwt., and when added to the quantity cured, makes the produce of the cod and ling fisheries for 1855, 177,100 cwt. and 6316 barrels, being an increase over 1854 of 9373 cwt. and 150 barrels. In 1855, 11,747 boats, manned by 41,602 fishermen and boys were employed in the shore-curing department; and the total number of persons engaged in the fisheries was 94,155, being an increase over the preceding year of 856 boats, 1243 fishermen and 16,321 persons in the total number employed. The value of boats, nets, and lines amounted in 1855 to £618,484, being an increase, as compared with 1854, of £31,064. See FISHERIES.

Hidage (*Hidagium*) was an extraordinary tax payable to the kings of England for every *hide* of land. This tax was levied in money, provision, armor, and other articles; and when the Danes landed in Sandwich in 994, King Ethelred taxed all his lands by hides, so that every 310 hides furnished one jack and one saddle, to arm for the defense of the kingdom. Sometimes the word *hidage* was used to signify exemption from that tax; and this immunity was also called *hidegild*, and interpreted, from the Saxon, a price or ransom paid to save one's skin or hide from beating.

Hides (Ger. *Haüte;* Du. *Huiden;* Fr. *Peaux;* It. *Cuoja;* Sp. *Pellejos, Pièles;* Rus. *Koshi*), signify, generally, the skins of beasts, but the term is more particularly applied to those of large cattle, such as bullocks, cows, horses, etc. Hides are raw or green; that is, in the state in which they are taken off the carcase, or dressed with salt, alum, and saltpetre, to prevent them from putrefying; or they are cured or tanned. The hides of South America are in the highest repute, and vast quantities of them are imported.

During the year 1856 the imports of hide into various ports of the United States were greater than in previous years, as follows:

Imports into New York	$1,751,912
" Boston and Salem	762,741
" Philadelphia and Baltimore	336,577
Total, 1856	$2,851,230
" 1855	2,423,864

GENERAL STATEMENT OF THE FOREIGN IMPORTS OF HIDES INTO THE UNITED STATES FOR THE YEAR ENDING JUNE 30TH, 1856.

Whence imported.	Raw hides and skins.	Whence imported.	Raw hides and skins.
Swedish West Ind.	109	Porto Rico	12,090
Danish West Ind.	6,323	Portugal	675
Hamburg	9,858	Cape de Verd Isls.	11,190
Bremen	161	Sardinia	537
Holland	416	Other ports in Af.	133,548
Dutch West Indies	246,324	Hayti	28,996
Dutch Guiana	15,992	San Domingo	13,663
Dutch East Indies.	1,715	Mexico	331,574
England	517,030	Central Republic	78,836
Canada	2	New Granada	264,417
Other B. N. A. Pos.	3,988	Venezuela	2,182,591
British West Ind.	21,865	Brazil	1,430,223
British Honduras	26,079	Uruguay	313,251
British Guiana	5,761	Buenos Ayres	1,460,787
Br. Pos. in Africa	277,055	Chili	44,254
British East Indies	568,219	Peru	15,940
France on the Med.	950	Sandwich Islands	30,797
French Guiana	618	China	16
Spain on the At.	2,940		
Philippine Isls.	15,130	Total	$8,083,292
Cuba	9,272		

AN ACCOUNT OF THE WEIGHT OF THE HIDES IMPORTED INTO ENGLAND IN EACH OF THE FIVE YEARS ENDING WITH 1851, SPECIFYING THE COUNTRIES WHENCE THE HIDES WERE IMPORTED, AND THE QUANTITIES BROUGHT FROM EACH.

Countries from which imported.	Hides not tanned, tawed, curried, or in any way dressed.					Hides tanned, tawed, curried, or dressed.				
	1847.	1848.	1849.	1850.	1851.	1847.	1848.	1849.	1850.	1851.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Russia	9,774	5,119	11,967	13,792	8,322	134,141	31,956	12,433	23,320	56,633
Denmark	202	705	726	1,434	3,792	....	56	4,888	3,700	3,649
Prussia	3,173	1,531	1,622	3,003	4,021	8,376	....	....	....	....
Hanseatic towns	6,182	6,578	3,492	10,415	9,831	49,521	45,590	53,219	40,248	56,114
Holland	4,637	2,786	2,157	5,822	5,789	104,950	104,315	137,200	113,334	197,764
Belgium	1,199	....	268	654	5,640	18,581	17,419	23,481	28,715	19,860
Channel Isls., For. prod.	340	772	214	239	613	16,526	4,735	3,052	19,391	38,332
France	9	332	12	1,164	10,047	380,075	456,065	715,964	519,340	594,205
Morocco	528	364	320	1,409	535	....	....	....	3,510	....
British South Africa	23,520	9,758	9,763	10,053	12,269	....	....	153	207	761
British East Indies	94,794	69,999	71,017	101,193	137,206	23,352	147,158	240,865	553	294,616
French pos. in India	1,421	2,090	734	1,257	419	981	....	....	....	....
Java	2,623	1,963	1,825	926	1,487	....	....	....	....	....
Philippine Islands	9,284	2,364	....	4,876	6,159	....	....	....	....	1,079
British Australia	29,502	21,105	21,244	26,047	33,582	109,711	370,364	549,821	847,591	931,600
British North America	1,151	1,324	824	1,215	500	1,872	....	....	11	202
Br. W. Indies & Guiana	7,118	7,132	4,800	3,690	3,045	243	....	....	....	17
United States America	10,781	852	3,339	132	1	366,000	44,115	746	5,746	53,983
Mexico	604	41	233	212	....	....	....	....	....	....
Central America	1,785	186	486	1,206	170	....	....	296	....	....
New Granada	994	1,263	760	438	273	....	....	....	....	112
Venezuela	1,218	290	716	20	....	....	....	....	....	....
Brazil	215,905	179,641	207,199	157,003	150,585	288,594	49,043	45,984	87,132	72,688
Uruguay	163,569	111,987	1,016	3,162	10,246	....	....	....	....	....
Buenos Ayres	4,775	114,477	326,947	232,386	261,653	....	....	....	....	....
Chili	74	461	4,552	2,285	276	112	....	....	....	....
Peru	1,399	2,308	894	5,291	2,014	8,585	....	....	....	....
Other parts	4,525	1,553	1,825	2,597	3,692	638	1,046	390	....	9,936
Total	601,381	547,281	678,952	591,921	672,167	1,512,208	1,271,862	1,788,442	1,896,798	2,380,901

Statement showing the Number and Value of Hides exported from the United States for the Year ending June 30th, 1856.

Whither exported.	Domestic.		Foreign.
	Number.	Value.	Dollars.
Hamburg	348	1,305	1,279
Bremen	1,101	4,379	....
Holland	20	100	....
Belgium	1,267	6,550	....
England	8,731	20,082	631
Scotland	352	610	....
Malta	....	....	430
Canada	25,226	43,720	74,324
Other Br. North Am. Pos.	1,386	2,885	893
British East Indies	510	586	....
France on the Atlantic	4,757	18,256	....
France on the Mediter	....	....	1,500
French North Amer. Pos	....	....	4,692
Cuba	60	146	....
Austria	....	....	18,175
Austrian Pos. in Italy	1,000	2,000	....
Hayti	426	555	....
Total	40,184	$101,174	$101,924

High Seas. The high seas mean the water of the ocean without the boundary of any country, and they are within the exclusive jurisdiction of the admiralty up to high water mark, when the tide is full. The open ocean which washes the sea-coast is used in contradistinction to arms of the sea inclosed within the *fauces terræ*, or narrow headlands or promontories; and under this head is included rivers, harbors, creeks, basins, bays, etc., where the tide ebbs and flows. They are within the admiralty and maritime jurisdiction of the United States; but if they are within the body of a county of any particular State, the State jurisdiction attaches.

The extent of the jurisdiction of the district courts of the United States, as courts of admiralty and maritime jurisdiction, was very fully examined, and with great ability and research, by the Circuit Court of the United States for Massachusetts, in the insurance case of De Lovio *v.* Boit. It was maintained, that in very early periods the admiralty jurisdiction, in civil cases, extended to all maritime causes and contracts, and, in criminal cases, to all torts and offenses, as well in ports and havens within the ebb and flow of the tide, as upon the high seas; and that the English admiralty was formed upon the same common model, and was co-extensive, in point of jurisdiction, with the maritime courts of the other commercial powers of Europe. It was shown, by an exposition of the ancient cases, that Lord Coke was mistaken in his attempt to confine the ancient jurisdiction of the admiralty to the high seas, and to exclude it from the narrow tide-waters, and from ports and havens. The court agreed with the admiralty civilians, that the statutes of 13 R. II., and 15 R. II., and 2 H. IV., did not curtail this ancient and original jurisdiction of the admiralty, and that, consistently with those statutes, the admiralty might exercise jurisdiction over torts and injuries upon the high seas, and in ports within the ebb and flow of the tide, and in great streams below the first bridges; and also over all maritime contracts, as well as over all matters of prize and its incidents. It appeared, from a historical review of the progress of the controversy for jurisdiction, which lasted for two centuries, between the admiralty and the courts of common law, that the latter, by a silent and steady march, gained ground, and extended their limits, until they acquired concurrent jurisdiction over all maritime causes, except prize causes, within the cognizance of the admiralty. The common law doctrine was, that the sea, *ex vi termini*, was without the body of any country; but that all ports and havens, and all navigable tide waters, where one might see from one land to the other what was doing, were within the body of the county, and under the exclusive jurisdiction of the common law courts. On the sea shore or coast, high and low water mark determined what was parcel of the sea, and what was the line of division between the admiralty and the courts of law; and it was held, that it ought to be so considered by parity of reason, where the tide ebbs and flows, in ports and havens; and that the admiralty jurisdiction extends to all tide waters in ports and havens, and rivers beneath the first bridges. It was admitted, however, that the common law originally had jurisdiction on the high seas, concurrent with the admiralty; and that in cases manifestly within the admiralty jurisdiction, both civil and criminal, the common law now claimed concurrent jurisdiction.—Kent's *Com.*, vol. i., pp. 399, 400.

Crimes on the high seas, such as piracy and robbery, are, by the laws of the United States, punished with death. Persons charged with such crimes must be tried at the port where they first arrive or are brought. Accessaries shall also suffer death. Concealing a pirate, or harboring property taken by a pirate, is punished by imprisonment not over three years, and fine not over $500. For revolt on shipboard, or abetting a revolt, seamen will be imprisoned not over three years, and fined not over $1000.—Dunlap's *Digest*, pp. 75, 76.

Highway. In the civil law, the banks of public rivers and the sea shore were held to be public. *Riparum publicus usus est; littorum quoque usus publicus est jure gentium.* The law of nations was here used for natural right, and not international law, in the modern sense of it; and it is stated in the *Institutes* of Justinian, that all persons have the same liberty to bring their vessels to land, and to fasten ropes to the banks of the river, as they have to navigate the river itself. These liberal doctrines of the Roman law have been introduced into the jurisprudence of those nations of Europe which have followed the civil, and made it essentially their municipal, law. Thus, in Spain, the sea shore is common to the public; and any one may fish, and erect a cottage for shelter. The banks of navigable rivers may also be used to assist navigation. In the French law, navigable or floatable rivers, as they are termed, have always been regarded as dependencies of the public domain, and the lands on each side subject to the servitude or burden of towing paths for the benefit of the public. Sir Matthew Hale, in his *De Jure Maris*, concludes that individuals had a right to a tow-path for towing vessels up and down rivers, on making *a reasonable compensation to the owner of the land for damage.* In the year 1789 it was decided in England, 3 *Term Rep.*, 253, that there was not, and never had been, any right, at common law, for the public to tow on the banks of navigable rivers. It was admitted, that on many navigable rivers, there was a custom to tow on the banks; but the privilege in that case rested on the special custom, and not on any common law right. The statutes which have given a right of towing on parts of the Severn, Trent, and Thames, are evidence that no such general right before existed. In New York it has been adjudged, after a very able and thorough examination of the question, that the public have not the right to use and occupy the soil of an individual adjoining navigable waters, as a public landing and place of deposit of property in its transit, against the will of the owner, although such user had been continued upward of 20 years, with the knowledge of the owner. On the other hand, it is held in Missouri, that navigators and fishermen are entitled to the temporary use of the banks of navigable rivers in that State, though owned by private individuals, for the purpose of landing and repairing their vessels, and exposing their sails and merchandise. But this use is for transient purposes only, and under restrictions.

It is a settled principle in the English law, that the right of soil of owners of land bounded by the sea, or on navigable water, where the tide ebbs and flows, extends to high-water mark; and the shore below common, but not extraordinary, high-water mark, belongs to the State as trustee for the public; and in England the crown, and in this country the people, have the absolute proprietary interest in the same, though it may, by grant or proscription, become private property. The public have, at common law, a right to navigate over every part of a common navigable river, and on the large lakes. The public, in cases where the river is navigable for boats and rafts, have an easement therein, or right of passage, subject to the *jus publicum*, as a public highway.—Kent's *Com.*, vol. iii., pp. 524–526.

Each proprietor is entitled to a larger or smaller proportion of the alluvial formation and shore line, according to the extent of his original line on the shore of the river. In the case of rivers not navigable, it belongs to the owners of the adjoining land. This principle of the common law is recognized and prevails in the States of Maine, New Hampshire, Massachusetts, Connecticut, New York, New Jersey, Maryland, Ohio, Virginia, North Carolina, Louisiana. —*Ibid.*, 527.

Himalaya, a Sanscrit word, compounded of "hima," *cold* or *snow*, and "alaya," *place of* (Wilson's *Sanscrit Dictionary*), is the name given to the ranges of mountains which bound India on the north, from the bend of the Indus on the west to that of the Brahmaputra on the east. On the south they are bounded by the plains of India, and on the north by the Tibetan courses of the above-named rivers. A traverse section of the Himalaya nowhere presents the appearance of a simple range, but of several more or less parallel chains, separated by valleys of very great depth and steepness; this is because the secondary ranges that ramify north and south from it are of great length, breadth, and complexity, and from bending to the east or to the west, often run for many miles parallel to one another and to the main range, besides rising into eminences loftier than any on the latter, for which they are sometimes mistaken. The axis of the Himalaya is, moreover, not marked out by any continuous ridge or succession of peaks, but is often broad, open, and low, compared with the neighboring isolated eminences. Hence the line of watershed becomes the only geographically determinable axis; and this, as in all mountain chains of any extent, follows an extremely sinuous course. No doubt this line, which throws the waters in two opposite directions throughout the whole extent of the range (1440 miles), is also that of greatest elevation, or that along which the land is uninterruptedly the most lofty.

Before, however, the real nature and geographical limits of the Himalaya, as above defined, can be rightly understood, it is necessary to consider this range in its relation to the little known mountain systems of Central Asia, of which it perhaps forms a less important part than is usually supposed. On reference to the map of Asia, the watershed of that continent will be found to follow a tortuous line, running diagonally from the peninsula of Gujerat to Behring's Strait. Across the plains of India this line is for the most part indicated by the Arawali chain, north of which it crosses the Himalaya obliquely in a north-east direction to the sources of the Indus and Brahmaputra, whence it trends westerly to the source of the Oxus, and then again north-easterly along the Altai to the south of Lake Baikal, till it becomes the Iablonoi Mountains, and finally terminates in the prolongation of that range which traverses the country of the Tchuktchi. Late and interesting information respecting these plains can be found in Huc's *Travels*, 1845.

All the great rivers of Asia rise in this watershed; those from its western slope flow north into the Polar Sea, west into the Caspian or Aral, and south-west into the Arabian Sea; those from its eastern slope flow east and south-east into the Pacific, and south into the Indian Ocean. Enormous mountain chains branch off to the east and west of this main axis, inclosing the valleys of the rivers; and of these chains the southernmost is the Himalaya.

In their Tibetan courses the Indus and Brahmaputra occupy valleys of great elevation, and the opposite directions taken by them indicates the division of the Himalaya into two portions, the eastern of which stretches from their sources at the peak of Kailas to the bend of the Brahmaputra, and the western terminates at the bend of the Indus. These limits are more natural than is usually supposed, since the prevalent idea that the Brahmaputra enters Assam through a defile caused by a break in the chain is erroneous; on the contrary, the Himalaya gradually declines in elevation in East Bhotan; and the upper valley of the Dihong (as the Brahmaputra at its bend is called), is, according to the best information hitherto procured, broad, open, and hot—rice being cultivated there on the very confines of eastern Tibet. So also the Indus at the western extremity of the chain is usually described as flowing through a defile; but though its valley to the west of Kashmir is contracted and rugged, and overhung by stupendous mountains, it does not in this respect differ materially, if at all, from the remainder of its Tibetan course; nor is the fall of its bed between Iskardo and the plains of the Punjab greater in proportion to the length of its course than it is above that town.

The branches or secondary ranges of the western Himalaya are so long and lofty, that some difference of opinion exists as to which of them should be most appropriately considered as the continuation of the chain between the peak of Kailas and Kashmir; and we have considered the line of watershed between the tributaries of the Indus to the north, and the rivers that flow to the plains of India to the south, to be the axis of the chain, since it both indicates the line of mean greatest elevation, and is the only definable axis in a geographical point of view. Of the secondary chains we shall speak at length in connection with the rivers they inclose. Their direction is often perpendicular to the main chain, but they are so often oblique, and even parallel to the main chain, especially at their upper parts, that where very lofty and heavily snowed, they are freqently taken by local observers for the axis of the Himalaya itself; an error to which may be traced that misconception regarding the relative amount and duration of the snow on the northern and southern slopes of the Himalaya, which has led to so much fruitless controversy in India and Europe.

The general direction of the Himalaya throughout its length of 1440 miles, is east and west, but it trends northward from the centre toward its western extremity, its extremes being respectively in N. lat. 28°, E. long. 95°, and N. lat. 35°, E. long. 73°. Its breadth varies in different parts, but has been accurately ascertained in the western portion only, where it deviates but little from 190 miles.

It has been stated that the mountain ranges of the Himalaya and the Kouenlun have no special existence as chains apart from the general elevated mass of Tibet, and that that rugged country forms the summit of a great or rainy, interior or intermediate, and Tibetan or arid Himalaya. The tropical belt extends from the Terai to 6000, and even 7000 feet in the humid central provinces; and to 3000 to 4000 in the extreme western. It consists of a luxuriant forest of Malayan and insular types of trees in the eastern provinces, which to a great extent disappear to the westward, where they are partially replaced by Persian, Egyptian and Afghanistan types—among these trees the palms, plantains, tree-ferns, sal (*Shorea robusta*), sissoo (*Dalbergia sissoo*), toon (*Cedrela Toona*), and some oaks, are the most conspicuous, and commercially the most important, especially to the eastward.

The temperate belt extends from 5000 feet to the upper limit of forest, which varies from 12,000 to 13,000 feet, according to the dryness of the climate. It abounds in European, Levantine, and Chinese genera and even species, with but few Malayan mountain ones; of these the European are most abundant in the western provinces, and the Chinese and Japanese in the eastern, where are also a few American genera, and some belonging to the Malayan and insular mountain flora. Among the most conspicuous plants of this region are oaks, birch, maple, apple, hornbeam, poplar, ash, cherry, alder, celtis, pine, juniper, yew, willow, and pines (*Abies*, *Webbiana* and *Brunoniana*), which abound throughout the range; besides which, there are to the westward of Nepal, deodar, *Pinus Gerardiana*, hawthorn, cypress, horse-chestnut, olive, myrtle, evergreen oak, sloe, black poplar, and many other European genera and even species; while to the eastward, laurel, magnolia, rhododendron, larch, *Abies Brunoniana*, and chestnut, more especially prevail.

The alpine belt, which commences above the forest region, ascends in extreme cases to 19,000 feet; it abounds in Siberian, Polar, and European alpine plants throughout the whole extent of the chain, the European species and genera being most prevalent to the west. Several hundred common English plants are also natives of the Himalaya, and especially of the temperate and alpine zones; and the total number of flowering plants inhabiting the whole range probably amounts to 5000 or 7000 species. Cultivation in the Himalaya is carried on as high as 14,000, and even 15,000 feet, where summer crops of wheat and barley exist in Tibet, but quite exceptionally; also buckwheat, turnips, radishes, mustard, potatoes, and various pulses, are grown abundantly between 8,000 and 12,000 feet, as summer crops. Rice, maize, millet, and other tropical cereals, are grown below 6000 feet, with buckwheat, and various species of chenopodium, yams, capsicum, egg-apple, legumes, and sugar-cane.

The Himalayan fruits cultivated by the natives in the eastern and central provinces are plantains, oranges, pine-apples, walnuts, indifferent peaches and apples; in the western, excellent apples, pears, apricots, peaches, cherries, mulberries, grapes, and walnuts. The cultivation of tea is now successfully carried on, on a large scale in the western Himalaya, at elevations of 2000 to 5000 feet, and might probably be pursued with more or less success in all parts of the chain.

The timber trees of the Himalaya are extremely numerous, but few of them are of great value, and some of the best inhabit inaccessible regions. The sal (*Shorea robusta*), is decidedly the most valuable; and, from growing at the foot of the hills, close to water-carriage, is the only one much felled for export. The toon (*Cedrala Toona*), and sissoo (*Dalbergia Sissoo*), are also exported from the same regions; and the deodar and other conifers from the north-western provinces. The other pines, the walnut, oaks, and the chestnuts, mostly produce indifferent timber; but, though there are exceptions, the use of these is principally confined to the neighborhood where they grow. Of ornamental woods, few are known, and none are in general use. Bamboos prevail everywhere, and rattan-canes to the eastward. Owing, probably, to the humid climate, the woods of European genera are, almost without exception, inferior to those of their western allies. Teak is unknown in the Himalaya; and the other woods of eastern Bengal and of both the Indian peninsulas are either confined to the malarious forests of Assam, or are altogether absent. The vegetable economic products are also very few and unimportant—such as spices, gums, resins, oils, waxes, fibres, and other textile materials. Of drugs, the baneful aconite and hemp are the best known; inferior rhubarb, and a few bitters of secondary importance in the pharmacopœia, are also collected for export. Attempts have been made to cultivate drugs for the use of the Indian medical establishments, but hitherto with very limited success. Wild madder is extensively collected and exported, as are bamboos, canes, and a few other products: and latterly potatoes in Sikkim. There is no doubt that the vegetable riches of these extensive regions are but very little known, and are capable of immense extension; but hitherto the efforts have been limited. On the northern or Tibetan parts of the range the trees are extremely few and small, and confined to willows, poplars, junipers, elæagnus, and tamarisk; and of bushes, the well-known dama or furze, that supplies fuel, is the most familiar to travelers.—E. B. See *Quar. Rev.*, xvii., xxii., xxiv.; *Westm. Rev.*, xxxvii., 294; *Monthly Rev.*, xcv., 225, 409.

In mineral products the Himalaya is remarkably poor, so far as is at present known. There is nothing which can compare in abundance or value with the mines of the Ural, Andes, or European Alps. Red hæmatite is worked with profit in Kumaōn, and copper exists in Nepal and the Sikkim hills. Iron (disseminated), occurs in various places, and graphite is common. Salt, borax, and soda are procured in abundance in the dry climate of Tibet, where they are articles of commerce; there also gold-washing is carried on upon a most limited scale. Gold is known to be extremely abundant in many parts of eastern Tibet, where, however, the jealousy of the Chinese government prevents its being worked. Slates, lime, gypsum, lead, sulphur, and magnesia, are also Himalayan products. There is a surprising and almost total absence of gems, or minerals of rarity or beauty in the Himalaya; garnets, actinolites, and tourmalins, are perhaps the only exceptions of frequent occurrence, and these are of the coarsest description.

Hot springs abound, chiefly at elevations of 10,000 to 18,000 feet; they usually emit sulphuretted hydrogen gas, and maintain temperatures of 100° to 130°. There is no active volcano anywhere in the range, nor any traces of extinct ones. Some of the districts, especially toward the north-west, have been visited by violent earthquakes, but these do not appear to be connected with any endemic phenomena; they have generally commenced far south of the Himalaya, and have been propagated across the range. Remarkable local subsidences and elevations have occurred in the valley of the Jhelam in Kashmir, which have been described by Dr. Thomson.

Hobart Town, situated in the southern part of the island of Van Dieman's Land, on the west side of the River Dennert, near its junction with Storms Bay, in lat. 42° 44′ S., and long. 147° 28 E. The water is deep, and the anchorage is good; and a jetty has been constructed accessible to the largest ships.

Hogs. The prevailing breeds of swine in the middle, northern, and western States, are the Berkshire, the Leicestershire, the Suffolk, the Essex, the Neapolitan, and the Chinese. From these and other varieties various crosses have been produced, the more important of which are the Byfield, the Woburn, the Bedford, the Grass, and the Mackay. The Neapolitans are particularly well adapted for a southern climate. See DE BOW'S *Rev.*, xii., 67; HUNT'S *Mag.*, xiv., 371. See UNITED STATES—LIVE STOCK OF.

We give some statistics showing the number of hogs packed in the West in 1850–51, also another table comparing the number packed in 1855–56 and 1856–57:

Where packed.	1851–52.	1850–51.
Ohio	461,675	445,418
Indiana	359,761	348,774
Illinois	174,671	257,856
Iowa	27,500	70,500
Missouri	58,168	107,254
Kentucky	199,880	209,914
Green and Cumberland Rivers	8,500	24,000
Total	1,288,975	1,470,996
		1,288,975
Total deficiency, 1851–52		182,021

Comparison of the Number of Hogs packed in 1855-6 with the Number packed in 1856-7.

Where Packed.	1855—56.	1856—57.
Ohio	633,697	483,048
Kentucky	428,334	349,212
Indiana	482,531	316,629
Illinois	481,258	363.202
Missouri	189,904	143,244
Iowa	172,378	103,322
Tennessee	62,400	42,811
Wisconsin	39,000	15,000
Grand totals	2,489,502	1,818,468
	1,818,468	
Total deficiency, 1856–57	671,034	

This deficiency, compared with last season, is equal to about 27 per cent.

As regards the falling off in weight, having examined the returns received with reference to this point very carefully, the following is the result.

We obtained the comparative weights from 121 places, and find that the aggregates of similar number of hogs packed at these places, each season, are as follows:

	Pounds.
1855-6	261,621,260
1856-7	243,146,440
Deficiency, 1856–57	18,474,820

Assuming this to be a fair indication of the comparative weight of the whole number packed, according to the returns, we place the falling off in weight at 7 per cent., which is slightly less than the above figures indicate. Adding this to the falling off in number, the total deficiency is swelled to 34 per cent., as compared with the business of the season of 1855–56.

The crop, then, as compared with a few previous seasons, stands as follows: See Pork Trade.

34 per cent less than that of	1855–6
6¼ " " " "	1854–5
26¾ " " " "	1853–4
4¼ " " " "	1852–3

The following figures show the average weight of the hogs packed in Cincinnati during 1856–57 as compared with last:

	Pounds.
1855–6 average weight	204
1856–7 " "	285½

The following table shows the whole number of hogs packed in Cincinnati each season since 1833, being 24 years:

Years..	No	Years.	No.
1833	85,000	1846	305,000
1834	123,000	1847	250,000
1835	162,000	1848	475,000
1836	123,000	1849	410,000
1837	103,000	1850	393,000
1838	182,000	1851	334,000
1839	190,000	1852	352,000
1840	95,000	1853	361,000
1841	160,000	1854	421,000
1842	220,000	1855	355,786
1843	250,000	1856	405,396
1844	240,000	1857	344,512
1845	196,000		

Hogshead, a measure of capacity, containing 52½ gallons. A hogshead is equal to ½ a pipe. See Weights and Measures.

Holidays are understood to be those days, exclusive of Sundays, on which no regular public business is transacted at particular public offices. They are either fixed or variable. Banks and public offices are only closed on fixed holidays. In England, the holidays observed generally are, Good Friday, Queen's Birth-day, Coronation Day (June 28), Prince of Wales' Birth-day (November 9), Christmas. In the United States, the holidays are, Fourth of July, Thanksgiving Day (November), Christmas. At New York and some other cities New Years' day is also observed, and at New Orleans, January 8th.

Hogue, or **Hague, Cape de la**, a bold headland of France, forming the north-west extremity of the Department of Manche, 16 miles north by west of Cherbourg. Off this point the combined English and Dutch fleets defeated the French 22d May, 1692.

Hold (Sax. *healdan*), the inside of the bottom of the ship. It is divided into compartments by bulkheads across; and contains the ballast, water, coal, and wood, provisions, and cargo.

Holland is a European kingdom, formed in part of islands, but chiefly of that part of the Continent where the mouths of the Rhine are divided into several branches before it enters the German Ocean. This district is said to have owed the ancient name of Batavia, by which it was known to the Romans, to one Bato; but at what period he flourished is unknown; and the name is now scarcely used excepting among the poets of the district. By accounts collected from the works of Cæsar and Tacitus, we learn that the ancient tribes who inhabited this portion of Europe had been able to maintain their independence in spite of the attempts made to subdue them by the Teutones, the Cimbri, and other nations, who had conquered the rest of what was then called Gaul. The Batavians, says the last of these historians, excelled all the other people on the Rhine in military spirit. When subdued by the Romans, they paid their tribute in soldiers; and from them was formed a cavalry, which composed the most efficient part of the Roman armies. They astonished the Dacians by the dexterity and bravery with which, completely armed, they swam their horses across the Danube to attack those people; and for a long period they formed the guard of the Roman emperors. A body of Batavians accompanied Agricola on his expedition into Britain, and were of great assistanee in securing his conquests in the island.

William II. dying in 1849, was succeeded by the present sovereign, William III., born 19th February, 1817. He was married on the 18th June, 1839, to the Princess Sophia Frederiker Mathilda of Wurtemberg. They have two sons, William Nicolas, Prince of Orange, born 4th September, 1840, and William Alexander, born 25th August, 1851.

The kingdom of the Netherlands comprises the territory of the ancient republic of the Seven United Provinces, with some portions of Limburg. It does not include that portion of Luxemburg which the King of the Netherlands possesses, with the title of Grand Duke, as a part of the German Confederation. It is situated between N. lat. 50° 44′ and 53° 34′, and E. long. 3° 30′ and 7° 10′. It is bounded on the east by Germany, from which it is not separated by any natural barriers, on the north and west by the German Ocean or North Sea, and on the south by Belgium.

The greater part of this country has been formed of mud deposited by rivers in the same manner as the Egyptian Delta is formed by the Nile. By tracing the course of these rivers we obtain an idea of its conformation. The Rhine enters Holland at Lobith, a little below Emmerich, where it is 2300 feet broad; and then divides into two branches, the southern receiving the name of the Waal. At Westervoort, the northern branch is again divided, and there its right arm is called the New Yesel. Then the left branch, taking a westerly direction, is again separated at Wyk into two, and the left branch is called the Lek. The right branch flows on to Utrecht, and being there divided for the fourth time, receives for its right arm the name of Vecht; while the left, which still retains the name of Old Rhine, taking a westerly direction by Waerden and Leyden, finally makes its way at Kalwyk to the North Sea.

The Meuse enters the Netherlands' territory above Eysden in Limburg, and flôwing northward, unites with the Waal, near Loevestein; then divides near Dort, forming the island Ysselmonde. The right branch at Krimper is joined by the Lek, then flowing westward by Rotterdam, divides near Flardingen into two branches, and so forms the island Rosenburg. These branches uniting near Brielle, reach the sea at Oostvourn.

The Scheldt touches the kingdom of the Netherlands at Fort-Bath, where it divides, forming the islands of South and North Beveland, and Walcheren. The left branch reaches the sea at Vlissingen. The right branch flows northward between Zeeland and North Brabant; dividing near Bergen-op-Zoom, it forms the island Tholen, and the left arm reaches the sea north of Walcheren. The right branch still separating North Brabant from Zeeland, divides into numerous channels, by which its waters, mingled with those of the left branch of the Meuse, form numerous islands, and finally reach the sea.

To establish a firm footing amid so many rivers, the inhabitants have kept them as far as possible within prescribed channels by embankments, and have formed numerous canals to receive the superfluous waters, and to serve as means of internal communication. The country is thus a net-work of rivers and canals from the one end to the other. The system of drainage, of what would otherwise have been an immense mud-bank, well deserves to be ranked among the wonders of the world. The land thus rescued from the rivers is nowhere much elevated above the sea, and in many places is even below the sea-level, so as to require still more wonderful defenses against the ocean. These defenses are in part supplied by the operation of nature, casting up sand-hills along great part of the coast; but where these have not been formed, their place is supplied by dykes of vast extent, built in the course of ages, partly of huge blocks of granite brought from Norway, and partly of bundles formed of young trees, reared expressly for the purpose. These dykes stretch for hundreds of miles along the coast, and with those which line the rivers and canals, and with the requisite sluices, drawbridges, and hydraulic works of every kind, are estimated to have cost not less than £300,000,000 sterling. They form in so small a country a most astonishing monument of human industry. Yet they are not greater than the situation requires. They are barely sufficient to preserve the country from the dominion of the waters. The motto on the arms of one of the provinces, "Luctor-et-Emergo," still describes the struggles of the invincible Hollanders, requisite for maintaining the ground they stand upon. A destructive inundation occurred so lately as March, 1855. The rivers, augmented by the snows of winter, burst through the dykes in several provinces. A fourth part of Gelderland was submerged. The whole province of South Holland was in the most imminent danger. The embankment of the Rhine having burst in five places in Gelderland, admitted the flood, where it had not extended during 150 years. In Utrecht and North Brabant, the people of many communes had to abandon their property to the waters, and sought refuge for themselves on the roofs of houses and on trees. The neighborhood of Zutphen was very speedily converted into a vast lake, and the villagers hastily betaking themselves to boats and rafts, reached with the greatest difficulty the ramparts of the city. The flood which happily subsided after some days, exhibited, while it continued, the promptitude and energy with which the Hollanders have always contended against the peculiar difficulties of their situation. The king immediately repaired in person to the scene of danger, and took his station in the centre of the inundated country, directing all the operations, and giving every possible assistance. A collection ordered by the king for the sufferers produced £41,667, and private collections reached an equal amount. This sum was immediately distributed among the distressed families, whose habitations and lands had been laid waste. To drain off the remainder of the flood, to rebuild the dykes, to repair the Rhine railway, a considerable part of which had disappeared, could not be so quickly done, but all this the patriotism of the Hollanders has completely accomplished.

The Biesbosch, in the neighborhood of Dort, was formed in 1491, burying 72 villages under water, and drowning 100,000 persons. Of these villages, 34 have been rebuilt, as the progress of drainage permitted. The Dutch method of draining is highly ingenious. A marsh or lake is inclosed with a dyke to prevent any water from flowing into it. Wind-mills are then erected on the edge of the dyke, each of which works an Archimedean screw, and the water thus raised is discharged into a canal, which convey it to the sea. The Lake of Haarlem was the most celebrated of those occasioned by the overflowing of rivers; and its drainage by the application of steam is a great improvement on the old method of draining by wind-mills. See Haarlem, *Ency. Brit.* Besides these inundations from the rivers, Holland has experienced many others from the sea, which have left large tracts of country submerged, of which the Dollart and the Zuyder-Zee are the most extensive.

The Dollart between Groningen and East Friesland originated in 1277, and was greatly extended in the three following years. One town, 35 villages, and several hamlets were overwhelmed. It has from time to time been much reduced by drainage. The Zuyder-Zee was formerly only a lake, known by the name of Flevo, communicating by two channels with the North Sea. Subsequently the sea covered the lowlands, and the channels of communication were multiplied. Now the expanse of water is 80 miles long, and from 20 to 40 miles broad. Proposals for its drainage have been made to the government, and are under serious consideration. As means of communication between Amsterdam and the North Sea, the Zuyder-Zee has long been unsatisfactory, on account of the Pampus bank and numerous shallows. Sometimes, in consequence of long-continued northerly and easterly winds, its bed is almost dry, and vessels are everywhere lying on the sands. A substitute has accordingly been provided for it in the great North Holland Canal, one of the most stupendous works of the kind in existence. It was begun in 1819, and finished in 1825, at a cost of about £1,000,000 sterling. It is about 50 English miles in length. Its breadth, at the surface, is 124½ English feet, at the bottom 36. The depth is 20 feet 9 inches. Its level is that of the high tides of the sea, from which it receives its supply of water.

While the country possesses abundant means of communication by rivers and canals, it also has excellent roads. The highways in the central provinces are among the best in Europe. They run for miles in a straight line along the summits of the dykes, and are thus at once dry and elevated, commanding extensive views. Between the large cities they are broad, and usually paved with a kind of small hard bricks, called *klinkers*, made of sand, mixed with the clayey mud obtained in cleaning the canals. They are fitted so exactly to each other when laid down that scarcely a crevice is to be seen; and being well covered with sea-sand, they sustain little injury from carriages. Railways have also been made, or are in progress in all directions. Those between Rotterdam and Amsterdam, and between the latter city and Arnheim, have been in operation for several years. Rotterdam is also in communication by railway with Utrecht *via* Gouda, and with Antwerp. There is a branch between Antwerp and Breda. Maestricht, in Limburg, is also in communication with Aix-la-Chapelle.

The general aspect of this country is different from that of any other in Europe. The roads and canals are usually lined with willows and other trees, which afford an agreeable shade and relieve the uniformity of the landscape. Innumerable villas are seen decorated with the utmost nicety of art. Spires, church towers, villages admirable for neatness and cleanliness, large and well-built cities, rapidly succeeding one another; meadows in vernal green, varied by sheets of water, cattle in large herds, barges towed by horses, or spreading a sail to catch a favoring breeze—

every thing and every place in the highest order and perfection; such are the sights which Holland supplies in abundance, and in respect of which it has no parallel in any other part of the world.

THE FOLLOWING TABLE GIVES THE STATISTICS OF HOLLAND AS ASCERTAINED BY THE CENSUS, 31ST DECEMBER, 1853.

Provinces.	Population.	Houses.	Acres of cultivated land.	Acres of roads and waters.	Acres of uncultivated land.	Acres of total extent.	Proportion uncultivated.
North Brabant	405,525	3,106	704,301	97,283	458,876	1,263,136	1 : 2·78
Gelderland	387,423	2,893	784,311	51,982	409,713	1,253,155	1 : 2·309
South Holland	391,493	3,067	606,455	103,802	32,236	750,071	1 : 23·26
North Holland	514,755	2,502	421,411	61,835	126,926	616,354	1 : 4·85
Zeeland	165,075	1,728	353,228	8,026	43,968	409,480	1 : 9·31
Utrecht	155,324	1,103	271,587	21,464	43,338	349,114	1 : 7·82
Friesland	259,508	2,184	632,128	66,871	103,248	807,643	1 : 7·82
Overyssel	227,683	1,532	430,922	20,283	379,459	834,450	1 : 2·08
Groningen	197,101	1,860	444,147	28,922	100,599	578,265	1 : 5·74
Drenthe	89,944	603	212,669	5,219	437,120	656,498	1 : 1·50
Limburg	211,401	1,000	352,259	4,942	182,862	545,006	1 : 2·84
Total	3,203,232	21,573	5,213,418	470,629	2,313,345	8,053,172	1 : 3·18

The colonies in Asia—Java, Amboyna, Banda, Ternate, Macassar, with settlements in Sumatra and Borneo, also Desima in Japan, are stated to have a population of	16,478,137
The colonies in America—Surinam and the islands of Curaçoa and St. Eustathius	90,581
The colonies in Africa—Elmina, on the coast of Guinea	100,000
Total	16,668,718
Population of Holland	3,203,232
Total subjects of the King of Netherlands	19,871,950

The population has increased by 60 per cent. in 57 years at the following rates:

Years.	Population.		
1796—1815	166,422,	or annually,	8,760
1815—1830	380,321	"	25,355
1830—1840	236,525	"	23,652
1840—1850	187,887	"	18,788
1796—1853	1,101,368	"	19,322

The number of the inhabitants of 87 cities in 1853 was 1,163,559, and of the country 2,039,673. The population of the principal cities at the same period was the following:

Cities.	Pop.	Cities.	Pop.
Amsterdam	247,730	Haarlem	27,770
Rotterdam	90,888	Maestricht	26.919
The Hague	75,276	Leuwarden	24,461
Utrecht	50,710	Nimeguen	22,009
Leyden	37,106	Dort	21,905
Groningen	35,126	Bois-le-duc	21,862

Climate.—In respect of climate, Holland labors under many disadvantages. In winter it is much colder than England, and the waters are frequently frozen for three months. Even the Zuyder-Zee is sometimes frozen over. The temperature has been sometimes as low as 23° below zero of Fahr., and sometimes as high as 102°. In summer, cold nights often succeed to days of intense heat. The climate generally is variable. The atmosphere, especially in the western provinces, is loaded with moisture, and there agues, dropsies, pleurisies, and rheumatisms, are frequent. Gelderland is the healthiest province, but all the eastern side of the country is comparatively salubrious. Holland is frequently subject to violent gales of wind, which, when they blow from the west or north-west, are apt to cause inundations of the sea.

Agriculture.—This remarkable country largely rewards the skill and labor of the agriculturist. The south and central provinces are the most fertile. As has been shown above in one of the tables, there are still extensive tracts of uncultivated land, although much has been reclaimed of late years. The farms in the best parts of Zeeland vary in extent from 166 to 330 acres each. In South Holland the proportion of pasture to arable land is about 2 to 1. In Friesland the quantity of pasture is more than eight times that of arable land. In Gelderland there are large plantations of apple, pear, and cherry-trees. Tulips and hyacinths are extensively cultivated in the neighborhood of Haarlem in fields of several acres each. Pulse and garden vegetables are everywhere raised in great abundance, also woad and madder. Flax is largely cultivated in the south, and especially in the neighborhood of Dort. Utrecht and Gelderland produce considerable quantities of tobacco. The following are the statistics of the harvest of 1853:

	Cultivated land in acres.	Produce in quarters.
Wheat	177,065	329,267
Rye	448,648	883,036
Barley	108.316	435.866
Oats	211,218	980,585
Buckwheat	157,489	474,055
Cabbage seeds	53,062	108,154
Peas	25,533	78,780
Beans	32,404	340,183
Potatoes	216,074	2,604,954
Carrots	2,617	....
Flax	51,572	....
Tobacco	3,383	....

The rearing of live stock, however, and dairy husbandry, are much more important sources of national wealth than tillage. The lean cattle brought from Denmark and Germany fatten with great rapidity in the Dutch *polders*. Large herds of beautiful cows yield great abundance of the richest milk. Butter and cheese of the best quality are larely exported, and bring great wealth to the peasantry. The Dutch horses are good, and well adapted for draught; the best are those of Friesland. The breeds of sheep, however, are not particularly good.

The statistics of 1853, December 31, give the following numbers for the whole kingdom:

Horses	236,562	Sheep	826,061
Horned cattle	1,236,974	Swine	233,900

In North and South Holland, Groningen, and Utrecht, there are made 140,000,000 lbs. of cheese annually, the home consumption of which does not exceed one twentieth. This large quantity at its average price produces £1,800,000 sterling annually. The value of the butter is about £2,000,000 sterling more, of which their own consumption amounts to one tenth.

Butter and cheese figure among the great articles of the industry and the commerce of Holland. It appears from one of the published tables, that from 1803 to 1850 the export of butter has constantly increased, so as to have been quadrupled in half a century. From 3437 tons in 1803 it arrived at 11,931 tons in 1852. The export of cheese was 9823 tons at the beginning of the century. In 1852 it was 19, 646 tons. For 1854, instead of a general statement such as the above, we have found indications regarding particular commodities, the trade in which was very active. The importation of raw sugar in 1854 was 108,546 tons, against 102,101 in 1853. The export of raw sugar rose to 55,536 tons, being 4420 tons more than in 1853. The importation of coffee from Java, on the other hand, was less in 1854 than that of 1853 and 1852. In 1852 it was 1,073,838 bags; for 8353, 938,680 bags; and for 1854, only 928,230 bags. The trade in indigo, however, was progressing. The imports in 1854 were 14,130 chests, against 10,200 in 1853, 8600 in 1852, and 5500 in 1851. The importation of cochineal was equally increasing: 1535 chests in 1854 against 868 in 1851. Tobacco held also a principal place in the imports of 1854. There were received 13,550 barrels from Maryland, and 3110 from Virginia. Tin from Banca furnished 132,864 blocks. The trade in wool revived, and that in cotton assumed considerable importance. The trade in flax was 1611 tons in 1854. In 1850 it had not reached 344 tons. Thus it had been quadrupled in five years.

The account of exports is not, for the same period, so favorable. It gives, indeed, the first notice of direct trade with Australia; but the result of this new enterprise was not encouraging. Holland exported its agricultural produce, however, in great quantity. In 1854, the export of butter was 14,244 tons against 13,261 in 1853. That of cheese was nearly 25,540, being 982 more than in 1853. That of cattle, 77,198 head of oxen. In 1853 there were 83,074 oxen and 204,148 sheep.

Shipping.—The following account is given of the shipping:

	Cleared inward.		Cleared outward.	
	Ships.	Tonnage.	Ships.	Tonnage.
1850......	6,961	1,099,671	7,031	1,136,664
1851......	6,960	1,166,140	7,177	1,216.558
1852......	7,457	1,249,728	7,712	1,317.425
1853......	6,883	1,151,293	7,068	1,215,869

The Netherlands' and foreign ships were, 1853, in the following proportion:

Flags.		Cleared inward.		Cleared outward.	
		Ships.	Tons.	Ships.	Tons.
Netherlands...	per cent.	49½	44½	47½	43
Foreign.......	"	50½	55½	52½	57

To have a full view of the trade of Holland, we must not only learn its state as carried on by sea, but also by the rivers, which carry a great amount of it. Tables have been published of the merchandise which arrived, and was forwarded by way of the Rhine, in 1854. There was an increase above 1853 of 7260 tons from Amsterdam to places on the Rhine, and of 12,328 tons from the Rhine to that city. Coffee, rice, and the oleaginous grains are foremost in this progressive increase. The export of rice to Germany has had a remarkable increase. In 1842–'52 it was only 8666 quarters per annum. In 1853 it was 46,459. The quantity of grain sent from Amsterdam to the Rhine in 1834 was 15,600 tons.

The vessels engaged in the river navigation were in 1853:

	Cleared inward.		Cleared outward.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
Laden.....	15,973	1,134,748	9,844	787,105
In ballast..	2,213	148,680	8,187	521,975

with 127 wood-rafts, measuring 24,328 cubic ells.

The proportion of these belonging to the Netherlands was:

Of laden vessels	8,879	Tonnage 611,578	inward.
"	4,615	" 376,009	outward.

The remainder belonged principally to Belgium and Prussia, and, in smaller proportions, to Hanover, Baden, Nassau, Hesse, Bavaria, Frankfort, and Wurtemberg.

On the 31st December, 1853, the merchant fleet of Holland counted in all 2037 vessels = 239,601 lasts burden. There were 142 frigates = 56,142 lasts; 334 barks = 93,091 lasts; 66 brigs = 8439 lasts; 168 schooners = 13,436 lasts; 783 koffs = 46,465 lasts; 250 tjalks = 7259 lasts. The number of steamers belonging to the Netherlands in 1837 was only 30 with 58 engines of 2200 horse-power. In 1853 there were 100 steamers, with 118 engines of 6911 horse-power, not including those of the royal navy. It is stated in the tables that, independently of the Netherlands' trade, there were employed during 1853 in the carrying trade between foreign parts, Netherlands' ships which made no less than 2266 voyages, with 207,204 lasts of lading. The Dutch consuls at foreign ports furnished the data of this enumeration, which was made in 1853 for the first time. In connection with the great emigration to the gold-fields of Australia, more than 50 Dutch ships were freighted in different British ports for that distant country during the first six months of 1854.

To these details, gathered from the statistical publications of the Dutch government, by which it has been attempted to convey an idea of the present state of the trade of Holland, we will only add one remark, that with the exception of the old East India Company's monopoly above mentioned, the commercial policy of Holland for a lengthened period was more liberal than that of any other nation. The same enlightened policy, if partially departed from during recent years, has been again cordially entered into after the recent example of Great Britain. A law enacted on 1st September 1854 abolished the import duties on a great number of articles of merchandise; and the Netherlands' tariff, thus modified, equals, if it does not even surpass, in liberality all other tariffs in existence. It has evidently been in consequence of this enlightened policy, having for many generations been generally understood and practiced by the Dutch government, that a country not more extensive than Wales, and naturally not more fertile, recovered, indeed, in a great measure from the waters, and kept from being again submerged, by constant watchfulness, and a heavy expenditure; accumulated a population of more than 3,000,000; maintained wars of unexampled duration with the most powerful monarchies; and besides laying out immense sums in works of utility and ornament at home, lent hundreds of millions to foreigners. Notwithstanding their want of native timber and iron, they are abundantly supplied with all the materials of carpentry, ship-building, and manufactures. And though their commerce, notwithstanding its revival in later years, is much diminished from its earlier preeminence, the Dutch, even at this moment, are the richest and most comfortable people of Europe.

The following is a budget of receipts and expenditures of the national revenue for 1856:

REVENUE.

Direct taxes (land tax, provincial taxes, patents)..	£1,597,378
Excise..........	1,395,871
Stamps, registrations, hypothec successions.......	958,525
Import, export, and navigation duties.............	352.664
Duty on pawned gold and silver wares............	19.158
Domains..........	108,975
Post-office..........	120,833
Lottery..........	33.333
Sporting and fishing licenses....................	7,083
Duty on mines..........	96
Diverse revenues..........	102.475
Interest of national debt contributed by Belgium..	33.333
Interest at the charge of the colonies.............	900.000
Balance derived from colonial administ'n. at home	391,667
Derived from sale of the national domains........	77,864
Total revenue, 1856..........	£6,099,255

EXPENDITURE.

King's household..........	£66,667
High departments of state..........	45,688
Department of foreign affairs..........	40,834
Department of justice..........	212,225
Home department..........	471,642
Churches and Jewish synagogues..........	141.180
Roman Catholic church..........	49,246
Department of marine..........	634,715
Interest of national debt..........	2,935.586
Department of finance..........	530,159
Department of war..........	973,750
Colonial department..........	9,645
Incidental expenses..........	8,333
Total expenditure, 1856..........	£6,119,670

The following table gives the receipts and expenditure of the different provincial governments for 1855, and of the communes for 1854:

	Provincial, 1855.		Communes, 1854.	
	Receipts.	Expenditure.	Receipts.	Expenditure.
North Brabant....	£60,925	£60,363	£96,328	£87,563
Gelderlend........	11,258	11,258	119,570	121,692
South Holland....	19,928	19,928	366,725	364,831
North Holland....	20,524	20,525	421,025	424,820
Zeeland..........	9,848	9,848	75,981	75,987
Utrecht..........	5,604	5,603	59,713	59,687
Friesland..........	28,787	28,777	124,361	130,486
Overyssel..........	16,429	16,429	92,804	89,424
Groningen..........	26,727	26,721	109,684	109,597
Drenthe..........	4,661	4,661	19,863	19,846
Limburg..........	6,869	6,869	51,171	40,972
Total........	£211,060	£210,482	£1,530,225	£1,524,806

In consequence of the provincial and communal councils having a right to levy taxes as well as the general government, it is necessary to sum up all the three budgets in order to obtain the whole amount of the public revenue and expenditure. This can, however, only be done for 1854, as the communal budgets for 1856 and 1855, and the provincial for 1856, are not given in the latest statistical publications:

	Income.	Expenditure.
National	£6,656,056	£6,936,842
Provincial	176,345	176,665
Communal	1,536,225	1,524,806
Total	£8,368,626	£8,638,313

On the 27th August, 1751, William IV., Prince of Orange, presented to the States General of Holland a remarkable memoir on the state of that republic, which is still preserved in a work entitled "*La Richesse de la Hollande*," published in London in 1788. That prince requested the opinions of several leading merchants, and others of large mercantile experience, on the following questions, viz.: 1st. What is the actual state of commerce? and if the same should be found to be diminished and fallen to decay, then to inquire; 2d. What arrangements and means may support it, and, if possible, restore it to its former prosperity and grandeur? These questions elicited a statement, or, more properly, an elaborate and lengthy report, on the causes by which the trade and navigation of the United Provinces rose and flourished. This report is divided into three heads, viz.: 1st. The natural and physical causes; 2d. The moral causes, and, 3d. The accidental, adventitious, or external causes.

Under the first head are classed the advantageous situation of the country, near the sea, and at the mouths of large navigable rivers; its central situation, which rendered it the general market to which the merchants of northern and southern Europe were accustomed to bring their merchandise, and exchange the same for such goods as they wanted. The sterility of the country, and the consequent want, it is represented, have contributed in animating the spirit, zeal, industry, and genius of the people to seek in foreign countries those things which they most need at home; and this could only be effected by means of trade. This they were enabled to do by the great abundance of fish in the neighboring sea, which furnished an equivalent for the exchange of those things which the barrenness of their own country, and their limited extent of arable lands, denied them at home. Among the moral causes, the report cited the invariable maxim and fundamental law of the State, which permits the free exercise of all religions, and regards toleration in this respect as the most effectual means of attracting foreigners from adjacent countries, and, by that means, to augment the population of these provinces. The constant policy, it is remarked, of this republic has been to make this country a safe asylum for persecuted and oppressed foreigners; and no alliance, no treaty, no solicitation of any potentate in the world has ever been capable of destroying the protection and security accorded to those who have sought its refuge. This fundamental maxim of the republic has caused many people to flee from the oppressions and persecutions exercised in other countries, and to seek refuge, as well as employment, bringing with them not only their money and their valuable effects, but also their industry. They have established many trades, manufactories, and arts, notwithstanding the first materials for the said manufactures were almost wholly wanting in the Netherlands, and only to be procured, at great expense, from other countries.

The constitution and the form of government, and the civil liberty thus extended, furnish another cause to which the growth of trade and the prosperity of commerce are attributed. The wisdom and prudence of the administration, the courage and firmness of the councils, the fidelity with which contracts and engagements were wont to be fulfilled, are also classed among the moral causes under which their commerce had reached so high a degree of prosperity and splendor. Among the accidental or external causes are enumerated the civil wars in France, and afterward in Germany, England, and other countries, which contributed largely to the encouragement of the manufacturing industry of Holland; while the religious persecution in Spain, Brabant, Flanders, and other states and empires, also contributed to the advancement of its commerce. After dwelling at length on these three heads, this celebrated report then discusses the actual state of the trade of the country, and shows that the first two—the natural and moral causes—still remain unchanged; while the third—the accidental and external causes—had almost entirely disappeared. Persecutions in other countries had ceased; indolence and contempt for trade had given place to industry and commercial enterprise; their own example had been imitated by England, which for a century had been straining legislation to attract the trade so long enjoyed by the republic, and which now prohibited the exportation of the wool which formerly fed the factories of Holland; while many other countries had successfully introduced those branches of industry which in former days had flourished in the Netherlands alone.

The great number of shops which had been closed in the principal towns, especially in Amsterdam; the difficulty of procuring seamen to man the ships; the flourishing commerce of Hamburg and other towns, which now supply Germany with all kinds of colonial produce, of which Amsterdam was formerly the great emporium; the extinction of Dutch commercial houses in Spain, and of Dutch trade in the Levant: all of these were cited as proofs of the present decline of the trade and commerce of Holland. This report, of which a brief sketch has thus been given, closes with a recommendation to permit all raw materials to be entered free of duty, as well as all foreign goods placed in entrepôt, or for transit; basing this recommendation upon the maxim, that the lighter the burdens were, the greater would be the trade. Nearly 200 years prior to the date of this report, the revolt of the Netherlands against Spain commenced. The Duke of Alva, then the Spanish governor of the Netherlands, was defeated; all the Spanish ships on the coast of the Netherlands were destroyed; several Spanish towns were taken, and Spanish troops were expelled from the cities and towns of Holland, Zealand, and West Friesland, whose citizens joined in the revolt, and swore allegiance to the Prince of Orange.

In 1579, the famous union of the States of Holland, Friesland, Zealand, and Utrecht was formed at the latter place, and a solemn compact entered into to unite as one confederation, and, as such, to advise of peace, war, and taxes, and to maintain personal and religious liberty. Overyssel and Groningen soon after joined the union; and, in a few years, these seven United Provinces became the most powerful republic which the world had seen since the decline of ancient Rome. From this period until the treaty of Westphalia was signed (1648), we find the Dutch growing rapidly in power, commerce, and wealth; sending their ships to every quarter of the globe; successfully resisting the Spanish and Portuguese flags, on whatever sea they chanced to encounter them; capturing their vessels; expelling them from the Moluccas; forming trading establishments in the Persian Gulf, and thence along the coasts and isles of India to Japan, and especially at Ceylon, Java, and the Moluccas. In one of these naval encounters (1658), the Dutch captured a whole fleet of Spanish galleons, bringing home, as the prize of victory, precious metals to the value of 10,000,000 guilders. The vessels and seamen employed in these naval adventures were under the management of the Dutch East India Company, which frequently realized from the rich captures and costly cargoes—

spices, cinnamon, and other East India productions—as high as 62½ per cent. on the capital stock invested.

A West India Company was also organized about the year 1621, originally for the purpose of driving the Portuguese out of Brazil, and the Spaniards out of Peru, in which they were not so successful as in their East India adventures. They captured, however, the Spanish fleet in those seas; scoured and plundered the coasts of Cuba; took possession of Pernambuco and the islands of Curaçoa, St. Eustace, and others, which they still retain.

The first check to this extensive and almost undisputed dominion of the sea, which the Dutch experienced, was the celebrated navigation act of the *Rump* Parliament, enforced by Cromwell, and 10 years afterward legalized by Charles II. The Dutch, at this period, enjoyed a profitable carrying trade between England and her American colonies. By this act, it was provided that no merchandise, the produce of Asia, Africa, or America, should be imported into England in any but English-built ships, commanded by an English master, and navigated by a crew three fourths of whom should be Englishmen; nor any fish exported from or imported into England or Ireland, except of English taking. As might have been, and confessedly was, expected, a war soon after broke out between Holland and England, exclusively naval, which was carried on with the utmost desperation on both sides. After several fierce and bloody engagements, the Dutch were defeated, and were compelled to sue for peace. A treaty followed, imposing the most humiliating terms upon the hardy republic; among others, that "of striking their flag, and lowering their topsails, whenever the Dutch ships should meet any of the ships of war of the English commonwealth in the British seas." Several other wars occurred between the Dutch and English, and, in 1672, between the former and the English and French combined. Toward the close of the war of the American Revolution, hostilities were again declared against Holland by Great Britain, on the pretense that the dockyards and arsenals of France were furnished with munitions of war, and the American troops with supplies, by Dutch vessels. A discovery, accidentally made by the British in the following year, that a secret treaty, recognizing the independence of the United States, had been negotiated in 1778, between Holland and the American Congress, inflamed the already excited animosity of England against the Dutch, to so high a pitch, that war was immediately declared. During the existence of these hostilities the Dutch lost their West India possessions; and, during the subsequent wars of the French Revolution, in which the Netherlands were forced to co-operate with the French, the whole of their East India possessions passed into the hands of the British.

In 1814, the independence of Holland was restored, and Belgium and Holland were erected into one kingdom. In the convention of 1815, Java and all the Dutch colonies were ceded to Holland, with the exception of the Cape of Good Hope, and the settlements of Demerara, Essequibo, and Berbice. The British, also, obtained the cession of the settlement of Cochin and its dependencies, on the coast of Malabar. The possessions of the Dutch in the East Indies are now reduced to the island of Java, the Moluccas, Sumatra (for which they gave Fort Molucca in return), Macassar, Celebes, Banda, Amboyna, and Ternate. They possess several forts on the coast of Guinea: in the West Indies, Curaçoa, St. Eustace, Saba, and part of St. Martin; and in South America, a portion of Surinam, or Dutch Guiana. The revolution in Belgium in 1830 resulted, as already stated in the article on that kingdom, after a few days' contest, in the separation of Belgium from Holland, and its erection into an independent kingdom. Since 1830, Holland has uninterruptedly pursued the arts of peaceful commerce, industry, and trade. Her navigation is annually extending; and her great commercial marts, Amsterdam and Rotterdam, bid fair to regain their former prosperity.

The United States.—In their commercial relations with the United States, the Netherlands have always manifested a spirit of liberality. Several treaties of amity, navigation, and commerce have been entered into between the two countries—the last bearing date August 26, 1852. This treaty of 1852 is based upon the principle of entire reciprocity and perfect freedom of commerce, and applies, with all its privileges, to the intercourse between the United States and the colonies and dominions of Holland beyond seas. It reserves to Holland the right to levy discriminating duties of import and export in favor of her direct trade with such colonies and dominions; but should American vessels engage in such direct trade, they are to enjoy perfect equality with the national flag. The United States is also at liberty to continue to levy the discriminating duty imposed by the tariff of 1846 on tea and coffee, in favor of the direct importation of these articles from the places of their growth, but also without discriminating between the flags of the two countries. This treaty is to continue in force two years, commencing six weeks after its ratification, with the usual 12 months' notice by either party wishing to terminate its action. Before the date of this last treaty, the reciprocity and freedom of commerce between the Netherlands and the United States applied only to the direct trade between the two countries. All restrictions, not only as regards entire reciprocity and perfect equality in the direct trade between the two nations and their flags, respectively, but, as it respects our trade with the Dutch colonies, were by this treaty abolished, and the two flags were assimilated (the coasting trade and fisheries excepted), on every sea, and in every port.

Navigation Laws.—The laws amending the Netherlands legislation with respect to navigation were prepared in 1848, but not proclaimed as in operation until the year 1850, when the abolition of the British navigation acts rendered necessary the immediate adoption of that step. The new system agreed to by both the Chambers of the States General is contained in a collection of rules embodying the legal dispositions and schedules. These are too numerous and lengthy here to be inserted; but the following summary will convey a general idea of their purport, and show how beneficially the liberal spirit, which has of late years guided British commercial legislation, enters into and molds the commercial systems of neighboring countries. Whatever favor the system of "free trade" may hereafter meet with among the commercial nations of the earth, there can be little doubt that the spirit of free navigation has entered upon its beneficent mission, and already shapes the legislation of those nations which have thriven and flourished most by commerce. The countries of Europe which still retain their medieval commercial policy—and, indeed, those on our own continent which have inherited from their European progenitors similar systems of commercial intercourse with foreign nations—must either abandon their restrictive policy, and adopt, in its widest sense, and with all its privileges and rights, the common-law definitions of *mare liberum*, or find themselves isolated from the rest of the commercial world. When this spirit has already burst through the barriers which, from a time "to which the memory of man runneth not to the contrary," closed China and Japan against every approach of civilized commerce, it can not be doubted that its influence will soon or late be felt and acknowledged by those nations which would erect financial barricades across the highway of nations, and interdict the importation of bread to feed, and fabrics to clothe, their destitute subjects. The present navigation laws of England are but the commencement of a new era in the commercial legislation of

Europe. The example of Holland, of Belgium, of the Hanse-towns, and the Zollverein (though, as regards the latter, there is still much to be done), can not but hasten this liberal reformation in the navigation laws of neighboring governments. The leading features of the new navigation laws of the Netherlands may be gathered from the following summary. It embraces the chief bases upon which they rest:

1. Unconditional repeal of discriminating favors granted to the Dutch flag, by suppression of the rules allowing to this flag preference above foreign flags. 2. Conditional similarity of flag in the navigation to and from the Netherlands colonies. 3. Stipulations by law concerning the trade and navigation in the colonies of the realm, carried on by other nations of the world. 4. Repeal of the interdiction to grant Netherlands registers to foreign-built vessels, by admittance for registry (naturalization) of such vessels at a duty of four per cent. of their value. 5. Diminishing of import duties on principal materials for ship-building. 6. Suspension of the *shipping duties* on the Rhine and Yssel. 7. Total abolition of transit duties.

The principal object of all these measures is to promote trade, by relieving navigation, as much as possible, of the impediments against its development which resulted from past legislation. The general system comprehends a plan of establishing, in one general law, instead of by complicated treaties of commerce with the different nations, the principle of immediate and unconditional "free navigation," and, consequently, the general and unconditional assimilation of flags, by granting to the vessels of all nations the privileges enjoyed by those of the Netherlands; reserving, however, the right of retaliation, should circumstances render its exercise necessary, which, in most cases that can happen, will be limited to an augmentation of shipping taxes, or of import duties; and saving, also, certain restrictions and conditions relative to importations from Netherlands colonies. In fine, the navigation laws of Holland are framed so as to open, as far as possible, all Netherlands ports for ships of all nations; "to proclaim," as announced in the official exposition, "a renewed adherence to the liberal commercial policy which the Netherlands was the first nation to adopt, in order to stimulate other nations to abandon all systems of protections and prohibitions; to abolish all exclusive protections of the Netherlands flag, so that our (their) navigation may, with good success, keep pace with that of other nations, and our (their) commerce may not remain behind in the newly-opened competition resulting from the repeal of the navigation laws of England." Under the regulations condensed above, as well as under the treaty with the United States of 1852, the American flag is assimilated to that of the Netherlands in the colonial trade. Indeed, in all respects, without any condition or qualification whatever, the flags of both nations enjoy entire and perfect equality. On the 5th of August, 1844, the then Secretary of the Treasury addressed to collectors and naval officers circular instructions, in which the following paragraphs occurred:

> "The chargé d'affaires of his majesty the King of the Netherlands has presented a complaint that the duty of 20 per cent. ad valorem, levied upon coffee imported from the ports of the Netherlands, is in contravention of the subsisting treaties between the United States and the King of the Netherlands; seeing that, by the ninth article of the act of 1842, coffee imported in vessels of the United States, from the place of its growth or production, is exempt from duty.
>
> "By the first article of the treaty of 1839, between the United States and the United Netherlands, it is stipulated that goods and merchandise, *whatever their origin may be*, imported into or exported from the ports of the United States, from or to the ports of the Netherlands *in Europe*, in vessels of the Netherlands, shall pay no other or higher duties than shall be levied on the like goods and merchandise imported or exported in national vessels, etc.
>
> "As coffee imported in the vessels of the United States is exempt from duty, it follows, from the treaty before recited, that coffee imported in the vessels of the Netherlands, from their ports in Europe, is exempt from duty. Therefore, such duties as have been so levied upon coffee, so as aforesaid imported, in vessels of the Netherlands, from their *ports in Europe*, must be refunded; and, in future, coffee so imported must be admitted free of duty."

From these instructions it necessarily followed in practice, that while the coffee of Java, imported in vessels of the Netherlands, from ports of the Netherlands, has been exempted from duty on its arrival in the United States, the same article, when imported in American vessels, from the same ports in the Netherlands, has been subjected, under the provisions of the 10th section of the tariff act of 30th of August, 1842, to the payment of a duty of 20 per cent. ad valorem, as a non-enumerated article. On the 11th of September, 1845, these instructions were countermanded, by Treasury circular of that date, as not warranted by the provisions of the treaty of 1839; the word "so," which qualified the importation or exportation, having been overlooked in preparing the circular first referred to. A different construction would give to the vessels of Holland an advantage over American vessels engaged in the same trade, as already intimated, of 20 per cent.—an advantage which could hardly have been intended to be given by any treaty with a foreign power. All ambiguity or doubt on this subject is removed by the tariff act of 1846. Under the provisions of that act, however, the Netherlands flag still enjoys an advantage over that of the United States in the coffee carrying trade. Thus, schedule 1 of the act provides, that "coffee, the growth or production of the possessions of the Netherlands, imported from the Netherlands in American vessels, or in foreign vessels entitled by reciprocal treaties to be exempt from discriminating duties, tonnage, and other charges," shall be free. The export duty on coffee at Java, is 12 per cent., half of which is remitted in favor of direct importation to the Netherlands in national or equalized bottoms. Consequently, a Dutch vessel, carrying Java coffee from Holland into the United States, can undersell the American importer who brings it into port direct from Java, the amount of the differential export duty, or six per cent. on the value of his cargo.

Commerce.—The principal articles imported into Holland in 1853, and their proportion to the total amount of importations, were as follows:

	per cent.		per cent.
Tissues of all kinds	12·61	Grains	6·40
Raw sugar	12·03	Iron	8·68
Yarns	9·00	Raw Cotton	3·49
Coffee	8·47	Dye stuffs	2·99

The principal exports, and their proportion to the total amount of exportations, were:

	per cent.		per cent.
Woven fabrics	8·95	Grains	4·84
Refined sugar	7·29	Raw sugar	4·54
Yarns	7 15	Live animals	4·09
Coffee	6·59	Butter	3.99

The total general commerce of Holland in 1853 (imports and exports united), amounted to $237,000,000, showing a diminution, when compared with the preceding year, of $540,000.

The diminution in exports fell principally upon alimentary products of the first necessity, and was caused by the general bad crops of the year. The share assigned in the commerce of this year amounted to: imports by sea—to the Dutch flag, $49,391,732; to the foreign flag, $42,613,132—giving to the Dutch flag in the import trade, 53⅞ per cent.; and to the foreign flag 46⅛ per cent. In the export trade, the Dutch flag had $29,626,014; the foreign flag, $30,870,144—giving the Dutch flag 49, and the foreign flag 51 per cent.

The total imports of the Netherlands in 1854, as appears from the *Statistical Year Book of Holland*, for that year, amounted to 356,484,000 florins, or $142,593,000; showing an increase over the imports of

1853 of $14,173,000, and over the imports of 1852 of $13,505,000. The total exports the same year, as given by the same authority, amounted to 308,780,000 florins, or $123,512,000; showing an increase over the exports of 1853 of $14,391,654, and over the exports of 1852 of $14,518,000.

IMPORTS AND EXPORTS OF HOLLAND FOR 1854.

Countries.	Imports.	Exports.	Total.
Great Britain........	$39,904,000	$30,077,000	$69,982,000
France..............	4,868,000	5,229,000	1,098,000
Zollverein.........	27,527,000	46,574,000	74,101,000
Hanse-towns........	3,204,000	4,245,000	7,450,000
United States.......	3,018,000	2,054,000	5,072,000

The value of the total trade between Holland and the United States for 1854, as given in the United States' Treasury Report on Commerce and Navigation, is $4,138,636, or $934,150 less than that given by the Dutch official report.

The chief articles exported from the United States to Holland are cotton, tobacco, rice, breadstuffs, etc. The leading imports into the United States from Holland are spirits (principally gin), coffee, madder, spices, pictures, paintings, segars, tin, etc. There entered in 1853, in Dutch ports, from foreign countries, 6392 vessels, measuring 1,064,233 tons; of which number 70, measuring 26,765 tons, bore the flag of the United States; and 18 vessels, under the Dutch flag, sailed direct from our ports with American produce. During the same year, there cleared from the Netherlands to foreign countries, 4,413 ships, measuring 776,889 tons; of which there were under the American flag, for United States' ports, 22 vessels, measuring 11,333 tons; and for the same destination, 27 vessels belonging to other nations.

In 1853 there entered at the different ports of Holland 1006 steam vessels, laden, measuring in the aggregate, 304,329 tons; 195 steam vessels in ballast, measuring in the aggregate, 72,800 tons; in all, 1201 vessels, tonnage, 377,129.

The vessels in ballast were all under the English flag; those freighted were distributed as follows:

	Vessels.	Tons.
Under the Dutch flag............	356	89,641
" English flag...........	636	210,516
" French flag...........	13	4,082
" Swedish flag..........	1	90
Total...............	1,006	304,329

Since the new navigation laws of Holland came into operation (August 8, 1850), the maritime commerce of that kingdom has been distributed as shown by the following table:

IMPORTATIONS BY SEA.

Flags.	1849.	1850.	1851.	1853.
Dutch..........	59 per ct.	58 per ct.	53 per ct.	53 per ct.
Foreign.........	41 "	42 "	46 "	46 "

EXPORTATIONS BY SEA.

Flags.	1849.	1850.	1851.	1853.
Dutch..........	51 per ct.	56 per ct.	50 per ct.	49 per ct.
Foreign.........	49 "	44 "	49 "	51 "

COMMERCE OF THE UNITED STATES WITH HOLLAND, FROM OCTOBER 1, 1820, TO JULY 1, 1856.

Years ending.	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Exported.	Imported.	American.	Foreign.
Sept. 30, 1821........	$1,954,518	$1,789,692	$3,694,205	$1,938,953	$132	$1,352,167	26,048	1,063
1822........	2,077,368	1,524,683	3,602,051	863,995	....	158,651	28,683	1,281
1823........	2,642,930	2,409,216	5,052,146	754,950	1,990	222,791	53,346	6,769
1824........	1,597,514	617,831	2,215,345	1,210,267	....	239,551	24,517	1,452
1825........	2,486,468	1,306,839	3,793,307	1,253,369	....	15,085	26,946	678
1826........	1,970,199	1,899,857	3,870,056	1,106,408	....	151,380	32,946	1,138
1827........	2,339,381	888,950	3,228,331	965,917	740	85,608	33,519	1,712
1828........	1,863,767	365,646	2,229,413	1,398,572	4,300	181,283	25,515	6,179
1829........	3,095,857	889,330	3,985,187	1,057,854	15,451	17,308	38,872	4,951
1830........	3,354,551	675,527	4,030,078	888,408	....	12,197	35,220	4,515
Total....	$23,382,548	$12,317,571	$35,700,119	$11,438,693	$22,613	$2,436,021	325,112	29,738
Sept. 30, 1831........	$1,707,292	$212,860	$1,920,152	$989,837	$5,000	$16,641	23,168	1,994
1832........	2,232,792	2,870,490	5,103,282	1,360,668	....	4,764	38,770	8,372
1833........	1,634,353	722,409	2,356,762	1,166,856	26,178	5,440	22,483	6,938
1834........	2,365,536	1,258,138	3,623,674	1,123,956	....	60,071	25,819	7,171
1835........	2,345,980	187,036	2,533,016	1,590,570	....	50,608	18,946	6,151
1836........	2,498,096	686,479	3,184,575	1,828,231	....	....	14,073	11,956
1837........	2,035,589	1,322,936	3,358,525	1,886,976	....	32,461	13,745	22,788
1838........	2,555,979	398,269	2,954,248	1,180,897	3,612	9,512	18,501	12,029
1839........	1,677,352	295,651	1,973,003	2,149,732	260	2,388	11,612	12,381
1840........	3,345,264	511,046	3,856,310	1,074,754	800	466	31,747	11,929
Total....	$22,398,233	$8,465,314	$30,863,547	$14,352,477	$35,850	$182,851	218,864	101,709
Sept. 30, 1841........	$2,237,444	$277,478	$2,514,922	$1,688,022	....	....	24,398	10,338
1842........	3,236,338	386,988	3,623,326	1,067,438	....	....	33,589	18,804
9 mos 1843........	1,698,327	238,140	1,936,467	430,823	....	$12,720	28,239	2,660
June 30, 1844........	2,517,921	181,023	2,698,944	1,310,081	....	236	23,786	16,589
1845........	2,753,780	268,267	3,022,047	954,344	....	1,500	27,859	16,547
1846........	2,097,691	199,074	2,296,765	1,059,597	....	2,062	23,585	11,582
1847........	1,885,398	129,936	2,015,334	1,247,209	....	14,662	17,744	17,143
1848........	1,595,450	271,513	1,866,963	1,417,908	$28,900	....	12,347	21,255
1849........	2,155,328	242,027	2,397,355	1,501,643	....	....	22,536	16,460
1850........	2,188,101	416,564	2,604,665	1,686,967	....	....	14,968	22,753
Total....	$22,365,778	$2,611,010	$24,976,788	$12,314,032	$28,900	$31,180	224,051	154,131
June 30, 1851........	$1,911,115	$284,054	$2,195,169	$2,052,706	....	....	9,239	26,014
1852........	2,292,848	204,681	2,497,529	1,635,516	....	....	18,759	22,923
1853........	1,983,723	215,773	2,199,496	1,625,170	....	....	10,302	20,780
1854........	2,299,710	142,956	2,442,666	1,695,970	....	....	15,204	15,004
1855........	1,920,869	208,615	2,128,984	1,825,700	....	....	15,978	17,263
1856........	3,501,110	85,318	3,586,428	2,426,479	....	....	22,557	24,977

The general navigation and trade of Holland, considering its comparatively limited area, presents a spectacle of commercial greatness unequaled in the world. In 1852, its general imports reached $129,087,823, and its exports $108,993,854. In 1853 the imports amounted to $128,420,691, and the exports to $109,120,666. This commercial prosperity nearly equals that which the Netherlands attained in its palmiest days, when Beawes said of it in his *Lex Mercatoria*: "It produces hardly any thing, and yet has wherewith to furnish other people all they can have need of. It is without forests, and almost without wood. There are no mines or metals, and yet there is found as much gold or silver as in New Spain or Peru; as much iron as in France; as much tin as in England; and as much copper as in Sweden. The wheat and other grains that are there sowed hardly suffice for nourishment to a part of the inhabitants; and it is, notwithstanding, from hence that the greatest part of its neighbors receive them, either for their subsistence or trade. In fine, it seems as if the spices grew there; that the oils were gathered there; that it nourished the precious insects which spin the silk, and that all sorts of drugs, for medicine or dyeing, were in the number of its products and of its growth. Its warehouses are so full, and its merchants seem to carry so much to strangers, or that strangers come to load in its ports, that there is not a day, and it may be said a moment, that ships do not come in or go out, and frequently entire fleets." Such was the picture drawn of the Netherlands in 1670. Its present commercial condition, though different in every other respect from the Netherlands of that period, is quite as prosperous, and rests upon a basis more solid and secure.

TABLE EXHIBITING THE VALUE OF THE COMMERCE OF THE NETHERLANDS WITH FOREIGN NATIONS IN 1853, IN FLORINS [FLORIN VALUED AT FORTY CENTS UNITED STATES' CURRENCY].

Countries.	IMPORTS.		EXPORTS.		
	General imports.	Imports for consumption.	General exports.	Of special commerce.	Transit.
Australia	....	....	694,628	463,061	231,567
Belgium	25,164,698	20,534,254	24,112,814	19,693,723	4,419,091
Brazil	4,573,593	2,149,143	40,366	26,786	13,580
Bremen	1,138,542	760,406	982,639	766,286	216,853
California	....	....	129,340	102,935	26,405
China	1,411,167	898,191	2,502	1,904	598
Cuba	2,317,539	2,017,582	159,730	159,269	461
Curaçoa	127,681	86,408	322,030	269,315	52,715
Denmark	1,963,855	2,028,602	1,007,351	796,035	211,316
France	12,531,116	9,185,854	11,687,590	4,754,005	6,933,585
Greenland, etc	88.617	88,617	....	....	....
Great Britain	87,896,331	44,809,621	73,968,646	46,493,073	27,475,573
Hamburg	4,919,687	1,977,961	7,314,011	6,174.854	1,139,157
Hanover and Oldenburg	4,125,055	3,687,718	2,389,984	1,625,361	764,623
Java, etc.	63,729,272	52,604,164	21,809,704	18,482,134	3,327,570
Canaries, C. of G. H., E. Indies, Asia	5,356,426	2,996,993	159,724	157,313	2,411
Roman States	19.302	18,492	271.966	269,248	2,718
Coast of Guinea	413,945	413,495	250,892	65,430	185,462
Lubec	79,618	23,030	40,007	17,034	22,973
Mecklenburg	112,771	215,331	132,905	107,124	25,781
The Two Sicilies	1,164,146	227,864	2,800,924	2,723,121	77,803
United States	6,746,580	4,824,610	5,377,239	3,819,546	1,557,693
Norway	4,595.903	3,801,225	681,441	528,926	152,515
Austria	1,220,581	621,960	4,473,060	4,284,994	188,066
Philippine Isles	251,210	73,152	....	....	....
Portugal	511,351	407,589	337,676	220,027	117.649
Russia	15,226,640	14,628,969	3,438,248	2,170,266	1,267,982
Russia (Black Sea)	2,643,583	2,774,889	276,335	274,678	1,657
Sardinia	134.451	91,508	1,809,957	1,716,880	93,077
America	686,066	204,693	573,612	404,704	168,908
Surinam	4,439,065	2,723,145	1,262,320	977,579	284,741
The Zollverein	64,130,562	27,662.831	100,146,833	31,660,595	68,486,238
Tuscany	472,066	302,815	1,693,393	1,536,657	156,736
Turkey, Greece, etc	1,716,438	1,563,286	3,419,046	3,379,278	39,768
Sweden,	422,977	305,152	377,669	239,352	138,317
Spain	687,344	202,527	657,084	281,667	375,417
Not known	....	510	....	....	....
Wrecked	33,551	32,549	....	....	....
Total florins	321,051,729	204,945,136	272,801,666	154,643,160	118,158,506
Or in dollars	128,420,691 60	81,978,054 40	109,120,666 40	61,857,264 00	47,263,402 40

The cultivation of tobacco in the Netherlands is subject to no restrictions, with the exception of the excise duty, to which, like all other products, it is liable. From 1800 to 1900 morgens (equal to from 3600 to 3800 acres) are annually devoted to tobacco. The tobacco land is situated in the provinces of Guilderland, Overyssel, Utrecht, and Zealand. The average quantity of tobacco produced on each morgen is about 4500 lbs. The total crop is estimated at from 8,000,000 to 9,000,000 lbs. per annum. The quantity reserved for home consumption is about 2,000,000 lbs., of which

	lbs.
Smoking tobacco, about	900,000
Snuff	700.000
Covers for segars	400,000

Besides the above, the Netherlands export to foreign countries about 6,000,000 lbs. of tobacco—in the leaf, 5,000,000 lbs., and manufactured, 1,000,000 lbs.

The following table shows the annual tobacco export trade of Holland:

	Kilogrammes.
The Rhenish provinces	580,000
Russia and Great Britain	400,000
Sardinia	250,000
Norway and Denmark	80,000
Naples	50,000
Roman States	50,000
Spain and Portugal	80,000

The total quantity of tobacco grown in the Netherlands is distributed as follows:

	Kilogrammes.
For the manufacture of snuff and chewing tobacco.	1,875,000
For segars and segar covers	1,775,000

Average price of the former, from 14 to 32 florins for common; 30 to 90 florins for the best, per 100 kilogrammes. Average price of the latter, from 14 to 32 florins for common; 60 to 90 florins for the best, per 100 kilogrammes. The planters of Arnhem, and some other districts, have, during the past few years, applied themselves to the raising of a very light, clear, yellow tobacco, for segar covering, for which they obtain a very high price. For this purpose they employ a very active fertilizer, with a view to the large and rapid growth of the plant, which they dry by the sun with great skill and management. The average quantity of foreign tobacco annually imported is from 22,000,000 to 25,000,000 lbs., chiefly from the following places:

	Kilogrammes.		Kilogrammes
Maryland	5,600,000	Varinas	120,000
Kentucky	1,750,000	Manilla	75,000
Virginia	1,400,000	Colombia	30,000
Java	800,000	Brazil	30,000
Porto Rico	360,000	Havana	60,000
Cuba	180,000	Tobacco stems	145,000
St. Domingo	120,000		

A third part of the tobacco imported from foreign countries is consumed in the Netherlands, the other two thirds are exported. Germany and Belgium receive the larger portion, which consists altogether of Virginia, Maryland, Kentucky, and some Java tobacco. Besides the imports above designated, Hamburg supplies Holland annually with large quantities of tobacco of American growth. The tobacco manufactories in Holland, of the first class, are numerous. They are chiefly located at Rotterdam and Amsterdam, though many similar factories are scattered throughout the provinces. The first-class factories employ upward of 1,000,000 operatives. The average consumption of tobacco in Holland is about two kilogrammes (4.408 lbs.) for each individual, or 6,000,000 kilogrammes, or upward of 13,000,000 lbs. for the whole population. Germany offers the principal market for the Dutch tobacco trade, though considerable quantities are exported to the Levant, Italy, Austria, Belgium, Denmark, Surinam, etc.—*Com. Rel. U. S.*

STATEMENT EXHIBITING THE LEADING STAPLES OF THE UNITED STATES, AND THEIR RESPECTIVE VALUES, EXPORTED TO HOLLAND IN THE YEARS SPECIFIED.

Articles.	1854.	1855.
Whale-oil	$8,944	$4,526
Whalebone	6,571	1,305
Wood, lumber, and timber	24,476	77,463
Naval stores	45,101	80,883
Pot and pearl ashes	15,259	34,064
Beef	4,635	1,300
Hams, bacon, and lard	16,642	29,623
Wheat	47,441	....
Flour	52,289	2,662
Rye and other grains	50,276	38,739
Rice	22,299	23,789
Cotton	567,482	418,433
Tobacco	1,350,336	1,068,782
" manufactured	7,316	4,329
Wax	4,959	3,278
Spirits of turpentine	25,619	71,219

The following comparative statement exhibits the effective merchant marine of the Netherlands on the 31st December, 1852 and 1853, respectively:

1852........... No of vessels 1,971 measuring 448,864 tons.
1853........... " " 2,037 " 479,202 "

The following summary shows the classification of the vessels given in the preceding comparative statement:

	1852.		1853.	
	Vessels.	Tons.	Vessels.	Tons.
Ships	141	111,176	142	112,284
Barks	296	164,200	334	186,182
Brigs	56	14,412	66	16,878
Brigantines	2	488	2	488
Schooners	134	21,554	168	26,872
Other vessels	1,829	133,084	1,810	132,046
Steamboats	13	3,950	15	4,452
Total	1,971	448,864	2,037	479,202

U. S. Foreign Com.

Holly-tree. *Geography and History.*—The *Ilex aquifolium*, or European holly, is indigenous to most parts of the middle and south of Europe, and it is said to be found in China and Japan. It does not appear to be a native either of America or of India, unless the *Ilex opaca* of the United States, and the *Ilex dipyrena* in the Himalayas, should prove, by cultivation, to be varieties of it. According to Pallas, it scarcely occurs within the ancient limits of the Russian empire, though frequent on the southern side of Caucasus, where it forms a low, branching shrub, about 10 feet high. In France it is abundant, more particularly in Brittany. In Germany, it abounds in many forests, especially in the southern and middle States; where, when sheltered by lofty trees, it attains the height of 20 feet; but in exposed situations, it does not exceed a height of 6 or 8 feet. This tree appears to attain a larger size in England than in any other part of the globe. It abounds in that country, more or less, in the remains of all aboriginal forests, and perhaps, at present, it prevails nowhere to a greater extent than in Needwood Forest, in Staffordshire. In Scotland it is found in most natural woods, as an undergrowth to the oak, the ash, and the pine. In Ireland, the holly is not very common; but about the lakes of Killarney it attains a large size.

The wood of the holly is almost of an ivory whiteness, except near the centre of very old trunks, where it is of a brownish hue. It is very hard and compact, with a fine grain, and susceptible of a high degree of polish, which renders it well adapted for many purposes in the arts. When dry, it weighs 47½ pounds to a cubic foot, and is very retentive of its sap, in consequence of which it is liable to warp, unless it is well dried and seasoned before being used. It readily takes a durable color of almost any shade, and hence it is much used by cabinet-makers in forming what are technically called "strings and borders," in ornamental works. When properly stained black, its color and lustre are little inferior to those of ebony. It may be applied to a great number of purposes by joiners, cabinet-makers, turners, engineers, mathematical instrument-makers, and, next to the box and pear-tree, it is the best wood for engraving upon, as it is compact, and stands the tool well. Among its principal uses in England at present, is, when dyed black, to be substituted for ebony, in the handles of metallic teapots, etc. In France, the young shoots and the branches are given to sheep and deer during winter; and the stronger straight shoots, deprived of their bark, are made into whip-handles and walking-canes. The bark of the holly contains an abundance of viscid matter; and, when mascerated in water, fermented, and then separated from the fibres, it forms bird-lime. Medicinally, the bark of this tree is mucilaginous, emollient, and solvent, and is said to possess strong febrifugal powers. The berries are purgative, and 6 or 8 of them when swallowed, will cause violent vomiting; though they are considered as poisonous to men, they form the food of some birds, more especially of the thrushes.

The wood of the American holly resembles that of the European species, except that it is rather browner at the heart. It is compact, heavy, of a fine grain, and is susceptible of a brilliant polish. Its principal use is for inlaying mahogany furniture, and for turning into small boxes for druggists, and for small screws. When perfectly seasoned, it is very hard and unyielding, which renders it well adapted for pulleys used in ships. It may be dyed of various colors, so as to resemble many foreign woods. The bark may be employed for making bird-lime, in a similar manner as that of the preceding species. Medicinally it is emetic and cathartic. The berries, taken to the number of 15 or 20, will excite vomiting, and will also act as a purgative.

The emetic holly is found in moist, shady places, from Virginia to the Floridas, and was introduced into Britain in 1770. It was cultivated by Miller in the physic garden at Chelsea, and in several other collections in the neighborhood of London, till the severe winter of 1789, when most of the plants were destroyed. Other plants were afterward raised from seeds in that country, and have ever since resisted the cold of ordinary winters without protection. The leaves and young shoots of the cassena are inodorous, the taste sub-aromatic and fervid, being useful in stomach fevers, diabetes, small-pox, etc., as a mild emetic; but the "black drink" of the Indians is a strong decoction and a violent, though harmless vomitive. At a certain season of the year they often travel a distance of some hundred miles, from parts where this tree does not grow, to procure a supply of the leaves. They make a fire on the ground, and putting a kettle of water on it, filled with leaves, place themselves around it, and with a wooden vessel holding about a pint, commence by taking large draughts, which, in a short time, cause them to vomit freely. Thus they continue drinking and vomiting for two or three days, until they are sufficiently purified, when they return with large quantities of the leaves and boughs, to their homes. The leaves and young shoots of the Ilex cassena and dahoon, and of many other shrubs, appear to be substituted indiscriminately by the Indians for making their "black drink." In North Carolina, it is said, the inhabitants of the sea-side swamps, having no good water to drink, disguise its taste by boiling in it a little cassena, or other plants of a similar nature, and use it constantly warm, as the Chinese do their daily tea. This circumstance gave rise to the opinion that this species was the Ilex Paraguariensis, and was erroneously called "Paraguay Tea."—BROWNE'S *Tr. of America.*

Holm. (Sax. and Danish.) An island, or fenny place surrounded by water. Two well-known islands in the Bristol Channel are called the Steep Holm and Flat Holm.

Holy Alliance, The, a league formed by the principal sovereigns of Europe after the defeat of Napoleon at Waterloo. The basis of this alliance was drawn up by Alexander of Russia (September 26, 1815), and received the signatures of Francis of Austria and Frederic William of Prussia. Its name, which was dictated in accordance with the popular religious enthusiasm of the time, was fitly expressive of the vague principles of religious charity and peace on which it professed to be based. It gained strength by the accession of England and France, but thenceforward became an alliance simply for the establishment of existing dynasties in Europe, as may be seen from the declaration of November, 1819, and from the results of the Congresses of Troppau, Laybach, and Verona. After the secession of England and France the holy alliance became practically obsolete. See *North Amer. Rev.*, xvii.; *For. Quar.*, viii.; *Ed. Rev.*, xxxviii., xxxix., xl.; *Westminster Rev.*, i., 18; NILES' *Reg.*, xx., 313, xxiv., 365.

Holyhead (Welsh, *Caer Gybi, i. e.*, fort of Gybi), a sea-port, and market-town of North Wales, on an island at the western extremity of the county of Anglesea. It is connected with the main part of the county by a vast embankment, ¾ of a mile in length, and of an average height of 16 feet, with a bridge near the centre through which the tide rushes with amazing velocity and force. The town, formerly a small fishing village, has acquired importance in consequence of its being the nearest and most convenient place of embarkation for Ireland. It is the point of termination of the great parliamentary roads from London and Chester, and of the Chester and Holyhead railway, in connection with which steam-packets leave the harbor several times a day for Kingston near Dublin. The vast amount of labor and money expended on public works connected with the harbor has materially contributed to attract and support an active and thriving population. Holyhead has been selected by the British government for a harbor of refuge. The works, when completed, will inclose an area of about 316 acres, with a depth of at least 6½ fathoms water. The pier extends nearly 1000 feet, and upon it is an arch of Mona marble commemorative of the visit of George IV. in 1821. At the extremity of the pier is a light-house, exhibiting a white light 50 feet above sea-level. On South Stack an isolated rock 3 miles west, is another light-house connected with the harbor, and of essential service in facilitating the access. The light, which is 212 feet above high-water mark, is produced by 21 lamps with powerful reflectors. The inhabitants are chiefly engaged in the coasting trade and in shipbuilding. The coast is extremely wild and rugged, presenting numerous wave-worn caverns, which form the haunt of innumerable sea-birds.—E. B.

Holy-stone, a large stone used for cleaning ships' decks. It receives its name from the unwillingness of sailors to submit to the drudgery of using it.

Home, in naval language, is said of any thing that is close in its place; it is applied to the sheets of the sails, the shot and cartridge in a gun, and any article of stowage.

Homer, or **Omer,** the largest dry measure among the Hebrews. It was in later times replaced by the *Cor*, and is estimated at 7,398,000 Paris grains.

Honduras, British, *Belize*, or *Balize*, a British settlement on the east coast of Central America, between N. lat. 15° 14′ and 18° 30′, and W. long. 88° and 89′ 30″. It is bounded on the north by Yucatan, west and south by Guatemala, and east by the Bay of Honduras. It has a coast line of about 200 miles between the mouths of the Hondo and Sarstan, and is about 100 miles in breadth. This coast was discovered by Columbus in the year 1502, but little that can be relied upon is known of its early settlement. The abundance and fine quality of the wood, particularly mahogany and logwood, seem first to have drawn attention to it; and at a pretty early period it was occasionally resorted to by wood-cutters. But the first permanent establishment of British wood-cutters was made at Cape Catoche by some adventurers from Jamaica, whose numbers increasing, they extended as far south as the River Belize, and as far west as the neighborhood of Campeachy. The Spaniards, however, did not quietly submit to this usurpation of their territorial dominion. Several expeditions were fitted out against the settlers, but they were uniformly unsuccessful; and on two occasions, in 1659 and 1678, so complete was their discomfiture, that the town of Campeachy itself was taken by the logwood-cutters, with only the assistance of the seamen engaged in the trade. This last repulse occurred eight years after a treaty had been concluded with Spain, by which the territorial right of Britain to the occupancy of Honduras was generally, although not specifically, embraced. The successes of the settlers aroused the jealousy of the Spaniards, and led to a renewed discussion of their right to the territory which they occupied. This would appear to have been again generally admitted; but the Spaniards finally succeeded in driving the woodmen from the Campeachy shore, and confining them to the limits of the present settlement. An attempt was again made in 1718 to dispossess the British of the territory on the River Belize; but the firmness of the wood-cutters deterred the Castilians from effecting any thing, except the erection of a fortification, which in a few years they abandoned. In 1754 an expedition was undertaken to exterminate the colony; but by a treaty of peace concluded in the year 1763, the Spaniards were compelled to admit the right of occupancy to the British colonists, which, however, they subsequently attempted to annul. In 1779 the Spaniards again attacked the settlement, and after destroying property to a considerable amount, they took a number of the colonists prisoners, and marched them off in irons to Merida, whence they were shipped to the Havannah, and there confined till 1782. In 1784 Britain obtained from Spain a specific grant of "the lands allotted for the cutting of logwood;" and in 1790 an act of Parliament conferred on Belize all the privileges of a British colony. The last attack on the settlement was made during the war in 1798, but the expedition, which consisted of 3000 men, was gallantly repulsed; and since that period the colony has remained undisturbed by foreign aggression.

The coast of the Bay of Honduras is low, and the shore is studded with a number of low islands or keys, which, however, are verdant. As we recede from the coast, the land rises into a bold and lofty country, interspersed with rivers and lagoons, and covered with gigantic forests. The lagoons or sheets of water, and the falls and rapids of the rivers, constitute sublime and beautiful features in the general aspect of the country. The Hondo River, which forms the northern boundary, is a fine stream. A few miles south of it is the New River, which has its source in an extensive lagoon. The Belize has a north-east by east course of above 200 miles, and discharges itself into the Bay of Honduras by two mouths about 3½ miles apart, the southern branch dividing the town of Belize into two parts. The river and lagoon of Manatee, which is situated 10 leagues south of Belize, is considered as extremely grand. At about a mile from the mouth of the river is the lagoon, a magnificent sheet of water, extending for several leagues in a northerly direction. In many places lofty hills ascend from its margin, overtopping large valleys and wood ranges of great extent, where the jaguar, capybara, armadillo, large weasel, opossum, racoon, and several species of deer, abound. Among the feathered tribes there are numbers of quails, plovers, pigeons, pheasants, and wild turkeys. The deficiency of streams among the mountain ridges is supplied by the presence of large marshy spots or shallow ponds, the banks of which are frequented by almost every species of water game. Fish abound during a great part of the year in these ponds, but the latter dry up in the season of drought, and then vast flocks of sea-fowl congregate around them to prey upon the fish which have been left dry by the evaporation of the waters. The alligator is also a frequent visitor; and, to partake of this repast thus yearly provided for him, he has been known to traverse trackless wilds, and make long journeys into the interior. The rapids of the Manatee commence about 8 or 10 miles from the lagoon, and the high rocky banks of the river assume a romantic and beautiful appearance. Further on there is a rapid of about a quarter of a mile in length, and of considerable acclivity. A cluster of beautiful caves, through which the river winds its way, and beneath which the traveler must pass, is next reached. They have been described as equally singular and grand. "These magnificent natural excavations of the mountains are semicircular at the entrance, and about five yards in diameter. Within the cave the arch rises to the height of 100 feet, and leads to another low arch, which being passed, a second cavern of large size opens, beyond which is a third with a circular orifice, through which the river enters. During the floods the mouths of the caverns are filled with water, which boils up with prodigious fury, and thus detains travelers many days before they can pass through the caves or tunnels. In the rainy season, as the water increases on the upper or inland sides of the mountains, the river forces its passage through the interstices and openings in its sides with tremendous noise. forming an indescribably grand cascade of from 40 to 50 feet high, issuing from a hundred orifices." Of the other rivers of Honduras little is known.

Productions.—The country is technically divided into the Pine and the Cahoun ridges. The soil of the former has a substratum of loose reddish sand, and its indigenous products consist of those varieties of vegetation the assimilative powers of which are strong and perennial. Extensive prairies expand over this soil, and the pine, from which it derives its name, is extremely abundant. The soil of the Cahoun ridge consists of a deep loam, capable of growing every species of European as well as of tropical aliment. Its fertility occasions the growth of much brushwood, and it is covered with the wild cotton-tree and other giants of the forest. Fruits, spontaneously produced, are exceedingly abundant, and consist of oranges of excellent quality, shaddocks, limes, mangoes, melons, pineapples, water-melons, avocato pears, cashew, cocoanuts, and many others. They are all found in the neighborhood of Belize, but are sometimes brought in large quantities from more elevated plantations. The mahogany and logwood-trees are at present the staples of Honduras. The former is found best in elevated situations; and growing generally solitary, it is discernible at a great distance, from the yellow hue of its foliage. It is cut down at about 12 feet from the ground, and when felled the logs are dragged to the banks of the streams and floated down in rafts. The boughs and limbs are said to afford the finest wood, but it is the size that is principally looked to in commerce. The logwood is found in low swampy grounds, growing contiguous to fresh-water creeks and lakes, on the edges of which the roots, the most valuable part of the wood, ramify. They are felled during the dry season, and carried off when the wet season has laid the ground under water. There is another valuable tree called the *Pinus occidentalis*, which grows to the height of 60 feet, and covers many thousand acres of country. The pine-wood contains an immense quantity of tar and turpentine, and is consequently highly inflammable. In this respect it is very valuable to the poor, who make torches of it. It likewise powerfully resists decay, and is in consequence much used by builders. The cahoun or cohoon-tree yields a valuable oil, which, when unadulterated, is almost colorless, destitute of any disagreeable taste, and when burned as a lamp oil it emits a beautiful palish flame without smoke or smell. There are various other kinds of wood of beautiful vein and close texture, such as iron-wood, clay-wood, rose-wood, palmaletta, and the like. Among minerals, strata of fine marble and formations of alabaster are known to exist. Several valuable specimens of crystals have been found, and gold has occasionally been detected in some of the streams. Laboring Creek, which lies on the Belize, about 100 miles inland, is remarkable for the petrifying properties possessed by its waters. They have also a powerful cathartic effect on strangers, and when applied externally to an ulcer have a healing property. The country abounds with all kinds of animals fit for the food of man. Except in very rough weather, the supply of salt-water fish of excellent quality is abundant. The common green turtle, when in a healthy condition, is a staple commodity in the market. The hawksbill turtle is often five feet long, and weighs from 200 to 250 lbs.

Belize, the capital of the settlement, stands on a low flat shore immediately open to the sea, and guarded by numerous small islands, densely covered with trees and shrubs, and so similar as to render the navigation extremely difficult. It is further divided into two parts by the river, which is crossed by a substantial wooden bridge of 220 feet span and 20 feet in length. The part of the town which is situated upon the south or right bank of the river, along the eastern edge of a point of land, is completely insulated by a canal on its western side, which runs across from a small arm of the sea, and bounds the town on its south side. The houses are about 500 in number, and are in general well built, spacious, and even elegant. They are for the most part constructed of wood, and raised 10 feet from the ground on pillars of mahogany. The streets are regular, and cross each other at right angles. The main one runs in a north-easterly direction to the bridge from the government-house, which is situated on the south-east point or angle of the island on the right bank of the river, and bounded on the south and east by the sea. Behind the government-house is the church, on the east side of the main street. The whole town is embowered in groves and avenues of the cocoa-nut and tamarind-trees. Fort George is situated about half a mile from the river, on a small low islet. In the neighborhood of Belize the natural heat of the climate is tempered by the sea breezes that prevail during nine months in the year, so that, even in the hottest season, the thermometer seldom rises above 83° Fahr., and during the wet season it sinks to 60°. In June, July, August, and September, heavy and frequent rains fall, and these are the most unhealthy months of the year, from the decomposition of animal and vegetable matter in the adjacent lowlands and swamps.

There are various classes of society in the settlement, including Europeans, colored people, Indians, and Mosquito men. The blacks of Honduras are distinct from the aborigines of the country, being of African descent. In general they are inclined to indulge those low propensities which are exhibited in a state of barbarism. Having been derived from various regions, they still retain all their national peculiarities, and keep themselves distinct from every other tribe. The blacks, as a body, have upon the whole little intelligence, and their dullness of comprehension is remarkable. It is asserted, however, that some of them exhibit an originality of talent and a degree of mental activity little inferior to their European brethren. They are much attached to their country, and with a native of his own land a Honduras black will share his last plantain. The *colored* population has resulted from the intercourse of Europeans with Africans or Indians. They of course, morally speaking, assume a medium status, and partake more or less of the qualities of black and white, according to their distance from either. The *Mosquito Indians* abound in the colony. They are remarkable for a fine muscular formation of body, but in their countenances they exhibit an utter destitution of intelligence, and their habits are most barbarous. They acknowledge the existence of a good and evil spirit; and the little power of thought which they possess is displayed in their conduct toward their deities. The good spirit is neglected, because, say they, his goodness is so great that nothing is to be feared from his wrath, while on the other hand, the evil spirit is propitiated, in order to deprecate his malevolence. The whole wealth of a Mosquito man consists in his canoe, paddle, and harpoon. With these he satisfies the cravings of nature, and his groveling nature asks for no more. The *Indians*, the real aborigines of the place, are a timid, inoffensive race, apparently more under the influence of instinct than of reason. They perform the most astonishing journeys through woods, as trackless as the sea, and impervious to all but themselves with infallible correctness of direction and amazing rapidity. Although free from vindictive or malicious propensities, they are addicted to drunkenness to an excessive degree. The population of the colony is estimated at about 12,000.

Honduras has an increase of 39,600 square miles, and its population in 1855 was estimateed at 350,000, exclusive of the Indian tribes. It is divided into seven departments as follows:

Departments.	Estimated pop. in 1855.
Comayagua......	70.000
Tegucigalpa......	60,000
Choluteca........	50,000
Santa Barbara....	50,000
Gracias..........	55,000
Yoro............	20.000
Olancho..........	45,000
Total..........	350 000

The rivers of Honduras are numerous, and some of them of great size. The principal are the Chamelicon, Ulua, Aguan or Roman, Tinto or Black River, Patuca, and Wanks or Segovia, flowing into the Atlantic; and the Choluteca, Nacaome, and Goascoran, flowing into the Bay of Fonseca.

The Bay of Fonseca, the greater portion of which belongs to Honduras, is upward of 50 miles in length, by about 30 average breadth, with an entrance 18 miles wide, between the volcanoes of Conchagua (3800 feet in height) and Coseguina (3000 feet in height).—E. B.

The coast alluvions of Honduras are generally densely wooded, the elevated valleys of the interior spread out in broad savannahs, and the mountain plateaux are covered with forests of scattered pines, relieved by occasional clumps of oak. Upon the northern coast, in the broad plain through which the Ulua and Chamelicon flow, the country is so low as to be occasionally overflowed for considerable distances. Here grow immense forests of cedar, mahogany, caiba, India-rubber, and other large and valuable trees, thickly interspersed with palms. Further to the eastward on the same coast the heavy forests are confined chiefly to the river valleys, and give place at short distances inland to sandy savannahs, covered with coarse grass and clumps of pines and acacias. The alluvions of the Pacific coast are also densely wooded, but not extensive. At short distances inland they give place to numerous savannahs, studded with clumps of acacias, and covered with grass; but the pine does not appear here except upon the slopes of the hills, at an altitude of about 1200 feet. The valleys of the rivers on both coasts are thickly wooded; but as they ascend toward the interior, vegetation diminishes, and is reduced to a narrow fringe of trees and bushes upon their immediate banks. These valleys in the high interior country often expand into broad and beautiful plains—half savannahs and half woodland—where the palm and the pine flourish side by side. The mountains which rise around these valleys are ascended by terraces crowned with forests of pines and oaks, and covered with grass. The summits of the mountains sometimes rise in peaks, but generally constitute broad table-lands, more or less undulating, and often spreading out in savannahs, traversed with long ridges of verdure and green belts of trees.

Woods.—Of the vegetable productions of Honduras the mahogany-tree stands first in importance, and, from its vast size and magnificent foliage, is deservedly entitled "king of the forest." It is to be found in nearly all parts of Honduras in the valleys of the various streams. It is, however, most abundant upon the lower valleys of the rivers flowing into the Bay of Honduras, where the *cortes* (cutting) are chiefly carried on by the Spaniards. A fixed sum is paid to the government for each tree cut down. Rosewood is common on the northern coast, where it is beginning to form an article of commerce. Lignum vitæ abounds in the valley of the Ulua, on the river banks in the plain of Comayagua, and in other parts. Among the numerous dyewoods for which Honduras is celebrated, may be mentioned fustic, Brazil wood, yellow sanders, dragon's-blood-tree, Nicaraugua wood (a variety of Brazil wood), and the anotta. Among the gum and medicinal trees, are the gum-arabic-tree, copaiba-tree, copal-tree, liquid amber, castor oil, ipecacuanha, and the *Hevea elastica.* Among the more common of the others are the long-leaved or pitch-pine, cedar, *ceiba* or silk-cotton-tree, live oak, mangrove, iron-wood, calabash, various kinds of oak and palm, lime, lemon, orange, cocoa, pimento, citron, tamarind, and guava. Sarsaparilla is obtained in great abundance and of superior quality. The sugar-cane grows luxuriantly on the plains and among the mountains, at elevations of 3000 to 4000 feet. Coffee, indigo, tobacco, maize, wheat, rice, and potatoes are also grown.

The Honduras Inter-oceanic Railway.—At a recent meeting of the Liverpool Chamber of Commere, Mr. William Brown, a member of Parliament, gave many interesting particulars in relation to the Honduras Inter-oceanic Railway. The distance between New York and San Francisco, viâ Panama, is stated to be 5224 miles, whereas the distance viâ Honduras is only 4121 miles. Difference 1103 miles. The distance from Liverpool to San Francisco viâ Panama, touching at Kingston (Jamaica,) is 7712 miles; viâ Honduras, 6881 miles; saving of Honduras over Panama, 831 miles. The distance from Liverpool to Sydney, viâ Honduras, has been calculated with care, and found to be 11,820 miles. At an average rate of steaming of 12 miles per hour, and allowing three days for coaling and trans-shipment, the voyage could be performed in exactly 43 days and 12 hours. We subjoin a table of distances:

	Miles.	From L'rpool.	From N. York.
Liverpool to Fayal..................	1,320		
Fayal to St. Thomas.................	1,860		
St. Thomas to Puerto Caballos......	1,320		
Puerto Caballos to Bay of Fonseca..	160	4,661	
Bay of Fonseca to San Francisco....	2,220	6,881	4,121
" " " Sandwich Islands.	3,960	8,621	5,861
Sandwich Islands to Canton,........	4,920	13,541	10,781
" " " Shanghai......	4,500	13,121	10,861
" " " Jeddo..........	2,760	11,381	8,621
Bay of Fonseca to Melbourne.......	7,680	12,341	
" " " Sydney..........	7,159	11,820	9,060
" " " Auckland........	6,004	10,665	7,905
" " " Callao..........	2,859	7,020	4,260
" " " Valparaiso.......	3,670	8,331	5,571
New York to Bay of Fonseca by railway and steamer..............	1,901		

The time between New York and San Francisco, viâ Honduras, is estimated at 13 days and 4 hours. This calculation is based on an assumption of 20 miles per hour by rail, and 12 miles per hour by steamer.

Captain Fitzroy, in an official report, alludes to the five distinct lines that have been proposed, and thus proceeds to refer to that by way of Honduras:

"Looking especially to European communication, it may be observed, that a main or trunk line of steamers, calling at Jamaica, in traversing the West India Archipelago, would find a suitable terminus at Port Caballos, in Honduras Bay, where the north end of the railway will be; and that Fonseca Gulf, at the other end, is in the region of steady winds, and well situated for a direct track across the Pacific Ocean, either to China or Australasia. The climate, productions, and population of Honduras, are more in favor of such a work, as a railway from sea to sea, than those of any other part of the great Isthmus, without exception; but, as the length and elevation are great, these difficulties should be well considered.

"1. As to length. This is a question of 160 miles against 40 (other things being equal, which, however, they are *not*), involving first cost, constant expense, and comparative local advantages. The continual outlay on the Panama Railway, consequent on the nature of the locality, and many pile-supported structures, is great; while in Honduras, there will be comparative durability of works. Fuel must be carried to Panama from distant ports, but it abounds near Fonseca Gulf. Rain prevails in the eastern part of the Isthmus of Panama, much more than it does in Honduras, where the climate is such that European trees and fruit thrive on the higher grounds.

"2. With regard to the elevation, which seems at first sight rather deterring, it should be borne in mind that the greatest incline or gradient proposed is 1 in 88, and only for a short interval, in a county where ice or snow is unknown; the general gradients being remarkably easy. Also, that as the country lies favorably, the line running along valleys, near rivers, and without crossings of any consequence, it is likely to be an economical line in this respect. All requisite materials, as well as native labor, are on the spot; and the Honduras wood-cutters are well known."

A company has been fully organized in England with reference to this great enterprise, and among the directors are some of the most prominent citizens of Liverpool and London. For a comparison of the advantages of the different transit routes, see TRANSIT ROUTES.

COMMERCE OF THE UNITED STATES WITH HONDURAS, CAMPEACHY, ETC., FROM OCTOBER 1, 1820, TO JULY 1, 1856.

Years ending	Exports.			Imports.	Whereof there was in Bullion and Specie.		Tonnage Cleared.	
	Domestic.	Foreign.	Total.	Total.	Export.	Import.	Foreign.	American.
Sept. 30, 1821........	$99,895	$106,830	$206,725	$216,075	....	$80,590	6,009	303
1822........	123,115	127,943	251,058	....	....	137,664	5,447	479
1823........	211,383	100,052	311,435	281,835	....	86,169	7,570	587
1824........	157,060	194,365	351,425	217,097	$6,000	51,047	5,290	1,280
1825........	57,286	23,543	80,829	243,446	5,560	27,031	1,201	....
1826........	....	....	....	88,133	....	17,428	....	....
1827........	13,261	1,573	14,834	17,947	....	6,575	....	....
1828........	5,950	2,371	8,321	1,760	....	600	....	....
1829........	12,693	8,229	20,932	64,847	....	46,117	....	....
1830........	25,132	5,432	30,564	....	....	1,472	1,042	....
Total....	$705,775	$570,338	$1,276,113	$1,131,140	$11,560	$454,693	26,559	2,649
Sept. 30, 1831........	$46,233	$13,732	$59,965	$44,463	....	$20,503	1,449	223
1832........	65,459	17,397	82,856	34,162	....	19,101	2,677	97
1833........	70,522	28,724	99,246	101,615	....	53,812	1,527	....
1834........	56,072	39,376	95,448	149,599	....	43,529	4,041	807
1835........	134,703	37,561	172,264	174,960	....	71,780	11,007	665
1836........	109,823	36,015	145,838	215,392	....	39,797	4,236	1,818
1837........	99,694	12,158	111,852	202,624	....	79,187	5,085	2,158
1838........	89,896	19,300	109,196	201,448	....	114,902	2,406	1,505
1839........	181,861	29,339	211,200	164,027	....	76,421	6,434	2,551
1840........	132,095	58,371	190,466	158,353	....	111,114	5,048	1,708
Total....	$986,858	$291,973	$1,278,831	$1,446,643	....	$630,096	43,910	11,527
Sept. 30. 1841........	$141,864	$51,382	$193,246	$232,244	....	$137,783	6,409	1,010
1842........	127,339	36,648	163,987	202,868	$1,600	98,607	5,679	....
9 mos. 1843........	92,278	16,304	108,582	136,688	....	74,603	7,425	708
June 30, 1844........	197,495	41,524	239,019	248,343	11,920	104,139	7,914	307
1845........	188,494	51,421	239,915	204,818	7,599	74,577	8,869	663
1846........	325,494	64,538	390,032	207,997	2,072	80,458	9,620	607
1847........	261,398	40,519	301,917	197,232	....	91,432	5,946	567
1848........	249,648	44,181	293,829	185,684	....	105,429	5,486	1,838
1849........	191,347	34,620	225,967	262,417	....	109,005	5,215	838
1850........	171,984	16,551	188,535	178,690	5,000	46,744	4,225	1,952
Total....	$1,947,341	$397,688	$2,345,029	$2,056,981	$28,191	$922,777	61,788	8,490
June 30, 1851........	$213,806	$23,362	$237,168	$174,526	$15,610	$15,692	3,933	5,125
1852........	292,813	69,259	362,072	261,646	17,437	38,294	5,020	2,449
1853........	318,355	63,005	381,360	268,298	8,060	22,037	5,111	8,320
1854........	203,913	58,728	262,641	288,954	17,000	48,220	4,189	8,537
1855........	471,433	51,526	522,959	339,974	4,995	....	5,382	4,562
1856........	350,000	33,739	383,739	332,117	2,000	111,328	4,933	2,786

Principal Ports.—The principal ports of Honduras on the Atlantic are Puerto Cabello, Omoa, and Truxillo. Puerto Cabello, the first port established by the Spaniards on the northern coast, is in lat. 15° 49′ north. Cortez, in his expedition into Honduras, founded a settlement here for the purpose of making it the grand entrepôt of New Spain. For upward of two centuries it was the principal establishment on the coast; but, during the time of the buccaneers it was removed to Omoa, because of the large size of the bay, which could not be properly defended. This bay is not less than nine miles in circumference, of ample depth—two thirds of it being from 6 to 12 fathoms—and has secure holding-ground. It is perfectly protected from the N.N.E. and N.W. winds, which are those that prevail on this coast. The port of Omoa, is small but secure, and is defended by a strong fort. The anchorage is good, in from two to six fathoms. Truxillo is situated on the western shore of a noble bay, in lat. 15° 55′ north. Population in 1842, 2500; 1000 whites and Ladinos, and 1500 Caribs.

The chief exports of British Honduras to the United States are mahogany and various descriptions of dyewoods. Copper, scrap-iron, and other old metals. The following statement exhibits the value of the trade between the United States and Honduras during the years 1853, 1854, and 1855, up to June 30th of each year:

	1853.	1854.	1855.
Imports from United States	$1381,360	$262.641	$522.959
Exports to United States...	268,298	288,954	339,974

This trade, although small and irregular, and apparently from this exhibit not increasing in value, is very favorable to the United States, as is shown by the excess of exports to over the imports from Honduras.

Hone or **Hone-slate.** These are various slaty-stones wrought into the form of straight slabs, and used for whetting or sharpening the edges of tools after they have been ground. They consist chiefly of the following: 1. *Norway rag-stone*, the coarsest variety of the hone-slates: it gives a finer edge than the sandstones. 2. *Charnley Forest stone*, which is used as a substitute for Turkey oil-stone. 3. *Ayr stone*, *Scotch stone*, or *slate stone*, used for polishing marble and copper plates, but the harder kinds for whetstones. 4. *Idwall* or *Welsh oil-stone*, used for small articles of cutlery. 5. *Devonshire oil-stone*, for sharpening thin-edged broad tools. 6. *Cutlers' green-stone*, from Snowdon, which is very hard and close, and is used for giving the last edge to lancets, etc. 7. *German razor-hone*, used almost entirely for razors. It is obtained from the slate mountains near Ratisbon, where it forms a yellow vein in the blue slate. It is sawn into thin slabs, and cemented to a slab of slate, which serves as a support. 8. *Blue polishing stone*, a dark slate of uniform texture, used by workers in silver and some other metals, for polishing off the work. 9. *Gray polishing stone*, somewhat coarser than the blue. 10. *Welsh clearing stone*, a soft variety of hone-slate used by curriers for giving a fine edge to their broad knives. 11. *Peruvian hone*, for sharpening large tools. 12. *Arkansas stone*, from North America. 13. *Bohemian stones*, used by jewelers.

Turkey oil-stone is superior to every other substance as a whetstone: it will abrade the hardest steel, and is sufficiently compact to resist the pressure required for sharpening a graver. The black variety is somewhat harder than the white. These stones are imported from Turkey in irregular masses, seldom exceeding three inches square, and ten inches long, and are cut up by means of the lapidary's splitting-mill and diamond-powder, then rubbed smooth with sand or emery on an iron plate, inlaid in wood, and secured by glazier's putty. Sperm or neats'-foot oil, or some oil which does not readily thicken, should be used with them. Oil-stone powder is used for grinding together the brass or gun-metal fittings of mathematical instruments, and also instead of pumice-stone for polishing superior brass-work.

The following analyses throw an interesting light on the nature of polishing-stones:

	Alumina.	Silica.	Lime.	Iron.	Water.	Magnesia.	Carbonic acid.
Polish. slate.	4·0	83·5	8·5	1·6	9·0	..	..
" "	7·0	66·5	1·25	2·5	19·0	1·5	..
Bohemian st.	1·0	79·0	1·0	4·0	14·0	..	..
Turkey hone	3·33	72·0	13·33	..	..	..	10·33

Honey (Du. *Honig*, *Honing*; Fr. *Miel*; Ger. *Honig*; It. *Mele*; Lat. *Mel*; Rus. *Med*; Sp. *Miel*), a vegetable juice collected by bees. "It varies according to the nature of the flowers from which it is collected. Thus, the honeys of Minorca, Narbonne, and England are known by their flavors; and the honey prepared in different parts even of the same country differs. It is separated from the comb by dripping and by expression: the first method affords the purest sort; the second separates a less pure honey; and a still inferior kind is obtained by heating the comb before it is pressed. When obtained from young hives, which have not swarmed, it is denominated *virgin honey*. It is sometimes adulterated with flour, which is detected by mixing it with tepid water: the honey dissolves, while the flour remains nearly unaltered."—Thomson's *Dispensatory*.

Comparative Table of the Product of Beeswax and Honey in each State, 1840 and 1850, according to the United States Census.

States and Territories.	Beeswax and Honey, lbs. of.	Wax, lbs. of.
	1850.	1840.
Alabama	897,021	25,226
Arkansas	192.338	7,079
Columbia, District of	550	44
Connecticut	93,304	3,897
Delaware	41.248	1,088
Florida	18,971	75
Georgia	732,514	19,799
Illinois	869.444	29,173
Indiana	935,329	30,647
Iowa	321.711	2.132
Kentucky	1,158,019	38,445
Louisiana	96,701	1,012
Maine	189,618	3,723
Maryland	74,802	8,674
Massachusetts	59.508	1.196
Michigan	859,232	4,533
Mississippi	397,460	6,835
Missouri	1,328,972	56,461
New Hampshire	117,140	1.345
New Jersey	156,694	10,061
New York	1,755.830	52,795
North Carolina	512,289	118.923
Ohio	804.275	38,950
Pennsylvania	839.509	33,107
Rhode Island	6.347	165
South Carolina	216,281	15,857
Tennessee	1,036,572	50,907
Texas	380,825	....
Vermont	249,422	4,660
Virginia	880,767	65,020
Wisconsin	131,005	1,474
Minnesota Territory	80	....
New Mexico "	2	....
Utah "	10	....
Total	14,855,800	618,303

Honfleur, a sea-port town of France, Department of Calvados, and arrondissement of Port l'Evêque, on the southern shore of the estuary of the Seine, eight miles south-east of Havre, with which it has regular steam communication. The town is old and ill built. The harbor is accessible only at high water, and is chiefly frequented by fishing or small coasting craft. The herring, mackerel, and whiting fisheries are actively prosecuted; and numerous vessels sail annually for the cod, whale, and seal fisheries. Honfleur sends weekly to England about 7000 dozen of eggs, besides butter, fruit, etc. Its commerce, formerly considerable, has been almost entirely absorbed by Havre. The chief manufactures are hosiery, lace, chemical products, and hardware. There are also ship-building yards, rope-walks, and saw-mills. The chapel of Notre Dame de Grace, on the hill above the town, is much frequented by sailors, and filled with their votive offerings. Population 9580.

Hong Kong, a small island, now a British colony, lying off the coast of China, at the mouth of the Canton River, about 40 miles east of Macao, in lat. 22° 16′ 30″ N., long. 114° 14′ 45′ E. It is about nine miles in length by eight in breadth, and is separated from the main land by a narrow strait, varying from less than a mile to four or five miles in width. The appearance of the island is barren and unprepossessing. It consists for the most part of ranges of rocky hills, rising sometimes to the height of 1700 or 1800 feet above the sea. The highest peak is 1825 feet in height. There are no trees of any size on the island, and few valleys of any extent. The rocks of Hong Kong consist of granite intermixed with quartz, mica, and felspar, affording excellent materials for building. Among the vegetable productions of the island are mango, lichee, longan, orange, pear, rice, sweet potatoes, and yams. A small quantity of flax is grown and prepared for household uses by the villagers. Since the occupation of the island by the English, the potato of Europe and the fruits of Canton and Macao have been introduced, and, lately, many European seeds have been sent out. The land-tortoise, a few small deer, and armadillos, and several kinds of snakes, are found on the island. The climate of Hong

Kong, like that of Macao, is not generally unhealthy, though from the numerous deaths that occurred in 1842 and 1843, this was supposed to be the case. Subsequent years, however, have shown that the climate here is no more prejudicial to health than that of various other eastern tropical possessions. Hong Kong was first ceded to Britain in January, 1841, and again by the treaty of Nankin, in August, 1842. The government is administered by a governor, aided by an executive council of three members, including the commander of the troops. There is also a legislative council, presided over by the governor. The government offices are at Victoria. The following table exhibits the progress of Hong Kong from 1848 to 1853, inclusive:

Years.	Population, exclusive of troops	Revenue.	Parliamentary grant.	Expenditure.
1848	21,514	£25,091	£25,000	£62,658
1849	29,507	23,617	25,000	38,286
1850	33,292	23,526	20,000	34,314
1851	32,983	23,721	15,500	34,115
1852	37,058	21,331	12,000	34,765
1853	39,017	24,700	9,200	36,418

With reference to these six years, the governor remarks, "that the call on the home government for a parliamentary grant has been reduced from £25,000 to £8500 (£9200?) for the currrent year; that the expenditure has been reduced from £62,658 to £36,418; that the number of square-rigged vessels frequenting the port has increased from 700 to 1103, while the tonnage is nearly double; and that the population has in like manner advanced 82 per cent. during the past six years. In conclusion, I have no hesitation in saying, that were this colony taxed in the same way as are the settlements in the Straits, under the government of the East India Company, it could in a year or two be made to pay its own expenses without the efficiency of the government being impaired."—E. B. See Hunt's *Mer. Mag.*, x., 459.

A parliamentary document relating to Hong Kong has lately been printed, which possesses considerable interest, as it describes the exact position and prospects attained by the colony shortly before the breaking out of the war. It consists of a dispatch from Sir John Bowring, inclosing a copy of the last annual report made to him by the Colonial Secretary on the progress of the island. It appears that the place has benefited not only by the increase of the Chinese trade during the past few years, but by the effects of the rebellion in promoting emigration from Canton. A consequent improvement was observable in the character of the Chinese population; and many of the natives, growing in wealth, had also grown in respectability. The increasing disposition to settle on the island was manifested especially among the better class of traders; and the general tendency to prosperity was further stimulated by many of the chief commercial houses in China, both British and American, having lately made Hong Kong their central point of establishment. "The development of steam navigation," it is said, "the rapid extension of trading relations with Australia and Califorina, the increase of trade on the coasts of China, the opening of Siam, and the security which the flag of Great Britain offers against piratical attacks, are among the causes which have led to these results." The population, which in 1848 was only 24,000, amounted, at the beginning of 1856, to 72,600. Owing to the happy fact of the absence of any custom-house, there are no means of furnishing statistical details of the imports and exports, but the signs of an active and rapidly-increasing trade were everywhere visible, and were corroborated by the rate of interest being as high as 36 per cent. per annum; although the latter circumstance is partly to be attributed to the comparatively needy condition of the small Chinese traders. The government-house has just been completed, at a cost of £15,000, and many other public improvements were in progress. Although the existing jail buildings are pronounced totally inadequate, it was only because larcenies and petty offenses had increased with the influx of population, crime of the more serious kind being rare. The impression as to the unhealthiness of the colony seems to be disappearing; and notwithstanding the large increase in the number of inhabitants in the year 1855, the town of Victoria was found very favorable for foreigners. The Chinese consider the place not more inimical to health than the towns on the main land. Many improvements remain to be effected, which would doubtless add much to its safety; but the revenue, even at its recent rate of increase, would admit only of moderate undertakings. To meet all requirements, the Colonial Secretary revived a suggestion for the imposition "of a differential duty of, say, 1d. per lb. on teas shipped for England from Hong Kong." Sir John Bowring, however, in harmony with the views now universally established among commercial men, declined to support the recommendation.

Honiton, a municipal and parliamentary borough and market-town of England, county of Devon, near the left bank of the Otter, 16 miles north-east of Exeter. It consists of one wide and well-paved street, along which runs a small stream, supplying the town with water. The houses have generally a neat and respectable appearance, having been mostly built since the destructive fires of 1745 and 1765. The parish church, about half a mile from the town, was built by Courtney, Bishop of Exeter, about 1482, and is remarkable for a curiously carved screen. A modern Gothic church stands in the centre of the town. It has a free grammar school, national school, hospital, and several charities. The serge manufacture was formerly extensively carried on here, but now its chief manufacture is Honiton lace. Honiton is governed by a portreeve, and returns two members to Parliament. Population in 1851, 3427.

Honolulu, or **Honoruru,** the principal town of the Sandwich Islands, and the residence of the king, is situated on the south side of the island of Woahoo, in lat. 21° 18′ 12″ N., long. 157° 55′ W. It forms an entrepôt for European and Indian goods, whence they are reshipped to America. It is also a general rendezvous of whaling vessels; and sometimes 80 sail of them, each from 300 to 500 tons, are at anchor here together. In 1851, 446 merchant ships arrived at the port; in 1852, 235; and in 1853, 194. The imports in 1853 amounted to $1,240,976, and the exports to $272,588. Population about 7000. See Sandwich Islands.

Hooghly, an extensive district in the province of Bengal formerly called Saatgong, situated principally between the 22d and 23d degrees of north latitude, and extending a considerable distance along the right bank of the River Hooghly. It is bounded on the north by the district of Burdwan, on the south by the district of Hidjelee, on the east by the River Hooghly, and on the west by Midnapoor. This district consists of low flat land, very fertile; but that part which is nearest to the sea is very thinly inhabited; it is called the Sunderbund, is swampy, covered with wood, and remarkably unhealthy. The right of the East India Company to the district originated in the treaty concluded with Meer Cosin in 1760.

Hooghly, an ancient, and formerly a large town in the province of Bengal, situated on the western bank of the Hooghly, nearly 26 miles above Calcutta, and supposed to have been founded by the Portuguese about the year 1538. During the Mogul government, it was a town of great consequence, being the port of the western arm of the Ganges, where the duties on merchandise were collected. It very soon drew away all the trade from Saatgong, which had been before the government port of Bengal. During the prevalence of the Portuguese dominion in India, Hooghly was fortified, and continued to flourish till the year 1632, when it was attacked by order of the emperor Shah Jehan, and, after a siege of three months and a half, was taken by the Mogul troops, 1000 of the Portuguese being killed, and 4400 men, women, and children, taken prisoners. From this period Hooghly became the imperial port. After this period every encouragement was given to commerce; and Hooghly, which was called Bukhshy Bunder, became a great commercial emporium between Europe, Persia, Arabia, and India. In 1686 hostilities commenced between the English and the Nawaub. An action ensued, in which the Nawaub's troops were defeated; and at the same time the town of Hooghly was cannonaded, and 500 houses burned. In 1700 the East India Company's factory was transferred from Hooghly to Calcutta. The population of Hooghly is now estimated at 12,000. The town is situate on the line of railroad recently constructed from Calcutta to Burdwan. E. long. 88° 22′, N. lat. 22° 54′.

Hooghly River, properly the Bhagirutty, a river of Bengal, formed by the junction of the two westernmost branches of the Ganges, the Cossimbazar, and the Jellinghy. This is the port of Calcutta, being the only branch of the Ganges that is navigated by large vessels; yet the entrance to the river is rendered extremely dangerous and difficult, by reason of numerous sandbanks in it, which are frequently shifting. There is indeed a rumor afloat that the river is gradually silting up, and must eventually cease to be navigable. This would prove a fearful blow to the trade of Calcutta, and the proposed remedy is to connect the River Mutwal with the capital by railway or ship canal. During the prevalence of the south-west monsoon, when a strong current sets in from the Bay of Bengal, the extraordinary phenomenon, termed by Europeans the "Bore," occasionally presents itself. It rises in waves 12 or 15 feet high, and rushes in at the rate of 20 miles an hour. It commences at Hooghly Point, where the river first contracts itself, and is perceptible above Hooghly town; and though the distance is above 70 miles, it traverses this space in about four hours, running along the opposite bank to the Calcutta side, whence it crosses at Chitpoor, about four miles above Fort William, and rushes with great violence past Barnagore, Duckingsore, etc., frequently oversetting boats and driving ships from their anchorage. At Calcutta it sometimes occasions an instantaneous rise of five feet. The tide does not rise more than 30 miles above Calcutta; and during the rainy season its influence is checked by the large body of water that comes down the river. The Hooghly contains several kinds of good fish, particularly *Ciprinus Anjana*, the mango fish, or *Polynemus paradoxus*, and prawns; and it abounds also in crocodiles and sharks. It is about three quarters of a mile broad at Calcutta, and 8 or 10 miles wide at the mouth. It is only navigable for ships as high as the tide reaches, and the upper part of it is nearly dry during the hot season; yet there are few rivers that can boast of a more extensive commerce, its banks being studded with numerous towns and villages. It is esteemed by the Hindoos to be the most sacred branch of the Ganges, and it is on this account that those who can not afford to bury their dead throw them into the Hooghly.—E. B. See CALCUTTA.

Hookah, an oriental pipe used chiefly in Turkey, by which the smoke of the tobacco is made to pass through water in order to cool it and render it more grateful to the mouth.

Hoorn, a fortified sea-port town of Holland, province of North Holland, on the Zuyder-Zee, 20 miles north by east of Amsterdam. It carries on a considerable trade, though in this respect it is much inferior to what it once was. The exports are chiefly butter, cheese, cattle, herrings, and other kinds of provisions. The manufactures comprise woolen cloths, carpets, etc. Ship-building and the herring fishery are extensively carried on. It has a naval college. Hoorn was the birth-place of Schouten, who in 1616 discovered Cape Horn, and named it after his native town; and of Tasman, the discoverer of Van Dieman's Land and New Zealand. Population about 9000.

Hops (Ger. *Hopfen;* Du. *Hoppe;* Fr. *Houblon;* It. *Luppoli, Bruscandoli;* Sp. *Oblon;* Rus. *Chmel;* Lat. *Humulus Lupulus*). The hop is a perennial rooted plant, of which there are several varieties. It has an annual twining stem, which, when supported on poles, or trees, will reach the height of from 12 to 20 feet or more. It is a native of Britain, and most parts of Europe. When the hop was first used for preserving and improving beer, or cultivated for that purpose, is not known; but its culture was introduced into England from Flanders in the reign of Henry VIII. Hops are first mentioned in the Statute Book in 1552, Edward VI.; and it would appear from an act passed in 1603 that hops were at that time extensively cultivated in England. Walter Blithe, in his *Improver Improved*, published in 1649, has a chapter upon improvement by plantations of hops, in which there is this striking passage. He observes, that "hops were then grown to be a national commodity; but that it was not many years since the famous city of London petitioned the Parliament of England against two nuisances; and these were, Newcastle coals, in regard to their stench, etc., and hops, in regard they would *spoyl the taste of drink*, and endanger the people; and had the Parliament been no wiser than they, we had been in a measure pined, and in a great measure starved; which is just answerable to the principles of those men who cry down all devices, or ingenious discoveries, as projects, and thereby stifle and choke improvement." After the hops have been picked and dried, the brightest and finest are put into the pockets or fine bagging, and the brown into coarse or heavy bagging. The former are chiefly used in the brewing of fine ales, and the latter by the porter brewers. A *pocket* of hops, if they be good in quality, well cured and tight trodden, will weigh about 1½ cwt.; and a *bag* of hops will, under the same conditions, weigh about 2½ cwt. If the weight of either exceeds or falls much short of this medium, there is reason to suspect that the hops are of an inferior quality, or have been badly manufactured. The brighter the color of the hops, the greater is the estimation in which they are held. Farnham hops are reckoned best. The expense of forming hop plantations in Great Britain is very great, amounting in some instances to from £70 to £100 an acre; and the produce is very uncertain, the crop being frequently insufficient to defray the expenses of cultivation.

According to Anderson's *Annals of Commerce*, hops were introduced from the Netherlands into England A.D. 1524, and were used in brewing; but the physicians having represented that they were unwholesome, Parliament was petitioned against them as being a wicked weed, and their use was prohibited in 1528. At present there are between 50,000 and 60,000 acres, on an average, annually under the culture of hops in England. They are grown chiefly in Hereford, Kent, and Worcestershire.—HAYDN.

Hops produced in the United States.—A gratifying increase has taken place in the culture of this useful article. The gain has been nearly 200 per cent. Almost the whole of the increment, however, has been in the State of New York, which, from less than half a million of pounds in 1840, now produces more than two and a half millions, which exceeds five sevenths of the whole crop of the United States. In connection with this circumstance, it may be mentioned that New York also stands foremost in the production of ale, beer, and porter, in the manufacture of which the larger part of the hops raised is consumed. The breweries of this State produced 645,000 barrels of ale, etc., in 1850, being more than a third of the quantity said to be produced in the whole Union. See *Patent Office Rep. U. S.;* HUNT'S *Mag.*, xiv., 395. See also articles ALE and BEER BREWING.

States and Territories.	Hops, pounds.	
	1850.	1840.
Alabama	276	825
Arkansas	157	....
Columbia, District of	15	28
Connecticut	554	4,573
Delaware	348	746
Georgia	261	773
Illinois	8,551	17,742
Indiana	92,796	88,591
Iowa	8,242	83
Kentucky	4,309	742
Louisiana	125	115
Maine	40.120	36,940
Maryland	1,870	2,357
Massachusetts	121.595	254.795
Michigan	10,663	11,381
Mississippi	473	154
Missouri	4,130	789
New Hampshire	257,174	243,425
New Jersey	2,138	4,531
New York	2,536,299	447,250
North Carolina	9,246	1.063
Ohio	63.731	62,195
Pennsylvania	22,088	49,481
Rhode Island	277	113
South Carolina	26	93
Tennessee	1,032	850
Vermont	288,023	48,137
Virginia	11,506	10,597
Wisconsin	15.930	133
Total	3,496,950	1,238,502

Horizon (*ὁρίζω, I bound*), the plane of a great circuit which divides the upper or visible from the lower or invisible hemisphere. See GEOGRAPHY.

Horn (Du. *Hoorn;* Fr. *Corne;* Ger. *Horn;* Lat. *Cornu*), a substance well known to manufacturers. Horns are of very considerable importance in the arts, being applied to a great variety of useful purposes. They are very extensively used in the manufacture of handles for knives, and in that of spoons, combs, lanterns, snuff-boxes, etc. When divided into thin plates, horns are tolerably transparent, and were formerly used instead of glass in windows. Glue is sometimes made out of the refuse of horn.

The projecting weapons on the head of the ox, the sheep, the antelope, and the rhinoceros, consist of a sheath of horn on a core of bone. Horn is composed chiefly of coagulated albumen, gelatine, and a small portion of phosphate of lime. It is essentially distinct from bone and ivory; the antlers of the stag, although sometimes called horns, consist entirely of bone. Modifications of horns may be noticed in the scales of the armadillo, the plate armor of the tortoise, the spines of the porcupine and hedge-hog, the quills of birds, and the hoofs, claws, and nails, of animals. For manufacturing purposes, the horns and hoofs of the bull and cow are in request, and there is a large import of these from South America, southern Africa, and from Russia. The horns of the bison and buffalo, the chamois and the antelope, are used for the better kinds of work.

The manufacturer first detaches the horn from the bony core, by macerating the horn in water for a month or six weeks, when the membrane by which the horn is attached to the core putrifies and allows the two to be separated. The ash of the cores makes excellent cupels for the assay of gold and silver. The solid tips of the horn are sawn off, and are used for handles for knives, for buttons, etc.; the other portion of the horn is cut into short lengths, or soaked whole in boiling water, or heated at a fire, the effect of which is to soften it, and allow it to be spread out nearly flat. The *flats* are next pressed between warm and greased iron plates, the pressure varying according to circumstances. If intended for lanterns, the pressure is continued until the horn separates into distinct plates; these are placed on a board covered with hide, and scraped with a knife having a wire edge. Some of the shavings which come off are sometimes dyed and cut into various forms, and are so sensitive as to curl up by the warmth of the hand. They are sold at toy-shops under the name of "sensitive leaves." After the scraping, the sheets of horn are polished with a woolen cloth dipped in charcoal dust and water, next with rotten-stone, and lastly with horn shavings.

The effect of heat and pressure on light-colored horn is to render it transparent; but most of the articles made of horn are colored artificially by boiling the horn in infusions of coloring matter. If the horn be intended for combs, the pressure must be moderated, or the teeth will be brittle; if intended for drinking cups, the horn is cut into lengths, scalded, roasted, and molded in a cone of wood, and a wooden plug is driven into it for pressing the horn into the required shape. After this, the cup is turned and polished at the lathe, and a groove is cut to receive the bottom; this cut out of a flat piece of horn by means of a crown saw, and the bottom of the cup having been softened at the fire, the disk is forced into the groove, and the horn contracting in cooling makes a water-tight joint. For knife-handle and similar works, the horn is cut nearly to the required form, and is molded in dies with the assistance of heat and a powerful screw-press. The work is finished by scraping and buffing with Trent sand and oil, or rotten-stone and oil. Horn is sometimes used as a vehicle for applying polishing powders to the flat works of the watchmaker. In the Great Exhibition of 1851, there were sundry small articles of chamois horn, consisting of brooches, shirt-buttons, rings, and watch-keys, by a Swiss exhibitor; there were also some transparent horn paintings from Hamburg, and a pair of polished ox-horns from Port Natal, with the head complete, measuring from tip to tip 8 ft. 4 in., and 21 in. circumference. The best collection of articles in horn-work was, however, from Turkey.—E. B.

Horn Manufactures. Horn is employed for all the purposes of tortoise-shell; and its much greater cheapness gives it a more extended application. Knife-handles, buttons, umbrella-handles, whip-tops, bell-pulls, drawer-knobs, sides of lanterns, and combs, are among the numerous articles made of horn. For the larger bulk of these manufactures in England, ox-horns are chiefly used; but those of the ram, the antelope, the buffalo, the deer, etc., are employed for special purposes. To show how enormous the consumption must be, it is sufficient to state that Liverpool imported, in 1850, no less than 120 tons of buffalo tips, 200 tons of buffalo horns, 280 tons of deer horns, and 700 tons of ox and cow horns. Horn is brought into manufactured forms by processes bearing some analogy to those employed in the gutta-percha manufacture, by heat and moisture; a higher temperature being, however, required for the horn.

Horn, or **Hoorn, Cape,** commonly considered the southern extremity of America, is not a part of that continent, but the most southerly point of a small island of the Tierra del Fuego group. S. lat. 56° 58′ 40″, W. long. 67° 16′. It consists of a lofty, precipitous, bare black rock, running far out into the sea; and was formerly considered dangerous to pass on account of the strong westerly gales that prevail in its neighborhood during summer, but as these are restricted to the vicinity of the cape, vessels avoid the difficulty by sailing in a higher latitude. It was discovered in 1616 by the Dutch navigator Schouten, who named it after his native town, Hoorn. See CAPE HORN.

Horse-chestnut. The horse-chestnut is a tree of the largest size, with an erect trunk, and a pyramidal head, sometimes attaining a height of 90 or 100 feet. The leaves are large, of a deep green, and singularly interesting and beautiful, when first developed. When inclosed in the bud, they are covered with a pubescence, that falls off, as they become expanded, which occurs sooner or later, according to the dryness or moistness of the season.

Geography and History.—The native country of the common horse-chestnut, Mr. Royle observes, "is yet unknown, though stated in some works, to be the north of India." He says that he never met with it, though often visiting the mountains of that country, where, if anywhere, it was likely to be found, and where the Indian horse-chestnut was found in abundance.

According to M. Bon de Saint-Hilaire, the horse-chestnut passed from the mountains of Thibet to England in 1550, and thence to Vienna, by Clusius, and afterward to Paris, by Bachelier. It is also stated by Clusius, in his "Rariorum Plantarum Historia," that there was a plant of this species at Vienna, in 1588, which had been brought there 12 years before, but which had not then flowered. It has also been said that this tree was first raised in France, from seeds procured from the Levant, in the year 1515, by one Bachelier. Parkinson, in 1629, says, "Our Christian world had first a knowledge of it from Constantinople." The same author placed it in his orchard, as a fruit-tree, between the walnut and the mulberries. We afterward find it mentioned in Johnson's edition of Gerard's "Herbal," in 1633, as then growing in Mr. Tradescant's garden, at South Lambeth. From this period till the time of Miller, it appears to have attracted great attention, and acquired a high reputation as an ornamental tree, as he represents it in 1731, as being very common in England, and extensively employed in the formation of avenues and public walks.

The wood of the horse-chestnut is white and very soft, and according to Loudon, when dry, weighs from 35 to 37 pounds to a cubic foot. It is unfit for use where much strength and durability in the open air are required; nevertheless, there are many purposes for which it is applicable, when sawn into boards; such as for flooring, lining to carts, packing-cases, etc. In France, sabots, or wooden shoes, are made from it; and it is said to be used by carvers, turners, etc. Boutcher says, that it is suitable for water-pipes that are to be kept constantly under ground; and it is also recommended for this purpose by Du Hamel. The charcoal made of this species may be used in the manufacture of gunpowder; and the ashes of every part of the plant, more especially of the fruit, afford pot-ash in considerable quantity. The bark, which is very bitter, is employed for tanning, and also for dyeing yellow; and it has been used medicinally as a substitute for Jesuit's bark. In Turkey, the nuts are ground, and mixed with horse-food, especially when the animals are broken-winded; and in their crude state, they are eaten by goats, sheep, deer, and hogs. They are used in Ireland to whiten linen, and for this purpose are rasped into water, in which they are allowed to macerate for some time. The saponaceous juice which they contain is very useful, not only in bleaching, but in washing linens and other stuffs. The nuts must be peeled and ground, and the flour of twenty of them is sufficient for ten quarts of water; and either linens or woolens may be washed with the infusion, without any soap, as it effectually eradicates spots of all kinds. The clothes, however, should afterward be rinsed in clean water. The nuts, when ground into flour, and mixed in the proportion of one third with the flour of wheat, are said to add to the strength of bookbinder's paste; and when steeped in hot water, and mixed with an equal proportion of bran, it makes a nutritious food for pigs and poultry. M. Vergaud has proposed to change the starch contained in the flour, into sugar, and afterward employ it in distillation.—BROWNE'S *Trees of America.*

Horse (Ger. *Pferd*; Du. *Paard*; Da. *Hest*; Sw. *Hast*; Fr. *Cheval*; It. *Cavallo*; Sp. *Caballo*; Rus. *Loschad*; Pol. *Kon*; Lat. *Equus*; Gr. Ἵππος), a domestic quadruped of the highest utility, being by far the most valuable acquisition made by man among the lower animals. The people of Thessaly were excellent equestrians, and probably were the first, among the Greeks at least, who rode upon horses, and broke them in for service in war; whence arose the fable that Thessaly was originally inhabited by centaurs. And Soloman had 40,000 stalls of horses for his chariots, and 12,000 horsemen.—1 *Kings*, iv. 26. The power of the horse is equal to that of five men.—SMEATON. A horse can perform the work of six men.—BOSSUET. The Greeks and Romans had some covering to secure their horses' hoofs from injury. In the 9th century, horses were only shod in the time of frost. The practice of shoeing was introduced into England by William I., 1066. In England there are 2,000,000 draft and pleasure horses, and 100,000 agricultural horses, which consume the produce of 7,000,000 acres. The horse-tax was imposed in 1784, and was then levied on all saddle and coach horses in England. The existing duty upon "horses for riding" only, in England, amounts to about £350,000 per year. —HAYDN. It may be fairly estimated that there are in Great Britain from 1,300,000 to 1,400,000 horses employed for various purposes of pleasure and utility. They may, probably, be worth at an average from £10 to £12, making their total value from £13,000,000 to £16,800,000 sterling, exclusive of the young horses.

In the United States, there were, in the year 1850, 4,335,358 horses, the largest number (463,000) being in the State of Ohio. See *Census Report U. S.* See also, UNITED STATES, *Live Stock of; Living Age*, x., 305, xxi., 411; *Quar. Rev.*, xxviii., 26. The most reliable and valuable work on the horse, is by FRANK FORESTER, 8vo., New York, 1857.

The first animals brought to America from Europe were imported by Columbus, in his second voyage, in 1493. He left Spain as admiral of 17 ships, bringing a collection of European trees, plants, and seeds of various kinds, a number of horses, a bull, and several cows. The first horses brought into any part of the territory at present embraced in the United States, were landed at Florida, by Cabeça de Vaca, in 1527, 42 in number, all of which perished or were otherwise killed. The next importation was also brought to Florida, by De Soto, in 1539, which consisted of a large number of horses and swine, among which were 13 sows, the progeny of the latter soon increasing to several hundred. The principal breeds of horses, adapted for specific purposes, in the middle, northern, and western States, are the Norman, the Canadian, the Morgan, the Conestoga or Pennsylvanian, the Virginian, and the Kentuckian. For carriages of heavy draught the Conestogas are regarded by many as the best. For the saddle, draught, and other useful purposes, the Morgans are highly prized, especially in New York. For roadsters, the Normans and Canadians are frequently sought. For blood, the Virginians and Kentuckians generally take the lead.

Horse Latitudes. On the polar side of the zones of calms, bordering the north-east trade-winds on the north, and bordering the south-east trade-winds on the south, there is a broad band extending up into the polar regions, the prevailing winds within which are the opposites of the trade-winds, viz., south-west in the northern and north-west in the southern hemisphere. The equatorial edge of these calm belts is near the tropics, and their average breadth is 10° or 12°. On one side of these belts the winds blow perpetually toward the equator; on the other, their prevailing direction is toward the poles. They are called the "horse latitudes" by seamen. These calm zones vibrate up and down with the trade-wind zones, partaking of their motions, and following the declination of the sun. Along the polar borders of these two calm belts (§ 190) we have another region of precipitation, though generally the rains here are not so constant as they are in the equatorial calms. The precipitation near the tropical calms is nevertheless sufficient to mark the seasons; for whenever these calm zones, as they go from north to south with the sun, leave a given parallel, the rainy season of that parallel, if it be in winter, is said to commence. Hence we may explain the rainy season in Chili at the south, and in California at the north.—MAURY'S *Phys. Geog.*

Horse-power, a unit of force introduced by Watt to enable him to determine what size of engine to send to his customers to supersede the number of horses which the new power was to replace. Watt ascertained at one of the London breweries that the average force exerted by the strongest horse was sufficient to raise 33,000 lbs. one foot high in a minute; thus, an engine of 200 horse-power would be a force equal to that of 200 horses, each lifting 33,000 lbs. one foot high per minute. Watt had two methods of estimating and comparing his engines—viz., by the *power*, and by the *duty*. By the power is meant the quantity of work which an engine can effect in a given time; by the duty is meant the quantity of work which it can effect by a given expenditure of fuel. Now, it is evident that without any change in the size of an engine, but simply by increasing the pressure of the steam, the power of an engine may be greatly increased—that is, the load remaining constant, the speed of the piston may be increased, the number of strokes may be increased, and, consequently, the work done per minute will be increased also. Hence it is difficult to apply a limit to the power obtainable from the smallest cylinder, provided the boiler be large enough to evaporate the increased quantity of water, and strong enough to resist the increased bursting pressure. In fact, no size of cylinder can be reckoned as having a particular power, since the power depends not on size but on strength. Nevertheless, in modern engineering the term *horse-power* refers rather to the size of the cylinder than to the power exerted, and the value of the unit has undergone many changes; so that in a modern engine, a horse-power may imply 52,000 lbs., or 60,000 lbs., or 66,000 lbs., one foot high per minute. The plan now adopted for ascertaining the performances of different engines is by an instrument called an *indicator*. This consists of a small cylinder fitted with a piston, which is pressed down by a spring. By the height to which this piston rises against the spring the steam pressure within the cylinder of the engine is indicated; and the number of pounds pressure on the square inch multiplied into the number of square inches in the area of the cylinder, and by the number of feet traveled through by the piston per minute, gives the impelling power; deduct in large engines about one tenth for friction, and the remainder is the efficient moving power, which, divided by 33,000, gives the actual horse-power.—E. B.

Hospital, Hospitale, in cloisters, the place of shelter for strangers, whether rich or poor; thus equivalent to our hotel, the *Xenodocheion* of the Greeks, the *Hospitium* of the Romans. The *hospitalia* of the Romans correspond with our inns. They were small erections on the right and left of the main house. In Greece, a person who had done any great public service might be rewarded with money and provisions, but be required to look after a place of abode himself. Bearing some resemblance to our present hospitals were the public buildings for the aged women of Delos, built on the island called Rhene; and those buildings which, at a later period, were erected near the temple of Æsculapius, for sick persons coming in search of health. It was possibly a similar institution which Antonius built at Epidaurus. Another appears to have existed on the island of the Tiber at Rome, to which sick slaves were brought to be healed. *Bethesda* (house of mercy), with five porches, was a place in Jerusalem to which the sick were brought to await the moving of the waters. Also the *Taberna Meritorum* at Rome appears to have been a hospital for invalids. Hospitals for the poor and sick are prominently characteristic of Christianity. So early as the Council of Nice, A. D. 325, they are spoken of as commonly known. The first celebrated hospital was that of Cæsarea, A. D. 370-380, richly endowed by the Emperor Valens. It was of immense dimensions. After it followed the hospital of Chrysostom, at Constantinople. In the ninth century there were 24 hospitals in Rome alone. A foundling hospital was first established at Milan, A. D. 787; a lazaretto about the same time in Constantinople; and an orphan hospital in the same city, A. D. 1090, by Alexius I. Hospitals are now universally established in all parts of Christendom, and appropriated for all classes of the community, and for all kinds of diseases. See GREENWICH HOSPITAL. See *Living Age*, xviii., 174; *Fraser's Mag.*, xxxvii., 539; *Dublin Univ.*, vii., 222.

By the laws of the United States, foreign seamen arriving in the United States pay each 20 cents per month to the collector of the port, as hospital money, and pay 25 cents per day when in hospitals under medical treatment. Marine hospitals are erected by the United States at New York, New Orleans, Boston, and other ports, for the accommodation of disabled and sick seamen, under the supervision of the Treasury Department. For disabled naval officers and seamen, navy hospitals have been erected at Philadelphia, Brooklyn, N. Y., Norfolk, and other sea-ports, supported by grants by Congress, and from contributions of one ration per day from each inmate.—DUNLAP'S *Digest Laws U. S.*, 320, 449, 822.

Houssa is the name of an extensive portion of Central Africa, which, along with Bornou, bears the general name of Soudan, or Land of the South. It consists of various petty kingdoms or states, which occupy territory stretching east and west from the upper course of the Yeou nearly to the Niger, the boundaries of which on the south, and north, and west have now for the first time been determined by Dr. Barth. This region appears in several respects to be superior to the countries on either side of it. It is less sultry, an advantage which it probably owes to its higher elevation. The face of the country bears marks of greater cultivation, the fields being covered with large crops of several kinds of Indian corn, two of which are annually produced; and, to prevent the grain from being destroyed by insects, it is secured in granaries raised on poles. The soil is well watered by the Rivers Sokoto, Mariadi, Zyrmie, Bugga, Zoma, and others, which, with several tributaries, flows westward to join the Niger. On its eastern quarter it is traversed by the Yeou, and on its southern by the Benueh or Chadda. Besides these natural supplies of water, artificial irrigation is diligently practiced.

The dominant people in Houssa are the Fellatas, this country forming, in fact, a considerable portion of the empire of Sokoto, which again comprises the eastern part of the Fellata dominions.

In the western tracts of Houssa there are few towns of any importance: some were visited, and have been described by Captain Clapperton.

Kano, the capital of a province of the same name, and the principal commercial city of Houssa, is situated in N. lat. 12° 0′ 19″, and E. long. 8° 30′. It may contain between 30,000 and 40,000 inhabitants, of whom a great proportion are slaves. This number is exclusive of strangers, who crowd thither during the dry months from all parts of Africa. The city is of an irregular oval shape, about 15 miles in circumference, and surrounded by a clay wall 30 feet in height, having a dry ditch on both sides of it. There are 14 gates made of wood, and covered with sheet iron, and these are regularly opened and shut at sunrise and sunset. A platform inside, with two guard-houses below it, serves to defend each entrance. The houses within the walls do not occupy more than one fourth of the ground inclosed, the remaining space being laid out in fields and gardens. The city is almost divided into two parts by a large morass, which stretches from east to west. This swamp is crossed by a small neck of land, which is overflowed during the rainy season, but in the dry season the market is held upon it.

The great market is held upon the neck of land which intersects the morass. Here streets consisting of sheds or stalls of bamboo are regularly arranged, different places being allotted to those who traffic in different commodities. The latter consist of cattle, vegetables, fruits, the fine cotton fabrics of the country, gora or kolla nuts, which are called African coffee, and crude antimony, with which every eyebrow in Houssa is dyed. The Arabs also dispose of sundry commodities, such as various dresses. The slaves, who constitute the staple article of trade, have a special market appropriated to them, consisting of two long ranges of sheds, one for males and the other for females. Here these poor creatures, drawn up in regular array, and dressed in attractive attire, are inspected and scrutinized by purchasers, in much the same manner as horses are in the cattle-markets of this country. The market of Kano is under the superintendence of a sheik, who regulates the police, and is said also to possess the exorbitant power of fixing the prices. The medium of exchange consists of the small shells called cowries, 480 of which make a shilling, so that paying a large sum is here rather a tedious process. Kano is celebrated all over Central Africa for the dyeing of cloth, for which process there are numerous establishments. Some ingenuity is displayed in the manufacture of leathern jars, which are fashioned upon a clay mold out of the raw hide. The inhabitants are also acquainted with the art of tanning. The negroes here are very polite and ceremonious, especially to those advanced in years. A part of the city is appropriated to the use of those who are afflicted with blindness, which is a prevalent disease.

By the most correct accounts, it would appear that the Fellatas are an off-shoot from the Foolahs of western Africa, and may be identified with them. They are a mixture of Moors, Arabs, Berbers, and probably other races of men, and are gradually extending their authority over central Africa. They are much superior to the native negroes, with whom they very rarely mix their blood. Captain Lyon, speaking of the Fellatas, observes, "their complexion being of a much lighter hue than that of the other tribes, they call themselves white; their color resembles that of our gypsies in England. Many female slaves are brought to Mourzouk from their nation, and are very handsome women." Other observers describe their complexion as being very dark, and of a shade intermediate between that of the deepest African and the Moors. The fact seems to be, that their color varies in a very remarkable manner, from being nearly white to nearly black. Both men and women pay considerable attention to their dress, which among the wealthy inhabitants is rather showy. In their domestic habits they are regular, orderly, and cleanly, and the slaves are generally well treated. The Mohammedan is the predominant religion, and considerable attention is paid to keeping up an appearance of it. Prayers are regularly said five times a day in the Arabic language, which both the male and female children of the better sort of Fellatas are taught to read and write. Their marriages are celebrated without any pomp or noise, and such contracts are of a less arbitrary nature than we find them to be among the inferior races of mankind. Captain Clapperton makes the following remarks regarding Houssa:—"The government of the Fellatas in Soudan is in its infancy. The governors of the different provinces are appointed during pleasure; and all their property, on their death or removal, falls to the sultan. The appointment to a vacancy is sold to the highest bidder, who is generally a near relation, provided that his property is sufficient to enable him to bid up to the mark. All the inferior offices in the towns are sold in like manner by the governors, who also succeed to the property of those petty officers at their death or removal. A great deal of marketable property is claimed by the governor, such as two thirds of the produce of all the date-trees and other fruit-trees, the proprietor being allowed only the remaining third. A small duty is also levied on every article sold in the market; or, in lieu thereof, a certain rent is paid for the stall or shed. A duty is also fixed on every *tobe* that is dyed blue, and sold. On grain there is no duty. Kano produces the greatest revenue that the sultan receives; it is paid monthly, in horses, cloth, and cowries. Adamowa pays yearly in slaves; Yacoba in slaves and lead ore; Zegzeg in slaves and cowries; Zamfra the same; Hadeja and Katagum in horses, bullocks, and slaves; Cashna in slaves, cowries, and cloth; Ader, or Tadela, in bullocks, sheep, camels, and a coarse kind of cotton cloth, like what is called by us a counterpane." Of the number of negroes and Fellatas who inhabit the country of Houssa no correct idea can be formed Much additional and more precise information on these countries may be expected from the pen of Dr. Barth, that energetic traveler, who has so thoroughly explored these regions.

The exports are principally civet and blue check *tobes* called *sharie*, which are manufactured by the slaves from Nyffi, of whom the men are considered as the most expert weavers in Soudan, and the women as the best spinners. The common imports are brought from the borders of Ashanti; and coarse calico and woolen cloth, in small quantities, with brass and pewter dishes, and some few spices, from Nyffi. The Arabs, from Tripoli and Ghadamis, bring unwrought silk, ottar of roses, spices, and beads. Slaves are both exported and imported. A great quantity of Guinea corn is taken every year by the Tuaricks, in exchange for salt. The market is extremely well supplied, and is held daily from sunrise to sunset. On the north side of Sokoto there is a low marsh, with some stagnant pools of water, between the city and the river; this, perhaps, may be the cause of the great prevalence of ague, as the city stands in a fine airy situation."

Sokoto is described by Dr. Barth as forming nearly a regular square, and having 8 gates, not 12, as formerly supposed. Sokoto has a mixed population, the Zoromana forming the chief portion of the inhabitants. They are, unlike the tribes of pure Pullo or Fellan origin, very industrious, and are excellent workmen in leather, iron, and gebbega or cotton-stripes. The articles of iron made at Sokoto are the best in all Soudan; and Dr. Barth purchased some specimens of beautiful workmanship. The Zoromana are the principal inhabitants of the town, while the Syllebana, a very interesting tribe, different from, but united with the Fellatas from time immemorial, inhabit the villages round the town.—E. B.

Houston, a city of Texas, United States of North America, capital of Harris county, and the second commercial city in the State. It is situated on Buffalo Bayou, at the head of its steamboat navigation, and 45 miles above its mouth in Galveston Bay. It is the principal shipping port for the cotton, sugar, and maize, of the adjacent counties. Pop. (1853) estimated at 6000.

Huallaga, a river of Peru, rises in the Andes, near lat. 11° 40′ south, and at 13,200 feet above the sea, flows mostly northward, and joins the Amazon, near lat. 5° south, and long. 75° 40′ west, after a total course estimated at 500 miles. From Chasuta, 50 leagues above its entrance into the Amazon, and 3000 miles above the mouth of the Amazon, there is water enough to float the largest vessels, for more than six months in the year. See AMAZON RIVER.

Hudson, Henry, a distinguished and ill-fated navigator of the 17th century. His early history is quite unknown, and he did not emerge from obscurity till the year 1607, when he was sent out by a company of rich London merchants in quest of a shorter passage to China, than that by the Cape of Good Hope. In that year he penetrated as far as the 82d degree, beyond which his passage was barred by the ice. In the following year, he altered his course, eastward, and, coasting along Spitzbergen, reached the Straits of Waygatz. Unable to force his way any further, in that direction, he again returned home without effecting his purpose. In 1609 a company of Dutch merchants supplied him with the means of again attempting a north-east passage. Again the ice stopped his progress, and Hudson, abandoning his original plan, sailed away to America, where he discovered the great river which now bears his name, and at the mouth of which New York is situated. Scarcity of provisions drove him once more to England, which he reached on the 7th November. In the following year (1610), he sailed from London on the forlorn quest of the north-west passage. In the end of May his sailors mutinied, and the revolt was only quelled with great difficulty. In June he entered the strait and bay now called by his name, and was in high hopes that he had at last solved the mystery that had baffled so many inquirers. Stricter investigation, however, showed him that he had been caught in a cul-de-sac, and as summer was now drawing to a close, he found himself compelled to winter on those inhospitable shores with a mutinous crew, and a very scanty stock of provisions. Commander and sailors were alike out of temper at the bad success of the whole expedition, and heart-burnings and dissensions embittered the winter bivouac. On the way home in the summer of 1611, the crew again mutinied, and taking possession of the ship, they turned adrift Hudson and such of the crew as remained faithful to him in an open boat, and with a scanty supply of provisions. What was the fate of the boat and her crew is unknown; nothing was ever heard of them. The details of Hudson's progress are given at length in PURCHAS'S *Pilgrim*, and in HARRIS'S *Voyages*. See SPARKS'S *Am. Biog.*, vol. x.

Hudson's Bay, a large sea of North America, lying between 51 and 69 degrees of north lat., discovered in 1610 by Henry Hudson. See HUDSON, HENRY, and POLAR REGIONS. A charter for a company, incorporated under the name of the *Hudson's Bay Company*, was obtained in the year 1670. See FUR TRADE.

Hudson's Bay Territory. The first internal explorers of the vast region surrounding Hudson's Bay were traders from Canada while it was yet in the possession of France. Canadian traders had, previous to the conquest, ascended the St. Lawrence and Ottawa Rivers to their sources, and had formed establishments on the great lakes. From the north-western end of Lake Superior, they threaded the intricate communication which leads by lakes, streams, and portages to Lake Winnipeg, and thence penetrated some distance up the Saskatchewan River, where their most distant establishment was situated, in north lat. 53°, west long. 103°. These enterprises were, in a great measure, suspended by the struggles which ended in the conquest of Canada by Great Britain. In 1767 a party headed by a British subject, again penetrated to the Saskatchewan. The Missinipi, or Churchill River, was visited by Mr. Joseph Frobisher in 1775, and Lake Isle-a-la-Crosse, in 1776. In the year 1781, the fur trade had reached the limits of Lake Athabasca, nearly 1000 miles beyond the most distant point attained by the French. These explorations were greatly extended by the establishment, in 1783, of the North-West Company of Montreal—an association formed of the leading individuals engaged in this traffic—who, in the energetic pursuit of the fur trade, extended their establishments to the Arctic Circle and the Pacific Ocean. The charter of the Hudson's Bay Company, conferring the exclusive right of trade with the Indians, having been granted without the sanction of Parliament, has generally been held invalid; and it was probably the dread, owing to this defect, of attracting public observation to their proceedings that induced the Company for many years to confine their trading stations almost entirely to the coast. In 1769, a century after the date of their charter, their farthest advance was about 400 miles inland. In that year, however, being desirous of obtaining information regarding some mines of copper described by the natives as existing near a river flowing into the sea to the northward, called the Coppermine River, they directed Mr. Hearne, a gentleman in their service, to proceed overland for that river which he had orders to survey, if possible, down to its embouchure—an enterprise in which, after two unsuccessful attempts, he succeeded, reaching the sea at the mouth of the Coppermine River on the 13th July, 1771, having been thus the first to establish the existence of a great Northern Ocean, washing the shores of North America. Mr. Hearne's Journals and charts were, however, withheld from the public for nearly 20 years after the date of his journey. On the capture of Fort Churchill by the French these documents fell into the hands of La Perouse, who commanded the French squadron, and were restored to the Company only on condition of their being published. It was doubtless owing to this circumstance that Hearne's claims to this important discovery were for many years discredited; although the existence of a Northern Ocean was confirmed by Sir Alexander M'Kenzie, who, in 1789, descended the river issuing from Great Slave Lake, which bears his name, it was not until the overland expeditions of Franklin and Richardson in 1820 and 1825, that Hearne's merits as a discoverer were fully recognized. To the expeditions last named we owe the first accurate geographical delineation of this extensive region, from the shores of Hudson's Bay as far as M'Kenzie's River. Of the country west of this stream, and extending as far as Russian America, a careful survey has been more recently executed by Professor A. K. Isbister of London, and published in the journal of the Royal Geographical Society, for 1846. To this gentleman we owe also an elaborate geological map of the entire region, published in 1856 by the Geological Society of London.

The new association, which retained the name of the Hudson's Bay Company, obtained in 1821 a license of exclusive trade for 21 years, renewed in 1842 for a similar period, over the territories west of the Rocky Mountains—the country on the east side being considered sufficiently protected from rival traders, by the establishments of the two Companies already formed there, and such vague rights as might be claimed under the charter of 1670. Grave doubts existing as to the validity of this charter, and numerous complaints having arisen from the arbitrary exercise of the powers claimed under it by the Company, an address to the crown has been recently moved by the House of Commons, for an inquiry (which is now pending) into the legality of the very wide and anomalous powers at present exercised by the Company.

The territory embraced within the present operations of the Hudson's Bay Company may be roughly estimated at nearly 4,000,000 of square miles, or somewhat greater than the entire extent of Europe. This vast area, which is covered by a net-work of about 100 trading-posts, scattered at distances of about 300 or 400 miles apart, is divided into four large departments—1st. The Montreal department, which includes all the establishments situated between the River St. Lawrence and the great lakes of Canada, and along the north shore of the Gulf of St. Lawrence and the coast of Labrador; 2d. The Southern department, which includes the country along the north shores of Lake Superior and the southern shores of Hudson's Bay; 3d. The Northern department, which comprehends all the establishments north of this as far as the shores of the Polar Sea; and 4th. The Columbia department, including the territory watered by the Columbia and other rivers west of the Rocky Mountains. The departments are divided into a number of districts, each under the direction of a superior officer; and these again are subdivided into numerous factories, forts, posts, and outposts.

In a geographical view the Hudson's Bay territories may be divided into four great natural regions—1. The Columbia or Oregon Territory, a county of varied features, extending from the Rocky Mountains to the Pacific; 2. The wooded region, occupying the country from Canada northward along the shores of Hudson's Bay, and extending along the valley of the M'Kenzie and Peace Rivers nearly to the Arctic Ocean; 3. The prairie region, situated between the forementioned divisions, and occupying the valley of Saskatchewan and Red Rivers, and the upper waters of the Missouri and Mississippi; 4. The strip of sterile country along the northern shores of Hudson's Bay and the coast of the Polar Sea, familiarly known as the Barren Grounds. Of these divisions the wooded region is the most extensive and the most valuable for the purposes of the fur trade; all the finer skins which find their way to the London market, being obtained from it. It has, in consequence, been long occupied and thoroughly worked by the trading-posts and agencies of the Company. The Indians inhabiting it are in general a mild, inoffensive race. Long familiarity with the whites, and the habits of trade, have produced a friendly feeling among them toward Europeans; and their desire to supply them with the commodities of trade renders them by far the most valuable and industrious class of the population of the Hudson's Bay territories. The relation of the Company toward them is an extremely simple one: the Indians hunt and trap for the furs which the Company receive, giving in exchange such articles as are suited to the simple wants and tastes of the natives. Trade is carried on by means of a standard valuation, based on the market price of a beaver-skin, and hence denominated a *made beaver*. This is to obviate the necessity of circulating money, which is quite unknown in any part of the Indian country. A beaver-skin is considered, in the Indian trade, equivalent to two, three, or more skins of inferior value. The rates at which the skins can be obtained under the complete monopoly enjoyed by the Company render the fur trade probably one of the most lucrative species of traffic in the world.

It is difficult to form an estimate approaching to accuracy of the population of the Hudson's Bay territories. From 40 to 50 different tribes, speaking distinct dialects, have been enumerated; but the discordant estimates even of the oldest and most experienced residents in the Indian country forbid all idea of arriving at any accurate estimate of their numbers. They probably do not exceed 150,000. Their numbers are, by the most trustworthy accounts, rapidly diminishing. Through the benevolent exertions of the Church Missionary and other Societies, missions and schools have been established in various parts of the country east of the Rocky Mountains. These missions, supported entirely from the funds of benevolent bodies in England and Canada, afford the only means of education hitherto available to the inhabitants of those remote regions.

The climate and soil of the Hudson's Bay territories, except in the extreme northern districts, differ little from those of Canada, and are equally adapted for colonization. On the banks of the Red River, flowing into Lake Winnipeg, a small settlement has been formed, consisting chiefly of retired servants of the Company, with their families. The colony now numbers a population of about 10,000 souls; but from its isolated position, the bulky nature of such exports as could be furnished, and the long and dangerous navigation to Hudson's Bay, there is but little probability of its rising to commercial importance.

The necessity for creating a new penal colony for England has caused attention to be directed to the advantages which some portions of Hudson's Bay possess for such a purpose; and at the same time it is urged that these sections of country would be thereby brought within the circle of civilization, and the resources of the whole region opened out for man's enterprise; while it would be the means of subverting that exclusive monopoly of the Hudson's Bay Company, which has proved so prejudicial to every British interest, and is antagonistic to the spirit of the age in which we live.

At this moment it is unnecessary to pronounce whether such a colony, located in some northern portion of Hudson's Bay, would be prejudicial to the interests of Canada.

It is urged by the Canadians that, under the charter, the Hudson's Bay Company originally only claimed around Hudson's Bay, and did not extend their claims beyond its limits until about 100 years after the date of their charter, which was made in 1670, between that year and 1690. The Company discovered that the charter was illegal and unconstitutional, and petitioned the imperial Legislature for the confirmation of that charter. An act of Parliament was passed, conferring it for a period of seven years, *and no longer*. In 1697 the charter had ceased to exist, and has never again been renewed. Nevertheless, under color of that charter, about the year 1800, they set up a claim to the possession of all that country lying this side of the Rocky Mountains. Let our readers choose the epithet which will most truly characterize the monstrous imposition, which has the audacity now to claim possession of a country which the very words of the charter itself excluded from the operation of the supposed grant—and which only professed to give such "lands, territories, etc., as were not *possessed by the subject of any Christian prince or State*. 34 years prior to the date of this charter, Louis XIII. of France granted a charter to a company called the Company of New France, granting them the exclusive trade over that very country which the Hudson's Bay Company now assume to claim under the illegal and invalid charter of Charles the Second, and the French possessed, enjoyed, and traded throughout that country, which was always recognized as within the dominion of France until 1763, when Canada was ceded to the British crown; and it was not until about 40 years after, that the Hudson's Bay Company had the presumption to set up a claim to that country which had been won by British blood. Canada maintains that the whole country is a portion of Canada, and as such should be thrown open to her people. See *Blackwood*, lxiii., 369; *Monthly Rev.*, lxxxvii., 66; *Dem. Rev.*, xii., 345; *Living Age*, xxiii., 588.

Hudson, a river of the State of New York, though less in its length and in the amount of water which it discharges than many others, is one of the most important in the United States. The Hudson, proper, rises by two branches in the Adirondack mountains. The eastern branch from the north passes through Schroon lake, and is sometimes called Schroon branch; and the western has a circuitous course from the north-west, and is considered as the main branch or Hudson. About 40 miles from the source of each, they unite in Warren county. After a course of 15 miles south, the Hudson receives the Sacandaga, on the line between Montgomery and Saratoga counties. The Sacandaga rises in Hamilton county, and first runs south-east and then north-west and west, to its junction below Jessup's Falls. The Hudson then runs to the east of south, 15 miles to Hadley Falls; it then turns to the north-east 20 miles to Glen's Falls. Its direction is then nearly south to its entrance into New York Bay. 40 miles below Glen's Falls it receives from the west the Mohawk, its greatest tributary. From the junction of the Mohawk to its mouth, is about 170 miles. The length of the Hudson, from its entrance into New York Bay, is a little over 300 miles. So straight is this river between Albany and New York, that the distance is less by water than by land. The tide flows to a little above Albany. It is navigable for the largest ships 118 miles, to Hudson, and for sloops and large steamboats, 145 miles above New York to Albany. Small sloops also proceed to Troy, and through the dam and lock to Waterford, about 8 miles further. Through a considerable part of its course the banks are elevated, and in some parts high, rocky, and precipitous; particularly in its passage through the Highlands, 53 miles above the city of New York. The scenery on the banks of the Hudson is highly picturesque. The city of New York owes much of its prosperity, and its pre-eminent advantages, to this noble river, connected as it is by the Erie Canal with the great lakes, and by the Champlain Canal with the St. Lawrence River. By no other route can an equally favorable water communication be had with the great West. There are many large and flourishing towns on the Hudson. The principal on the east side are Troy, Hudson, and Poughkeepsie; and on the west side Albany, Catskill, and Newburg; besides many others on both sides. Its waters were the theatre of the first *successful* attempt to apply steam to the propelling of vessels by Fulton and Livingston, in 1807–1808. As a navigable medium of commerce this river is unrivaled. During the year 1850 there passed *from the interior* through its channel, or by railroad conveyance along its basin, products of the forest valued at $10,000,000; agriculture, $38,000,000; manufactures, $4,000,000; merchandise $563,000; and various other articles, $2,300,000; showing a grand total of about $54,000,000. The total value of the various kinds of property sent from the seaboard, viâ the Hudson River, in 1850, amounted to $74,000,000, and in 1851, to $80,000,000, while that of the year 1856 is estimated at $150,000,000. See LAKE TRADE.

Hudson River Navigation.—Table showing the opening and closing of the Hudson River in each of the past 15 years:

Years.	Opened.	Closed.	Days open
1842	February 4...	Nov. 28.......	308
1843	April 13...	Dec. 10.......	242
1844	March 18...	" 17.......	278
1845	Febr'ry 24...	" 3.......	283
1846	March 18...	" 14.......	275
1847	April 7...	" 25.......	268
1848	March 22...	" 27.......	292
1849	" 19...	" 26.......	286
1850	" 10...	" 17.......	282
1851	Febr'ry 25...	" 14.......	293
1852	March 28...	" 23.......	270
1853	" 23...	" 21.......	274
1854	" 17...	" 8.......	266
1855	" 27...	" 20.......	268
1856	April 10...	" 17.......	251

Hulk, the name given to an old ship laid up as unfit for further service.

Hull, the body of a ship, exclusive of the masts, rigging, etc.

Hull down, expresses that the hull of the ship is concealed by the convexity of the sea.

Hull, or **Kingston-upon-Hull**, one of the principal commercial towns of England, is situated on the north bank of the Humber, at the mouth of the River Hull, 35 miles south-east of York. It is a municipal and parliamentary borough, and though locally in the East Riding of Yorkshire, is a county in itself. The ancient name of this town was Wyke, or Wyke-upon-Hull. For more than a century previous to 1269 it was a place of considerable mercantile importance, and possessed from the Abbot of Meaux, who was lord of the manor, the privilege of holding a weekly market and a yearly fair. The town of Hull is admirably situated for trade. Vessels of the largest size can come up to the town; while the Hull, Ouse, and Trent, affluents of the Humber, with their tributary streams and canals, afford facilities for trade with a large extent of country. It is also connected by railways with all parts of the kingdom. These advantages have been improved by the activity of the inhabitants, so that Hull ranks as the third port in the kingdom, the value of its exports being inferior only to those from Liverpool and London. The site of the old fortifications is occupied by docks, and thus the old town is surrounded with water from the Hull to the Humber. The old harbor was that part of the River Hull which faced the old town; but, as it was found to be inconvenient for the shipping, an act was passed in 1774 for forming a dock, now called the old dock, which has its entrance at the upper end of the old harbor. It is 1703 feet in length, 254 in breadth, and 24 in depth. Between 1805 and 1809 another dock was erected, called the Humber dock. It communicates with the Humber by a lock, and is 914 feet in length, 342 in breadth, and 31 in depth. The accommodation becoming insufficient for the increasing trade, another dock was constructed between 1826 and 1829, called the Junction dock, from being formed on the land that intervened between the old and the Humber docks, and thus forming a connection between them. It is 914 feet in length, 342 in breadth, and 31 in depth. The locks are 120 feet long, 36 broad, and 25 deep. The two bridges across the locks are of cast iron, and 24 feet wide. The railway dock, near the terminus of the Hull and Selby railway, and the Victoria, to the east of the citadel, are of recent construction. The following table exhibits the area and cost of the different docks:

Docks.	Area.			Cost.
	a.	r.	p.	
Old dock.	10	1	11	£73,830
Humber dock	9	3	24	233,086
Junction dock..............	6	0	5	165,533
Railway dock...............	2	3	9	115,000
Victoria dock...............	20	1	3	470,000
Total...................	49	1	12	£1,056,449

A considerable quantity of shipping is also accommodated within the old harbor, which may be computed at 10 acres of tidal water. A timber pond of 9 acres was constructed in 1853. The quays around the docks are spacious, and are entirely surrounded with warehouses and deal yards. Hull has of late years become a principal steam-packet station. Steamers sail regularly to and from London, Leith, Aberdeen, Newcastle, Yarmouth, Hamburg, Rotterdam, Copenhagen, Antwerp, etc. Hull is the principal entrepôt of the Baltic timber trade on the east coast of Britain. The staple imports are timber, deals, grain, and seeds, sheep's wool, tallow, hemp, flax, hides, iron bars, green fruit, bones, madder, bark, turpentine, cattle, sugar, etc. The chief articles of export are cotton stuffs and twist; woolen goods and woolen yarn; iron and hardware; linens and linen yarn; earthenware; machinery and mill-work; coal, salt, and more recently raw cotton, brought from Liverpool and Manchester. The whale fishery was formerly extensively carried on. In 1819 it employed 64 vessels, but from that period it rapidly declined to 1837, and in that and the seven subsequent years employed only one vessel annually. More recently, however, a reaction has taken place, and from 1846 to 1852, inclusive, from 12 to 14 vessels have annually set out for this fishery. The number and tonnage of vessels registered at the port on 31st December, 1854, were as follows: Sailing vessels—under 50 tons, 238, tonnage, 8822; above 50 tons, 195, tonnage, 42,861. Steam vessels—under 50 tons, 10, tonnage, 324; above 50 tons, 36, tonnage, 9924. The following table gives the ships and tonnage (including both sailing and steam vessels), employed in the colonial and foreign trade, for 1854, and the three preceding years :

	INWARD.				OUTWARD.			
YEARS.	BRITISH.		FOREIGN.		BRITISH.		FOREIGN.	
	Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.
1851	1,185	295,859	1,433	212,709	848	235,781	1,081	173,363
1852	1.087	285,957	1,220	175,755	758	223,260	950	139,193
1853	1,107	285,641	1,753	269,212	776	217,411	1,285	190,591
1854	1,042	256,721	1,747	247,627	705	197,850	1,179	177,009

The number and tonnage of vessels that entered and cleared coastwise during 1854, were : Entered, sailing vessels, 716, tonnage, 52,414 ; steam vessels, 424, tonnage, 76,406 ; cleared, sailing vessels, 1162, tonnage, 117,279 ; steam vessels, 468, tonnage,84,072. In 1852 the amount of dock duties paid was £34,961 ; the amount of customs revenue, £324,819 ; and the value of British manufactured goods exported, £9,915,414. The staple articles of import being subject to low duties, or altogether free, the customs revenue is smaller than that of less important ports. The port charges of Hull have been reduced in the aggregate about £18,000 per annum. The industrial establishments of Hull are chiefly connected with the building and equipment of ships, comprising ship-building yards, rope-walks, and manufactories of canvas, chains, chain cables, and steam machinery. Population in 1851, 84,690.—E. B.

Humber, a large river or rather estuary of England, formed by the junction of the Ouse and Trent, and separating Yorkshire from Lincolnshire. It flows first east for about 18 miles to Hull, and then south-east for 22 miles to its mouth between the Spurn-head on the north, and the opposite coast of Lincoln on the south. Its average breadth is from two to three miles, but near its mouth it widens to six or seven. By means of its numerous tributaries it drains about 10,000 square miles, comprising some of the most fertile and populous districts of England. Vessels of considerable burden can ascend to its head, and those of the largest size to Hull.

Hungary. The kingdom of Hungary consists of Hungary Proper, Sclavonia, Croatia, Hungarian Dalmatia on the sea-coast, Transylvania, and the Military Frontier. It is situated between 46° and 50° N. lat., and between 15° and 25° E. long. It is bounded on the north by Galicia, on the east by the Danubian Principalities, on the south by Servia, Bosnia, and the Adriatic, and on the west by Styria, Lower Austria, Moravia, and Silesia. The north-eastern frontiers are formed by the Carpathians, which jut out in different branches toward the banks of the Danube, and inclose Transylvania in the form of a double crescent. A no less natural boundary is the Danube, separating southern Hungary from the Turkish provinces. The least marked frontier is the western, separating Hungary from Lower Austria : it is in part formed by the small March River. The exact extent of Hungary and its dependencies has not yet been precisely ascertained. According to the Austrian official statistics, published by Czösnig, the superficial area amounts to 125,037 English square miles ; more recent Austrian tables reduce that number, whereas the Hungarian statist, Alexius Fenyes, reckons the superficial area at 130,910 English square miles, of which Transylvania occupies about one sixth, or upward of 20,000 miles. The Hungarian kingdom is thus larger than Great Britain and Ireland by about 10,000, and than Prussia by 20,000 square miles. The physical aspect of Hungary Proper is sharply marked by the contrast between the northern Carpathians, forming large plateaus, and the vast level land intersected by the Danube, Theiss, and Marosh ; while in Transylvania, where the Alpine character predominates, the sudden diminution of the mountains, allows only of undulating table-land, alternating with narrow valleys. The greatest part of Croatia, and part of Sclavonia, likewise consist of mountainous land, formed by the outlines of the Alps, the level land in the latter lying to the north.

Rivers.—Turning to the hydrographic survey of the country, the Danube, the largest European river next to the Volga, first claims notice. Reaching the Hungarian territory at Presburg, where the Carpathians begin to rise on its left bank, the Danube pursues a south-easterly course, dividing into three branches, which receive the waters of the Layta, Raab, and the Waag, embracing, moreover, the two Schütt Islands about Comorn, and then the St. Andrew Island at Waitzen, after which its direction becomes more southerly, and, after leaving Buda and the Osepel Island, it rolls along the Hungarian plain and the Banat, its right banks reaching the Turkish territory at Semlin. There, where its course becomes retarded by the Servian Mountains, it receives the waters of the Save, leaving the kingdom at Orsova, after forcing its impetuous waves through the *Iron Gate.* The breadth of the Danube varies in different parts, being, about Presburg, 900 feet ; at Foldvar, 1800 feet ; between the former and Vanek, 4000 feet ; at Petervardein, 3500 feet ; at Belgrade, 508 feet, and at the Iron Gate between 158 and 80 feet. The depth varies between 20, 40, 60, and 120 feet. The greatest tributary of the Danube, the Theiss (Tibiscum), rises from a double source in the county of Marmaros, near Galicia, reaches the level land at Nagy Szöles, and winds its course through the large plain as far as Titel, where it flows into the bed of the Danube. The chief tributaries of the Theiss, remarkable for richness in fish, are the Hernad, Sajo, Bodrog, Szamos, Körös, and the Marosh, which is the chief river in Transylvania. The Drave, which rises in the Tyrol, flows through Styria into Croatia, and, dividing it from Hungary, falls into the Danube near Essek. The Save, rising in Carinola, winds its course through Croatia, is fed by the Unna and Kulpa, forms part of the frontier toward Bosnia and Servia, and falls into the Danube at Belgrade. The Morosh, which ranks next to the Theiss, falls into the latter at Szegedin, after having received the Aranyos, famous for its gold washings, and the Kokel or Küküllö. The Alt or Aluta rises likewise in the Transylvanian Mountains, entering Wallachia through the Red-Tower Pass. All the Hungarian rivers flow into the Black Sea, with the exception of the Popard, which rises in the Zips from the Kongsberg, and flows into the Vistula.

Lakes.—Among the lakes the largest is the Plattensee or Balaton, situated between the countries of Zala and Schumeg. Its length is about 50 miles, and its breadth between eight and nine miles ; and with the surrounding marshes, it occupies about 500 square miles. Its principal feeder is the Zala, and its only outlet is the March Sio. The Neusiedler-see, in Hungarian Ferto, between the counties of Wieselburg and Oedenburg, fed by the Vulka, is 70 miles long and 10 miles broad ; its shallow waters are impregnated with salt, and exhibit an ebb and flow, as yet unexplained. The Palver-see is, properly speaking, a marsh, resembling many which are formed by the Theiss and Lower Danube. The Star-ret, in Bihar, the Ecseder, in Szathmar, the Feketels, in the Banat, are the largest marshes. The marshes covered with aquatic plants, such as Ecseder, are generally distinguished by the name *lap.* The only canal of importance is that in the county of Bacs, called the Francis Canal, cut from Monoster to Foldvar, and uniting the Danube with the Theiss. It is about 60 miles long, and shortens the passage by about 200 miles. The Bega Canal, near Temesvar, is rather a river than a canal. The Adriatic touches only the south-western extremity of the Hungarian kingdom, the sea-coast being variously called Hungarian Dalmatia or Illyria, the principal ports being Fiume, a flourishing town inhabited chiefly by Italians, Buccari, Port-re-Zengg St. George, Tablonz, and Carlopago. The whole coast is mountainous, and in some parts steep, and exposed to violent south winds.

The climate of Hungary varies greatly. In the counties of Arva, Liptau, Zips, and Marmaros, winter continues for fully six months, whereas in southern Hungary the trees blossom as early as March, and in June the heat becomes burdensome, reaching its culminating point in July. From the partial meteorological observations that have been made, it appears that the highest temperature in Buda is 30°·6 R., and in Klausenburg, in Transylvania, 32°·6; and the mean is, in Bula 15°·19, and in Klausenburg 53°. This, however, is far from giving an idea of the climate in the different parts of the country, and especially in the level land in the south, or the larger plain, where, at mid-day, the heat is at times almost African; and yet in those very parts, as a geographer observes, even quicksilver was frozen in the unusually severe winter of 1816. The heat of the smaller or western plain is much tempered by the Bakonywood. The first half of January marks the minimum, and the second half of July the maximum of the temperature; while April and the first part of October coincide with the mean temperature. Blasts and the falling of hail happen most frequently among the Carpathians.

At the end of the great war in the beginning of the present century, the population of Hungary, Transylvania included, was 12,000,000; and according to the last census, before the late war of 1848, it amounted to about 14,500,000. Of this number, 2,200,000 belong to Transylvania, and 490,267 to Croatia; the population of the military frontier being estimated at more than 1,000,000. With regard to the different races, the proportion is as follows:

Magyars	5,418,773	Rusniaks	459,870
Slovaks	1,722,003	Wallachians	2,686,492
Rascians	1,293,995	Germans	1,273,677
Croats	943,995		

MINOR NATIONALITIES.

Jews	244,000	Greeks	5,000
Wends	40,000	Armenians	3,000
Bulgarians	12,000	Montenegrins	2,000
French	6,000	Clementines	1,600

The number of the Gypsies is variously estimated at 40,000 and 60,000. The different confessions are represented in the following approximate numbers:

Roman Catholics	6,500,000	Calvinists	1,700,000
Greek Catholics	890,000	Lutherans	829,000
Non-United Greeks	1,800,000		

IN TRANSYLVANIA.

Roman Catholics	221,400	Calvinists	358,300
Greek Catholics	605,300	Lutherans	220,400
Non-United Greeks	725,700	Unitarians	44,600

The character of the races is as different as their origin. The Magyars, both nobles and peasants, are marked by their Oriental pride and nobleness; by their love of liberty, hospitable customs, conviviality, and warlike spirit. Clinging with filial love to his superiors, the peasant—a gentleman in language and bearing—is, at the same time, alive to the sense of his own worth. In the field of labor and horsemanship, the Magyars surpass all the rest. The Sclavonians of north-western Hungary are mild, frugal, and industrious. The southern Sclavonian or Raitzen are, in character, very much like the Greeks, being, moreover, merry, warlike, and of a fierce disposition. The Croats partake more of the character of the Raitzen than of that of the north-western Sclavonians; and, as to the Germans, they preserve their usual traits of industry and peaceableness. The most neglected race is, perhaps, the Wallachians. Strongly resembling in physiognomy the Italians, a fact clearly verifying their intermixture with the Romans, they, like the Sclavonians, are bony, and of tall stature, and are considered as one of the least active races. The town population is estimated to form one eighth of the inhabitants, a circumstance sufficiently proving the backward state of the country. The total number of towns in Hungary and Transylvania is 146; of boroughs, 881; and of villages, 16,450. The population in the principal towns and boroughs was, in 1851, as follows:

Pesth	106,379	Kronstadt (Transylvania)	24,461
Buda (united to Pesth by a suspension bridge)	50,127	Mako	22,611
Debreczin	60,006	Temeswar	21,381
Presburg	42,178	Grosswardein	21,221
Szegedin	50,244	Arad	19,564
Vasarhely	33,090	Klausenburg (in Transylvania)	19,346
Kecskemet	32,308	Komorn	19,113
Csaba	23,049		

The fertility of the Hungarian soil, and the variety of its produce are universally known. Beside the different species of corn and maize, raised in great quantities, Hungary produces hemp and flax, various kinds of delicious apples, pears, and plums; two sorts of melons, rich crops of tobacco, and lastly a great variety of wines; while the vast pastures and oak woods afford ample sustenance to herds of horned cattle, sheep, and swine. It is assumed, that with the aid of modern improvements in agriculture, and a little more industry, it could abundantly sustain a population twice as large as it actually possesses. The badness of the roads, the neglected state of the rivers, which, besides being closed to navigation, entail great losses by annual inundations, no less than the feudal institutions, and prohibitive system of Austria, all contribute to keep agriculture in a backward state, so that the vast produce may be said to come from the hand of nature alone. The home of the wheat is the Banat, and the counties of Bacs, Baranya, Simia, Arad, and Borsod. Rye is raised chiefly in the north among the Slovaks; barley, oats, and maize, in different parts. The last occupies an important place in the Hungarian harvest. With some of the Sclavonian population, such as the Croats and Rascians, and the Wallachs, maize bread is a great favorite. Melons are raised in gardens and the open field, occupying sometimes continuous tracts of land of 100 acres. Of the water-melons the most famous are those of Heves, of more than two feet in diameter. The yellow or sugar melons are generally of a much smaller size. Tobacco grows almost everywhere, and greatly varies in flavor; the Csetneker of the county of Gömör, the Verpeleter and Debroer of Heves being the most highly prized. The annual crop is upward of 650,000 cwts. Potatoes form but a secondary article in Hungarian economy.

Wines.—Among the vine-hills and gardens, cultivated since the thirteenth century, and which occupy no inconsiderable part of the Hungarian soil, the most valuable is the Hegy-alja, or southern promontory of the Carpathians, and which comprehends the Tokay mountains situated round the town of that name. The whole promontory occupies above 50 English square miles, of which only one third is under cultivation. The Tokay wine is of a crystalline yellow, and sometimes greenish color, and is known under two names, the *Ausbruch*, the stronger, containing more of the essence, and the *Maslas*. The whole annual produce is 180,000 gallons. Next in rank to the Tokay is the Menes, a red wine of the county of Arad; and inferior to it, though by no means inferior to Burgundy, are the red wines of Erlau, Szeksard, Villany, and Buda. Among the yellow table-wines, particular mention may be made of the Nesmeler, Somloer, Badacsoner, and Ermeleker. The county of Simia is, moreover, particularly famous for its red wines, the most known of which is found on the Fruska Gora mountain. No less famous are some of the Croatian wines, marked by a spirituous flavor, as as well as the wines of Transylvania. The total produce of wine, Transylvania not included, is estimated at 328,748,000 gallons.

The animal kingdom exhibits no less abundance. The Hungarian oxen are the largest breed in Europe. They have a grayish white skin and long straight horns. The largest herds graze on the wide pastures situated between the Theiss and the Danube. The original Hungarian horse, marked by its middle size, broad neck, and compact build, is now only to be found in some parts of Transylvania. The introduction of English full-blood stallions by several of the magnates, has of late years ennobled the breed, and the general improvement has been hastened by the royal studs at Mezö-hegyes and Babolna. Of late years much progress has been made in the breeding of sheep, though the first step dates from the reign of Maria Theresa, when the Merino was, for the first time, imported into Hungary. The oak-woods pasturage large herds of swine, part of which arrive annually from Servia, Bosnia, and the Danubian Principalities, for the purpose of being fattened, and thereafter exported to Austria. Mules, asses, buffaloes, and goats, are only to be found in very small numbers. As the war of 1848 made a great havoc in the animal kingdom, the census of 1850 can not afford a fair representation of the capabilities of the country. We shall therefore give here the statistics of the year 1840, which stood as follows: Horses, 1,000,000; horned cattle, 4,260,000; sheep, 17,000,000; hogs, 4,000,000. In Transylvania, the numbers were these: Horses, 397,388; horned cattle, 800,000; sheep, 2,000,000; hogs, 350,000. To this abundance must be added a great number of domesticated fowl, especially geese and turkeys, and a variety of game, such as ducks, partridges, pheasants, etc. The rivers abound in carp, pike, and sturgeon—the Theiss being reckoned the richest; the peculiar Hungarian fish called *fogas*, is only found in the Balaton Lake, or Platton-see. Some of the waters yield trout, and large quantities of leeches.

The approximate amount of the productive soil, both in Hungary and Transylvania, in the latter of which the forests form more than one half, is, according to the Austrian official tables, 40,200,000 *joch*, or 57,204,600 English acres, of which 10,431,760 belong to Transylvania. The relative division is as follows, in English acres:

	Acres.		Acres.
Soil under tillage.	22,651,438	Pastures.........	5,662,299
Vineyards........	1,659,962	Forests	15,880,680
Meadows.........	5,711,773		

In the above numbers is not included the military frontier, the productive soil of which occupies about 6,000,000 acres; the forests forming one third. The produce in corn is—Hungary, 281,000,000 bushels; Transylvania, 30,000,000; military frontiers, 12,000,000; total, 323,000,000 English bushels. The value of the natural products is estimated at £29,000,000, while the value of the crops in England and Wales is estimated by M'Culloch to be only £83,656,071.

Minerals.—The mountains, which are partly worked by the government and partly by private enterprise, contain metals of almost every kind, viz., gold, silver, iron, copper, lead, antimony, zinc, alum, orpiment, tellurium, and many other minerals, besides coal and salt. In the neglected state in which the gold mines are kept, the produce is only about 2400 marks. The silver mines yield 65,000 marks. Of great importance are the copper mines in the Banat; the richest vein, however, is at Schmölnitz. Those in Transylvania, at Damokos and Deva, yield 1200 cwts. The produce of lead is estimated at 26,000 cwts. The iron mines are found chiefly in the counties of Gömör, Sohl, Ung, and Zips; the average produce of the former being 250,000 cwts. The richest rock-salt mines are in the county of Marmoros, and the total produce amounts to upward of 800,000 cwts., a quantity which, however great, is far from sufficient for the wants of the country. Several places yield also soda, saltpetre, alum, and potash. Pit coals, which, till very lately, and before the introduction of railways, had been entirely neglected, lie deep in formations almost unwrought. The total produce is 1,000,000 cwts. The value of the mineral produce in Hungary is £872,000, that of Transylvania, £169,000; the military frontiers yield almost nothing in this respect. It must be added that Hungary possesses also precious stones and marble of various descriptions.

Manufactures.—The chief articles of manufacture are cloth, linen, and silk stuffs, carpets, leather, iron wares, and chemical products, including alum, saltpetre, and potash manufactures. All these are as yet in an incipient state, especially cloth manufacture, if it be considered that in wool Hungary is the richest country in Europe. Linens are chiefly manufactured in the north. The county of Zips produces about 6,000,000 yards. The largest silk manufacture is at Pesth, giving employment to between 400 and 500 men. Of greater extent are the leather manufactures; but even of this article much is imported. The most productive iron-works are in the county of Gömör, among which are particularly distinguished the manufactories of Pohorela, and Vorosko, belonging to the Prince of Saxe-Cobourg. The whole iron produce of Hungary is estimated at 500,000 cwts. per annum, half of which belongs to Gömör. In several counties there are potteries and glass-works, some of which, as at Debreczin and Papa, produce 20,000 bowls weekly. Soap is chiefly manufactured in Szegedin, Kecskemet, and Debreczin, the last of which produces 7000 cwts. annually. The distilleries are mostly in the north among the Sclavonic population; and the breweries, 300 in number, are situated round the large towns of mixed population, as beer is no favorite drink with the Magyars. Sugar refineries have also of late risen in several parts of the country; but this article also requires importation. The segar manufactories, introduced within a very recent period, had imparted a new impetus to the cultivation of tobacco; but the introduction of the tobacco monopoly at the end of the late war, at once extinguished this branch of industry.

Trade.—The inferiority of the roads, only compensated to some extent by two railway lines, and steam navigation on the Danube and Theiss, but especially the restrictive commercial system of Austria, sufficiently accounts for the insignificance of Hungarian commerce, both foreign and internal. The centre of commerce is the capital, Pesth, situated on the banks of the mighty artery of the kingdom, the Danube. The chief feature of internal trade is the exchange of products between the northern and southern districts; the former sending to the south minerals and timber, and the latter carrying to the north grain and cattle, an intercourse facilitated by the great number of rivers navigable to vessels and boats of small freight. The annual fairs held at Pesth mark the culminating points of commercial activity, the chief marketable article being wool, of which, according to Fenyes, upward of 120,000 cwts. are sold annually. The other towns of commercial importance are—in the south, Becse, exporting to Austria; Fiume, the Hungarian littorale, and Semlin, communicating with the Turkish provinces; in the west, Waitzen and Presburg; in the north, Koshua and Eperies.

The following details, collected by Fenyes, will give a general idea of the extent and progress of the foreign commerce during the five years immediately preceding the late war:

EXPORTS.

	1840. Cwts.	1845. Cwts.
Wheat......................	1,313,626	2,408,118
Rye........................	190,770	942,013
Barley.....................	201,194	364,614
Oats.......................	488,639	782,812
Wool.......................	237,740	214,446
Tobacco	886,478	211,625

The number of exported cattle in 1845 was 106,230, that of hogs, 352,440. The total value of exports that year was estimated at 71,735,683 florins, which, at the rate of 10 florins to a pound, is equal to £7,173,568.

321919 (eds.) EcC
Author Homans, Isaac Smith and Homans, I.S., Jr. H7635c
Title A cyclopedia of commerce and commercial navigation
vol.1.

University of Toronto
Library

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET

Acme Library Card Pocket
LOWE-MARTIN CO. LIMITED

UTL AT DOWNSVIEW
D RANGE BAY SHLF POS ITEM C
39 13 11 19 08 005 7